LAFAYETTE DATA CENTER

Draft Environmental Impact Report

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Governor

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DRAFT ENVIRONMENTAL IMPACT REPORT

Lafayette Data Center

(20-SPPE-02)

Lead Agency

California Energy Commission

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Table of Contents

Section 1

Summary

1 Summary

This environmental impact report (EIR) has been prepared by California Energy Commission (CEC) staff to evaluate the potential environmental effects of the development of the Lafayette Data Center (LDC) and the Lafayette Backup Generating Facility (LBGF), referred to together as the project (project), in compliance with the California Environmental Quality Act (CEQA), the CEQA Guidelines, the Warren-Alquist State Energy Resources Conservation and Development Act, and California Code of Regulations, title 20, chapter 5, article 5 (Small Power Plant Exemptions).

The CEC has the exclusive authority to certify all thermal power plants of 50 megawatts (MW) and greater and related facilities proposed for construction in California. The Small Power Plant Exemption (SPPE) process allows applicants with facilities between 50 and 100 MW to obtain an exemption from CEC's jurisdiction and proceed with local permitting rather than requiring CEC certification. The CEC can grant an exemption if it finds that the proposed facility would not create a substantial adverse impact on the environment or energy resources. Public Resources Code section 25519(c) designates the CEC as the lead agency, in accordance with CEQA, for all facilities seeking an SPPE.

1.1 Project Summary

Digital Realty (applicant) is seeking an SPPE from the CEC's jurisdiction for the project. The applicant proposes to construct and operate the project at 2825 Lafayette Street, Santa Clara, California. The project would consist of an approximately 575,400-square-foot three-story data center building. To provide for the reliable operation of the project in the event of the loss of electrical service from the local electric utility provider, Silicon Valley Power (SVP), the project includes 44 3.0-MW diesel-fired emergency backup generators (gensets) to provide uninterruptible power supply for its servers. One of the gensets would be a 1.0 MW unit dedicated to the power base building (PBB) for administrative purposes. The LBGF would be capable of generating sufficient electricity to serve the data center building that makes up the LDC. The LBGF would only operate for maintenance and testing and during emergency utility power outages. The maximum electrical load of the data center would be 99.8 MW.

The data center building would have two main components: a three-level PBB component and a three-level data center suite component. The PBB will be located on the Lafayette Street side of the building and on the Central Expressway side of the building. The PBB components will include support facilities such as the building lobby, restrooms, conference rooms, landlord office space, customer office space, loading dock and storage.

The data center suite components will consist of three levels of data center space. Level 1 and Level 2 will contain four data center suites and corresponding electrical/UPS rooms. Level 3 will contain three data center suites and corresponding electrical/UPS rooms. A portion of the building along the east side of the site will be reduced to a two-story

building because of its proximity to the north end of the Norman Y. Mineta San José International Airport runway.

1.2 Summary of Environmental Impacts and Mitigation Measures

In accordance with Public Resources Code section 25519(c) and CEQA, the CEC serves as the lead agency to review an SPPE application and perform any required environmental analyses. Upon the granting of an exemption, the local permitting authorities—in this case, the City of Santa Clara and Bay Area Air Quality Management District (BAAQMD)—would perform any follow-up CEQA analysis and impose mitigation, as necessary, for granting approval of the project.

Below is an overview of the analysis included in **Section 4 Environmental Setting, Environmental Impacts and Mitigation**. Impacts categories are:

- No Impact. No adverse physical changes to (or impacts on) the environment are expected.
- Less Than Significant Impact. An impact that would not exceed the defined significance criteria or would be eliminated or reduced to a less than significant level through the implementation of mitigation measures or compliance with existing federal, state, and local laws and regulations.
- Less Than Significant with Mitigation Incorporated. An impact that would be reduced to a less than significant level through the implementation of the identified mitigation measure.
- Significant and Unavoidable Impact. An adverse effect that meets the significance criteria but appears to have no feasible mitigation that would reduce the impact to a less than significant level. In some cases, mitigation may be available to lessen a given impact, but the residual effects of that impact would continue to be significant even after the implementation of the mitigation measure.

Staff concludes that with the implementation of the following mitigation measures, potentially significant impacts identified in this EIR would be avoided or reduced to less than significant levels. Staff concluded that impacts in the areas of Air Quality (including Public Health), Biological Resources, Cultural and Tribal Cultural Resources, Geology and Soils (paleontology), Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Transportation would be potentially significant but, with mitigation measures, would be reduced to less than significant. The areas of Aesthetics, Energy, Land Use, and Utilities and Service Systems would have less than significant impacts from the project. The areas of Agriculture and Forestry Resources, Mineral Resources, and Wildfire would have no impact from the project. The mitigation measures would be enforced by the appropriate responsible agency under CEQA, which includes the City of Santa Clara. The following summarizes the potential impacts and mitigation as required.

Air Quality. *Less Than Significant with Mitigation Incorporated*. The project would not conflict with or obstruct the implementation of the applicable air quality plan. The project would not expose sensitive receptors to substantial pollutant concentrations. The project would not result in other emissions (such as those leading to odors) adversely affecting a substantial number of people. Air quality impacts during project construction would be reduced with implementation of mitigation measure **AQ-1**. This measure requires incorporation of BAAQMD's best management practices to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. During operation of the engines, the oxides of nitrogen (NOx [as an ozone precursor]) emissions of the standby generators would be fully offset through the permitting process with BAAQMD. With implementation of these measures during construction and NOx offsets for operations through BAAQMD's permitting requirements, the project would not cause a cumulatively considerable net increase of any criteria pollutant, and impacts would be reduced to less than significant.

AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement BAAQMD-recommended Best Management Practices (BMPs) during the construction phase. The project owner also 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 require the project owner to do or ensure the following:

- 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. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the Lead Agency and the on-site job superintendent 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 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.
- As a condition of contract, require all on-road heavy-duty trucks to be zero emissions or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, as available. Use grid power for construction activities whenever possible; if grid power is not available, use alternative power such as battery storage, hydrogen fuel cells, or renewable fuels. If no other options are available, use Final Tier 4 diesel generators.
- Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed construction areas. Wind breaks should have at maximum 50 percent air porosity.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- All contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines. All off-road equipment greater than 25 horsepower (hp) shall have engines that meet or exceed Tier 4 final off-road emission standards. The use of zero-emission and hybrid-powered equipment is encouraged.

Biological Resources. *Less Than Significant with Mitigation Incorporated*. Operation of the proposed project would not result in a substantial adverse effect on any species identified as a candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Service (USFWS), with mitigation incorporated. Staff proposes implementation of mitigation measure **BIO-1** to reduce potential impacts to protected raptors and other migratory birds resulting from implementation of the proposed project and no additional mitigation would be required. Therefore, construction of the project would not have a substantial adverse effect on special-status species and impacts would be less than significant.

Staff proposes implementation of mitigation measure **BIO-2**, which would reduce construction impacts on trees covered by General Plan policies to a less than significant level because these measures include requirements for the project applicant to implement Tree Protection Measures included as part of approval of the final design package by the City of Santa Clara Community Development Department. In addition, the applicant would be required to provide adequate replacement trees for impacts related to the proposed removal of 375 trees as part of approval of the final design package by the City of Santa Clara Community Development Department. Standard tree protection measures include but are not limited to the establishment of Tree Protection Zones (TPZs), measures to avoid impacts during boring and trenching near tree roots, measures to avoid impacts during grading near trees, and measures to take prior to cutting any tree limbs or roots. Staff has determined that the applicant proposed adequate replacement for impacts related to tree removal and the city would ensure implementation of **BIO-2** (CEC 2020a).

Implementation of **BIO-2** would ensure construction of the proposed project would not conflict with tree preservation policies and tree replacement policies. Therefore, construction of the project would not have a substantial adverse effect on biological resources protected by local policies or ordinances. The implementation of mitigation measures **BIO-1** through **BIO-2** would ensure all impacts are reduced to less than significant.

BIO-1: The project will incorporate the following measures to reduce impacts to nesting birds:

- If possible, construction activities, including removal of trees and vegetation clearing shall take place between September and January. If construction activities, including tree removal and vegetation clearing, must occur during the nesting season (February 1 through August 31) a preconstruction survey for nesting raptors and other protected native or migratory birds shall be conducted by a qualified ornithologist, approved by the City of Santa Clara, to identify active nests that may be disturbed during project implementation. Between February 1 through August 31 (inclusive) pre-construction surveys shall be conducted no more than 14 days prior to the initiation of construction activities, including tree removal or vegetation clearing. Surveys will be repeated if project activities are suspended or delayed for more than 14 days during the nesting season. The surveying ornithologist shall inspect all trees in and immediately adjacent to the construction area to be disturbed by these activities, and the ornithologist shall, in consultation with the State of California, Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone around the nest. The size of all buffer zones will initially be a 250-foot radius around the nest of non-raptors and a 500-foot radius around the nest for raptors. Any changes to a buffer zone must be approved by the City of Santa Clara in consultation with CDFW. The nests and buffers will be field-checked weekly by the approved ornithologist. The approved buffer zone will be marked in the field with exclusion fencing, within which no construction, tree removal, or vegetation clearing will commence until the ornithologist and the City of Santa Clara, in consultation with CDFW, verify that the nest(s) are no longer active. If an

active bird nest is discovered during construction, then a buffer zone shall be established under the guidelines specified.

- The ornithologist shall submit a copy of the pre-construction nest survey report(s) indicating the results of the survey and any designated buffer zones to the City of Santa Clara's Director of Community Development prior to the start of construction activities or the issuance of permit (s) for tree removal, demolition or grading. The report(s) will contain maps showing the location of all nests, species nesting, status of the nest (e.g., incubation of eggs, feeding of young, near fledging), and the buffer size around each nest (including reasoning behind any alterations to the initial buffer size). The report will be provided within 10 days of completing a pre-construction nest survey.

BIO-2: The project will incorporate the following measures, in accordance with the arborist recommendations, to protect trees from harm that could occur during construction. Any additional measures required by the City of Santa Clara would also be implemented:

- Remove trees #1-25, 30-32, 42-97, 99-273,275-313, 316-328, 330-332, 335-354, 411, 414, 420-433, 440-442, 446-448, 450-453, 456-470, 475, and 476 upon approval from the city of Santa Clara.
- Remove deadwood from remaining Callery pears and Raywood ashes. This will benefit both tree health and worker safety.
- All tree work must be completed by trained tree care personnel under the direction of an International Society of Arboriculture Certified Arborist.
- The Applicant shall alert the Project Arborist when new drawings are available showing grading, utilities, retention area details, or material changes to project features.
- Tree protection fencing shall be installed prior to any demolition equipment entering the site.
    - Fencing shall be installed at or outside the tree protection areas of all trees to be retained.
    - Where existing pavement is within tree protection zones, install tree protection fencing at the edge of pavement. After demolition, relocate tree protection fencing to the edge of the tree protection area.
    - Install tree protection fencing at the edge of the project features.
    - For areas where no construction will occur, tree protection fencing will be installed at the perimeter of the area instead of around each tree individually.
    - Spread wood chips at least four inches thick within tree protection fencing.
- For existing hardscape to be demolished within tree protection zones:
    - Demolish the area nearest the tree first and work outwards.
    - Do not operate machinery on unpaved areas within tree protection zones.

  - Upon completion of demolition, relocate tree protection fencing to at or outside the tree protection area.
- Minimize grading near trees. Do not complete any grading inside tree protection fencing.
- If live roots over one inch in diameter are encountered at any time, in any location, they must be pruned with a sharp saw or bypass pruners, as close to the edge of the excavation as possible. If roots over three inches in diameter are encountered, do not prune, but instead contact the Project Arborist to determine the best course of action.
- Irrigate all trees to be retained on a monthly basis with potable water, in the absence of heavy rain.
  - Irrigate using a soaker hose placed as close to the tree driplines as practical. Irrigate for 2-4 hours at a very low flow. If this causes runoff, reduce the flow rate. If this is impractical for any tree for any reason, contact the Project Arborist.

Cultural and Tribal Cultural Resources. *Less Than Significant with Mitigation Incorporated*. Implementation of mitigation measures **CUL-1** and **CUL-2**, as proposed by the applicant, to survey the exposed ground surface for tribal cultural resources once demolition of existing structures is complete would ensure that project construction would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074. These mitigation measures will also reduce the likelihood of inadvertent discoveries of buried tribal cultural resources that could occur during construction, by requiring cultural resources monitoring by a qualified archaeologist and Native American. These impacts, therefore, are less than significant with the incorporation of mitigation measures.

CUL-1: The project proposes to implement the following measures to ensure the project's impacts to archaeological resources are less than significant:

- A Secretary of the Interior-qualified archaeologist and a Native American cultural resources monitor shall be on site to monitor grading of native soil once all pavement is removed from the project site. The project applicant shall submit the name and qualifications of the selected archaeologist and Native American Monitor to the Director of Planning and Inspection prior to the issuance of a grading permit. Preference in selecting Native American monitors shall be given to Native Americans with:
  - Traditional ties to the area being monitored.
  - Knowledge of local historic and prehistoric Native American village sites.
  - Knowledge and understanding of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.
  - Ability to effectively communicate the requirements of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.

  - Ability to work with law enforcement officials and the Native American Heritage Commission to ensure the return of all associated grave goods taken from a Native American grave during excavation.
  - Ability to travel to project sites within traditional tribal territory.
  - Knowledge and understanding of Title 14, California Code of Regulations, Section 15064.5.
  - Ability to advocate for the preservation in place of Native American cultural features through knowledge and understanding CEQA mitigation provisions.
  - Ability to read a topographical map and be able to locate site and reburial locations for future inclusions in the Native American Heritage Commission's Sacred Lands Inventory.
  - Knowledge and understanding of archaeological practices, including the phases of archaeological investigation.
- After removal of pavement and prior to grading, the archaeologist shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. The archaeologist will monitor full-time all grading and ground disturbing activities in native soils associated with construction of the proposed project. If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, then a letter report detailing the rationale for making such a reduction and summarizing the monitoring results shall be provided to the Director of Planning and Inspection. Department of Recreation 523 forms shall be submitted along with the report for any cultural resources encountered over 50 years old.
- In the event that prehistoric or historic resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Planning and Inspection shall be notified, and a Secretary of the Interior-qualified archaeologist shall examine the find and record the site, including field notes, measurements, and photography for a Department of Parks and Recreation 523 Primary Record form. The archaeologist shall make a recommendation regarding eligibility for the California Register of Historical Resources, data recovery, curation, or other appropriate mitigation. Ground disturbance within the 50-foot radius can resume once these steps are taken and the Director of Planning and Inspection has concurred with the recommendations. Within 30 days of the completion of construction or cultural resources monitoring, whichever comes first, a report of findings documenting any cultural resource finds, recommendations, data recovery efforts, and other pertinent information gleaned during cultural resources monitoring shall then be submitted to the Director of Planning and Inspection. Once finalized, this report shall be submitted to the Northwest Information Center at Sonoma State University.
- Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program training to all existing and any new

employees. This training should include: a discussion of applicable laws and penalties under the laws; samples or visual aids of artifacts that could be encountered in the project vicinity, including what those artifacts may look like partially buried, or wholly buried and freshly exposed; and instructions to halt work in the vicinity of any potential cultural resources discovery, and notify the city-approved archaeologist and Native American cultural resources monitor.

CUL-2: The project proposes to implement the following measure to ensure the project's impacts to human remains are less than significant:

- In the event that human remains are discovered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped. The Santa Clara County Coroner shall be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. All actions taken under this mitigation measure shall comply with Health and Human Safety Code § 7050.5(b).

Geology and Soils (paleontology). *Less Than Significant with Mitigation Incorporated*. Construction would temporarily increase sedimentation and erosion by exposing soils to wind and runoff until construction is complete and new vegetation is established. The city's National Pollutant Discharge Elimination System Municipal Permit, urban runoff policies, and the City Code are the primary means of enforcing erosion control measures through the grading and building permit process. In accordance with General Plan policies, the implementation of the regulatory programs and policies in place would reduce possible impacts of accelerated erosion during construction to a less than significant level. Project operation and maintenance would not result in increased erosion or topsoil loss. The probability that the construction, operation, or maintenance of the proposed project would have an impact on the risk of loss, injury, or death involving the rupture of an earthquake fault during operation is remote. As the project site is relatively flat with no open faces or slopes near the site, potential for landslides is low.

A project-specific geotechnical engineering report, along with the final project design, would be required to address, as needed, any potential issues arising from expansive soils, liquefaction, unstable geologic, or soil units that could result from the construction of this project. With the implementation of applicable design criteria per the California Building Standards Code, as well as the incorporation of the anticipated project-specific mitigation recommendations in the final geotechnical engineering report, seismic hazards would be minimized, to the extent feasible with conformance to the applicable seismic design criteria of the California Building Standards Code. Also, adherence to these standards would ensure that impacts to the project, which is on expansive soil, would be less than significant.

Earthmoving during project construction has the potential to disturb paleontological resources. Staff proposes mitigation measure **GEO-1** to address the potential for

discovery of paleontological resources during excavation in native materials. There is no potential to disturb paleontological resources during operations because there would be no earth-moving activities required for operations. Occasional minor surface disturbance may continue to be required during maintenance activities, but such disturbance would be temporary, small, and most likely limited to disturbance of fill. With implementation of **GEO-1**, impacts to paleontological resources would be reduced to a less than significant level. There are no unique geologic features within the site footprint.

GEO-1: The project proposes to implement the following measures to ensure impacts to paleontological resources are reduced to less than significant.

- Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology, who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and shall follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance.
- If a fossil is found and determined by the qualified paleontologist to be significant and avoidance is not feasible, the paleontologist shall develop and implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in these areas shall be halted or diverted to allow preparation of the plan and recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report that outlines the results of the mitigation program shall be prepared and submitted to the Director of Planning and Inspection. The Director, or Director's Designee, shall be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.

Greenhouse Gas Emissions (GHG). *Less Than Significant with Mitigation Incorporated*. The mitigation elements contained in **GHG-1** and **GHG-2** ensure the total emission profile of the project remains less than significant.

Staff proposes mitigation measure **GHG-1** which ensures the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara's Community Development Department (CDD) may grant temporary relief from the 100 percent renewable diesel requirement if the applicant can demonstrate a good faith effort to comply with the requirement and that compliance is not practical. With this measure, the project's direct GHG emissions from stationary sources would not have a significant direct or indirect

impact on the environment. With **GHG-1**, the operation of the gensets would not hinder California's efforts to achieve the statewide 2045 GHG emissions reduction goal.

With implementation of **GHG-2** and other proposed design measures, the GHG emissions from the project's energy usage, mobile sources, and building operation would occur in a manner consistent with the city's Climate Action Plan (CAP) and the policies reflected in Executive Order B-55-18, California Air Resources Board's (CARB) scoping plan, and later programs to implement SB 350 and SB 100 to achieve the statewide 2030 and other future GHG emissions reduction targets. These categories of GHG emissions would not result in a "cumulatively considerable" contribution under CEQA because they would conform with all applicable plans, policies, and regulations adopted for the purpose of GHG emissions reductions, as discussed further in "b" below. In addition, under the BAAQMD's 2022 CEQA thresholds of significance for land use projects "option B", GHG impacts from indirect and non-stationary emissions sources of the project would be considered to have a less-than-significant impact since the project is consistent with the city's CAP. Therefore, the maximum potential rate of GHG emissions from the project's energy usage, mobile sources, and building operation are determined to have less-than-significant GHG impacts.

The majority of the project's operational GHG emissions would occur from electricity use or during the readiness testing and maintenance of the gensets. The project's likelihood of operating for unplanned circumstances or emergency purposes is low and if such an operation did occur it would be infrequent and of short duration. Staff concludes that 50 hours of emergency backup generator operation per year should be enough to accommodate both readiness testing and maintenance and emergency operation for any given year, even if ultra-low sulfur diesel is used during short emergency operation durations in the event of supply challenges or disruption in obtaining renewable diesel. Staff, therefore, concludes that GHG emissions during emergency operation would be less than significant.

With the implementation of the efficiency measures to be incorporated into the project and mitigation measures **GHG-1** and **GHG-2**, GHG emissions related to the project would be consistent with the applicable plans and policies adopted to reduce GHG emissions and would comply with all regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The potential for the project to conflict with an applicable plan, policy, or regulation for GHG emissions reductions would be less than significant.

GHG-1: The project owner shall use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel (ULSD) as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara Community Development Department (CDD) may grant temporary relief from the 100 percent renewable diesel requirement if the project owner can demonstrate a good faith effort to comply with the requirement and that compliance is not practicable. The project owner shall provide an annual report of the status of procuring and using

renewable diesel to the director, or director's designee, of the City of Santa Clara CDD demonstrating compliance with the mitigation measure.

GHG-2: The project owner shall participate in SVP's Large Customer Renewable Energy (LCRE) Program or other renewable energy programs that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity, or (2) purchase renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity.

During operation, the project owner shall provide documentation to the director, or director's designee, of the city of Santa Clara Electric Utility Department of initial enrollment and shall submit annual reporting to the director, or director's designee, of the city of Santa Clara Electric Utility Department documenting either continued participation in SVP's LCRE Program of documentation that alternative measures continue to provide 100 percent carbon-free electricity as verified by an independent third-party auditor specializing in greenhouse gas emissions.

Hazards and Hazardous Materials. *Less Than Significant with Mitigation Incorporated.* During the construction phase of the project, the only hazardous materials used would be paints, cleaners, solvents, gasoline, motor oil, welding gases, and lubricants. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with local, state, and federal requirements. Any impacts resulting from spills or other accidental releases of these materials would be limited to the site due to the small quantities involved and their infrequent use. The transportation of the diesel fuel to the site would take a few tanker-truck trips for the initial fill and, during operation, one fuel truck delivery would occur every three months. Diesel fuel has a long history of being routinely transported and used as a common motor fuel. The risk to the off-site public or environment through the routine transport, use or disposal of hazardous materials would have a less than significant impact.

Hazardous materials would be stored, handled, and used in accordance with applicable regulations. Personnel would be required to follow instructions on health and safety precautions and procedures to follow in the event of a release of hazardous materials. All equipment and materials storage would be routinely inspected for leaks. Records would be maintained for documenting compliance with the storage and handling of hazardous materials. In addition, there would be engineering controls for the diesel, such as a double-walled tank for the diesel fuel and leak detection gas, that would mitigate the risk of a spill or release. The risk to the off-site public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials would have a less than significant impact.

Ground-disturbing activities associated with the grading and construction of the project would have the potential to encounter the impacted groundwater and/or soil. Staff proposes mitigation measure **HAZ-1** requiring the preparation of a site management plan to establish proper procedures to be taken when contaminated soil is found and how to

dispose of the contaminated soil properly. Staff concludes that with the implementation of **HAZ-1,** impacts to the public or the environment due to contaminated soils would be reduced to a less than significant level.

HAZ-1: The project will implement the following measures to reduce potentially significant soil and or groundwater impacts to construction workers to a less than significant level.

- Prior to the issuance of grading permits, shallow soil samples shall be taken in areas where soil disturbance is anticipated to determine if contaminated soils with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division prior to initiation of work. Once the soil sampling analysis is complete, a report of the findings will be provided to the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division and other applicable city staff for review.
- Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable Environmental Screening Levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements.
- A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include:

  1) a detailed discussion of the site background,

  2) a summary of the analytical results,

  3) a Health and Safety Plan prepared by an industrial hygienist,

  4) protocols for conducting earthwork activities in areas where impacted soil and/or groundwater are present or suspected,

  5) a description of worker training requirements, health and safety measures and soil handing procedures,

  6) protocols to characterize/profile soil suspected of being contaminated so that appropriate mitigation, disposal or reuse alternatives, if necessary, can be implemented,

  7) a notification procedure if previously undiscovered significantly impacted soil or groundwater is encountered during construction,

  8) a notification procedure if previously unidentified hazardous materials, hazardous waste, or underground storage tanks are encountered during construction,

9) on-site soil reuse guidelines,

10) sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility,

11) soil stockpiling protocols; and,

12) protocols to manage groundwater that may be encountered during trenching and/or subsurface excavation activities.

Prior to issuance of grading permits, a copy of the SMP must be approved by the Santa Clara County Environmental Health Department, and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division.

- If contaminated soils are found in concentrations above risk-based thresholds pursuant to the terms of the SMP, remedial actions and/or mitigation measures will be taken to reduce concentrations of contaminants to levels deemed appropriate by the selected regulatory oversight agency for ongoing site uses. Any contaminated soils found in concentrations above thresholds shall be either managed or treated in place, if deemed appropriate by the oversight agency; or removed and disposed of at an appropriate disposal facility according to California Hazardous Waste Regulations and applicable local, state, and federal laws.

Hydrology and Water Quality. *Less Than Significant with Mitigation Incorporated*. The proposed project would disturb about 15 acres of land and would be subject to construction-related stormwater permit requirements of California's National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) administered by the State Water Resources Control Board. With implementation of the Storm Water Pollution Prevention Plan (SWPPP), redevelopment of the site would not cause substantial degradation in the quality, or an increase in the rate or volume, of stormwater runoff from the site during construction. In addition, the Municipal NPDES permit, as well as the Santa Clara Valley Urban Runoff Pollution Prevention Program, requires that redevelopment not result in a substantial net increase in stormwater flow exiting the project site during operation. As a result, runoff from the project site would not be expected to exceed the capacity of the local drainage system or to significantly contribute to the degradation of stormwater runoff quality.

The project is expected to excavate soil at the existing site to a depth of about 13 feet below grade. It is therefore possible to encounter groundwater and thereby dewatering might be necessary. If dewatering is necessary, and the discharge is found to be contaminated, the project owner would likely be required to obtain coverage under the Volatile Organic Compound and Fuel General Permit (San Francisco RWQCB General Order No. R2-2017-0048 NPDES Permit No. CAG912002). Discharge of uncontaminated water from the dewatering operation to waters of the United States within the San Francisco Regional Water Quality Control Board's (RWQCB) jurisdiction is a permitted activity under the Construction General Permit.

The applicant proposed a mitigation measure to reduce potential impacts to water quality. Staff evaluated this mitigation measure in the context of the potential impacts and concludes that the mitigation measure is sufficient. Staff proposes mitigation measure **HYD-1,** which outlines implementation of best management practices (BMPs) included in the SWPPP. With implementation of **HYD-1**, the project would not be expected to violate water quality standards or waste discharge requirements during construction and operation, and impacts would be less than significant.

HYD-1: The LDC will incorporate the following into the design and these measures should be treated as mitigation incorporated into the project. The following will reduce construction-related water quality impacts:

- Burlap bags filled with drain rock shall be installed around storm drains to route sediment and other debris away from the drains.
- Earthmoving or other dust-producing activities shall be suspended during periods of high winds.
- All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary.
- Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered.
- All trucks hauling soil, sand, and other loose materials shall be required to cover all trucks or maintain at least two feet of freeboard.
- All paved access roads, parking areas, and staging areas adjacent to the construction sites shall be swept daily (with water sweepers).
- Vegetation in disturbed areas shall be replanted as quickly as possible.

Noise. *Less Than Significant with Mitigation Incorporated*. The area surrounding the project site consists of existing heavy industrial land uses, including four non-conforming residential units existing from prior decades. The nearest airport is Norman Y. Mineta San Jose International Airport approximately 0.3 miles east of the project site.

Sources of ground borne vibration associated with project operation would include the backup generators and rooftop equipment. These pieces of equipment would be well-balanced as they are designed to produce very low vibration levels throughout the life of a project. In most cases, even when there is an imbalance, they could contribute to ground vibration levels only in the vicinity of the equipment and would be dampened within a short distance. Further, the backup generators would be equipped to ensure sufficient exhaust silencing to reduce vibration. Therefore, vibration impacts due to project operation would be less than significant. The predominant long-term ambient noise sources are nearby and distant traffic, and by cooling and mechanical noise from various facilities.

Impact from project operation in terms of noise pollution would be less than significant. Project operation would not result in generation of a substantial increase in ambient noise levels in excess of the city's standards.

Demolition and construction activities would likely utilize equipment that could generate noise levels that exceed ambient noise, such as bulldozers and jackhammers. Typical equipment used for construction and demolition of similar projects produces noise levels between 82 (for trenching and foundation) and 91 dBA (for demolition) at 50 feet. The project application also indicates that impact pile driving might be used at the site but for short durations to install deep foundation piles. Impact pile installation can generate an equivalent hourly noise level, L_{eq}, of 95 dBA 50 feet away.

Temporary construction activities at the project site may significantly increase the existing ambient noise level; however, with the implementation of the proposed mitigation measure **NOI-1**, noise impacts would be reduced during construction to less than significant.

NOI-1: The project shall implement the following measures to reduce temporary construction noise to less than significant levels.

- Construction is not permitted during the hours of 6 p.m. to 7 a.m. Monday through Friday, between 6 p.m. to 9 a.m. on Saturday, and prohibited on Sundays and holidays.
- Prior to the start of construction, identify a noise control disturbance coordinator. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint received (e.g., starting too early, bad muffler) and shall ensure that reasonable measures warranted to correct the problem are implemented as soon as possible. If the project coordinator and complainant cannot reach consensus on a noise complaint, the project coordinator shall notify the City's Director of Planning or director's designee of the Santa Clara Department of Planning, Building and Code Enforcement.
- Prior to the start of construction, establish a telephone number for the disturbance coordinator, and post it in a conspicuous location on the construction site.
- Prior to the start of construction, notify, in writing, the neighboring uses within 800 feet from the center of the project site of the construction schedule, and provide a written schedule of "noisy" construction activities to the adjacent land uses.
- Include the telephone number for the disturbance coordinator of the construction site in the above notice regarding the construction schedule sent to the community.
- The project owner shall orient construction equipment and locate construction staging areas within the project site away from its neighbors as much as practicable.

  Equip all construction-related internal combustion engine-driven equipment with the best available noise control equipment (including mufflers, intake silencers, ducts,

engine enclosures, and acoustically attenuating shields or shrouds) and use best noise control practices to minimize noise levels from construction activities.

Transportation. *Less Than Significant with Mitigation Incorporated.* Construction activities would occur mostly onsite and not in the public right-of-way, with the exceptions of the addition of a third driveway along Lafayette Street; connection to domestic water, fire water, sanitary sewer, fiber and natural gas connection services at Lafayette Street and Central Expressway; and installation of a new transmission line along Lafayette Street on the western side of the project for routing into the new SVP substation. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections that could result in roadway hazards.

The city of Santa Clara would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Lafayette Street and Central Expressway during construction. As part of the permit, the city of Santa Clara may require the applicant to ensure temporary lane closures and traffic control measures occur according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and the California Joint Utility Traffic Control Manual. This would ensure emergency vehicle travel on these roads and access to adjacent buildings is not disrupted during the construction of the project. Therefore, the impact would be less than significant.

The data center would be operational 24-hours, 7 days a week. Operation trips would be generated by the 30-35 daily employees who would travel to and from the project site, periodic trips by a tanker resupply tankers trucks on an as-needed basis, visits from customers setting up or maintaining equipment, and delivery and trash-hauling trucks at the building throughout the day.

The Valley Transportation Authority, in conjunction with Santa Clara County and the cities in the county, developed the Santa Clara Countywide Vehicle Miles Traveled (VMT) Evaluation Tool. This tool allows local government staff, consultants, and new developments to measure VMT for land use projects within Santa Clara County. Based on this tool, the target VMT for the project is 15 percent below the county average, which results in project-related commute trips needing to be no more than 14.14 daily vehicle miles per worker.

To meet the target VMT for the project, the applicant has proposed an alternative work schedule for employees reflecting a 4-40 workweek (40 hours in 4 days) so that the project VMT would be below the city's threshold. This is a Transportation Demand Management (TDM) measure, which is the commitment to a 4-40 work schedule. CEC staff evaluated the measure in the context of impacts to VMT and concludes that the requirement defined in this TDM measure is sufficient. This TDM measure would reduce the project VMT to 13.34 per employee, causing the project VMT to fall below the city approved threshold of 14.14. The city requires a TDM annual report, which would allow it to obtain confirmation that the 4-day, 40-hour work schedule has been complied with.

CEC staff proposes mitigation measure **TRANS-1**, which would require the implementation of a TDM program that incorporates the 4-40 work schedule TDM measure.

The city of Santa Clara, as the permitting agency, would ensure project consistency with the General Plan policies related to trip reduction, transit connectivity, and alternative modes of transportation (as provided in Section 4.17.1, Local Regulatory Background). Therefore, with implementation of **TRANS-1**, the project would have a less-than-significant impact on VMT.

TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles traveled (VMT) associated with the project would be reduced to 14.14 or less per employee. The TDM program shall include, but is not limited to, the following measure, which has been determined to be a feasible method for achieving the required VMT reduction:

- The operations workforce at the project shall work a 4-40 work schedule (40 hours in 4 days).

Prior to the issuance of an occupancy permit, the TDM program shall be submitted and approved by the Director of Community Development and shall be monitored annually to gauge its effectiveness in meeting the required VMT reduction. The TDM program shall establish an appropriate estimate of initial vehicle trips generated by the occupant of the proposed project and shall include the conducting of driveway traffic counts annually to measure peak-hour entering and exiting vehicle volumes. The volumes shall be compared to trip thresholds established in the TDM program to determine whether the required reduction in vehicle trips is being met. The results of annual vehicle counts shall be reported in writing to the Director of Community Development.

If TDM program monitoring results show that the trip reduction targets are not being met, the TDM program shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM program shall be subject to the same approvals and monitoring requirements listed above.

Summary

The CEC determines whether the project qualifies for an SPPE and if the project is granted the exemption, the project would seek permits from the local responsible agencies.

1.3 Summary of Alternatives to the Project

CEQA requires that an EIR identify alternatives to the project as proposed and evaluate their comparative merits. CEQA Guidelines section 15126.6 states that an EIR must describe a "reasonable range of potentially feasible alternatives," focusing on those that "would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant environmental effects of the project." Based on the requirements of CEQA and the summary of environmental impacts presented above,

this EIR describes and analyzes two alternatives to the proposed project, including the "No Project" alternative, which is required to be analyzed even though it does not meet the project objectives. A summary of the project alternatives follows. A full analysis of project alternatives is provided in **Section 5 Alternatives**, along with a description of other alternatives considered but not carried forward for full analysis.

1.3.1 Alternative 1: No Project Alternative

Staff evaluated a "No Project" scenario in which no development of the project would occur and current conditions would continue at the site for an unknown period. Although a different project would likely be proposed at the site in the future, no development plan exists to allow a comparison with the proposed project, and it would be speculative to assume the characteristics of such an alternative. Alternative 1 would avoid the proposed project's potentially significant impacts identified in this EIR and would have no impact compared to the proposed project; therefore, it would be environmentally superior to the project. If the project is not constructed, the applicant's project objectives would not be attained.

1.3.2 Alternative 2: Natural Gas Internal Combustion Engines

Natural gas internal combustion engines (ICEs) are fueled by natural gas, while the proposed engines for the project would use conventional diesel. The preferred, most feasible method to supply fuel for the natural gas ICEs would be by pipeline through Pacific Gas and Electric's underground natural gas transmission system. The two closest locations for independent natural gas pipeline connections are one adjacent to the project site on Lafayette Street and one approximately 2.6 miles west of the project site on the Lawrence Expressway[1]. The project's primary pipeline would connect to the nearby gas line on Lafayette Street. A secondary pipeline connecting to the gas line at Lawrence Avenue would be installed to provide added reliability under this alternative.

Criteria air pollutants using natural gas ICEs are expected to be much less than those that would occur with the proposed project's conventional diesel-fired engines, albeit with renewable diesel. Public health impacts from toxic air contaminants using natural gas ICEs are likely less than those that would occur under the proposed project. Impacts from GHG are likely similar under this alternative.

Staff considers Alternative 2 to be environmentally superior to the proposed project due to its deep reductions in criteria air pollutants. Redesigning the project with natural gas ICE technology could increase the number of engines on-site depending upon the MW sizing and physical dimensions. As discussed, two gas pipeline connections are available and likely needed to match the fuel supply reliability of the proposed project. Permitting and construction of the new pipelines to these connections would take time to complete.

1 Along Walsh Avenue to Lawrence Expressway.

1.4 Known Areas of Controversy

The CEC issued a Notice of Preparation on August 4, 2021, seeking input from responsible and trustee agencies and the public regarding the scope and content of environmental areas in the EIR. The comment period began August 5, 2021, ending September 6, 2021. Two[2] comment letters were received. Issues of concern reflected in these letters and emails include, but are not limited to, the following:

- Air Quality and Greenhouse Gas Emissions (GHG):
  - Because the project is in an area that has long been disproportionately impacted by air pollution and is identified as a priority community by the State of California as a Senate Bill 535 disadvantaged community, the air district is concerned about the potential for any increase in emissions that could result from the project.
  - Highly recommend the CEC to go beyond regulatory requirements and require the project applicant to adopt the use of cleaner, non-diesel technologies.
  - The GHG impact analysis should include an evaluation of the project's consistency with the most recent draft of the AB 32 Scoping Plan by the California Air Resources Board and with the State's 2030, 2045, and 2050 climate goals.
  - The EIR should estimate and evaluate the potential health risk to existing and future sensitive populations within and near the project area from toxic air contaminants (TAC) and fine particulate matter (PM2.5) as a result of the project's construction and operation.
  - The EIR should include various scenarios of backup power generation operations beyond routine testing and maintenance.
  - The EIR should evaluate all feasible measures, both onsite and offsite, to minimize air quality and GHG impacts.
  - The EIR should evaluate the Project's consistency with the Air District's 2017 Clean Air Plan (2017 CAP).
- Tribal Cultural Resources:
  - Ensure that the CEC complies with Assembly Bill 52 (includes tribal consultation requirements) in its review of the proposed project. Additional comments and concerns include tribal monitoring during construction, terms and definitions in the DEIR, and the confidential document handling process at the local municipal level.

1.5 Issues to Resolve

Staff concluded that all potentially significant impacts can be mitigated to a less than significant level. There are no remaining issues to resolve.

2 Bay Area Air Quality Management District, dated 9/1/2021; Native American Heritage Commission, dated 8/12/2021.

Section 2

Introduction

2 Introduction

2.1 Energy Commission Jurisdiction and the Small Power Plant Exemption Process

The California Energy Commission (CEC) is responsible for reviewing, and ultimately approving or denying, all thermal electric power plants, 50 megawatts (MW) and greater, proposed for construction in California. Chapter 6 of Division 15 of the Public Resources Code establishes the power plant site certification process through which the CEC exercises this role. Within this authority, Public Resources Code Section 25541, permits the CEC to exempt projects between 50 and 100 MW from its jurisdiction, which allows such projects to proceed with local permitting rather than requiring a CEC license. CEC can grant an exemption if it finds that the proposed project would not create a substantial adverse impact on the environment or energy resources. The CEC has adopted the Small Power Plant Exemption (SPPE) process to review applications for the exemption and determine whether the statutory requirements have been met. See **Appendix A** for more information about the project's jurisdictional and generating capacity analysis.

2.2 CEQA Lead Agency

In accordance with Public Resources Code, section 25519(c) and the California Environmental Quality Act (CEQA), CEC serves as the lead agency to review an SPPE application and perform any required environmental analyses. Upon granting of an exemption, the local permitting authorities—in this case the City of Santa Clara and the Bay Area Air Quality Management District—would perform any follow-up CEQA analysis and impose mitigation, as necessary, for granting approval of the project.

2.3 Purpose of the Environmental Impact Report

The environmental analysis of this SPPE application takes the form of an environmental impact report (EIR), which is prepared to conform to the requirements of CEQA, the CEQA Guidelines (California Code of Regulations, Title 14, section 15000 et. seq.), and the CEC's regulations and policies. The EIR is based on information from the applicant's SPPE application and associated submittals, site visits, data requests and responses, and additional staff research, including consultation with other agencies, such as responsible and trustee agencies, and relevant information received during any public meetings.

The purpose of this EIR is to provide agency decision makers and the public with objective information regarding the project's significant effects on the environment and energy resources, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. This information will be used by the CEC Commissioners in considering the applicant's request for an SPPE to exempt the project from CEC's power plant licensing jurisdiction and the responsible agencies for project approval and permitting.

Unlike most development project approval processes, the discretionary decision being considered by the CEC is not approval of the applicant's project, but whether the statutory requirements for exemption from CEC's jurisdiction have been met. While the CEC's environmental analysis assesses the applicant's project to support the CEC's jurisdictional decision and uses the term "project" to reference the data center and backup generators, it is important to remember that the CEC's discretionary decision is limited to determining the appropriate permitting authority and not approval of the project. Upon exempting the project, the CEC would have no permitting authority over the project and would not be responsible for any mitigation or permit conditions imposed by the City of Santa Clara or other local agencies.

2.4 Environmental Process

2.4.1 Notice of Application for Small Power Plant Exemption

The Application for SPPE (Application for Exemption) is filed by the project applicant to initiate the exemption proceeding. As specified in Title 20, section 1936(d), which was in effect when this application was filed, staff provided notice of the Application for Exemption as set forth in Title 20, sections 1713 and 1714. Section 1713(b) required that a summary of the Application for Exemption be sent to public libraries in the communities near the proposed site as well as libraries in Eureka, Fresno, Los Angeles, San Diego and San Francisco, and to any person who requested such mailing. As required by section 1713(c), the summary was published in a newspaper of general circulation in the county of the project site. In this case the advertisements ran in the San Jose Mercury News (in English) on July 31, 2020, and the World Journal (in traditional Chinese) on July 29, 2020.The relevant mailing lists covering the requirements of section 1713(b) are found in **Appendix D**.

In accordance with section 1714, the CEC staff provided notification of the application to stakeholder agencies via an "Agency Request for Participation" letter. This letter provided information on how to participate in CEC's evaluation and decision-making process to agencies with potential interest in the project, most notably the California Department of Fish and Wildlife, the Regional Water Quality Control Board, the local Air Pollution Control District, and various departments of the City of Santa Clara's local government. The mailing list used to engage with stakeholder agencies can be found in **Appendix D**.

Staff conducted further outreach to and consultation with regional tribal governments as described in **Section 4.5 Cultural and Tribal Cultural Resources**.

In addition to the required noticing set forth in sections 1713 and 1714, the CEC staff provided public notice of the Application for Small Power Plant Exemption on June 25, 2020, through a Notice of Receipt (NOR). This notice was mailed to property owners and occupants within 1,000 feet of the project site and 500 feet of project linears (for example, sewer, natural gas, water, and transmission line connections). The NOR directed recipients to the project webpage on the CEC's website and included instructions on how

to sign up for the project list serve to receive electronic notification of events and the availability of documents related to the SPPE proceeding. The relevant mailing lists staff used for this outreach can be found in **Appendix D**.

2.4.2 Notice of Preparation of an Environmental Impact Report

In accordance with the CEQA Guidelines, a Notice of Preparation (NOP) of the EIR was circulated to the public and public agencies for a 30-day period from August 4, 2021, to September 6, 2021 (State Clearinghouse #2022060141). Staff reviewed and considered the comments received during the NOP comment period and addressed them as appropriate in the applicable technical section.

2.4.3 Draft EIR

The Draft EIR will be available for agency and public review during a 45-day public review period prior to certification of the document by the CEC.

The Draft EIR was filed with the State Clearinghouse for review by state agencies.

The process for public notification of the Draft EIR is set forth in section 15087 of the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3) and requires at least one of the following procedures:

(1) Publication at least one time in a newspaper of general circulation in the area affected by the proposed project.

(2) Posting of notice by the lead agency on and off site in the area where the project is to be located.

(3) Direct mailing to the owners and occupants of property contiguous to the parcel or parcels on which the project is located. Owners of such property shall be identified as shown on the latest equalized assessment roll.

To comply with section 15087, staff mailed notification of the Draft EIR to all owners and occupants contiguous to the project site. Additionally, the Draft EIR was posted to the project's CEC docket, and notification was sent to interested persons on the proceeding's subscription list. The subscription list is an automated CEC system by which information about this proceeding is emailed to persons who have subscribed.

2.4.4 Final EIR

Comments raising significant environmental issues received on the Draft EIR will be formally addressed in the Final EIR. The Final EIR will be posted to the project's docket and list serve.

The decision-making body must certify that it has reviewed and considered the information in the Final EIR and that the EIR has been completed in conformity with the requirements of CEQA. The CEC must consider the information in the EIR and respond to each significant effect identified in the EIR. If the CEC finds that the proposed project

would create a substantial adverse impact on the environment or energy resources, the SPPE would be denied.

If the project is determined as qualifying for an exemption, the applicant would seek permits from the responsible agencies, in this case, the City of Santa Clara and Bay Area Air Quality Management District. Any required mitigation measures would be enforced by the appropriate responsible agency.

2.5 Organization of this EIR

This EIR is organized into five sections, as described below:

- Section 1 Summary. This section provides a concise overview of the proposed project and the necessary approvals; the environmental impacts that would result from the proposed project; mitigation measures identified to reduce or eliminate these impacts; project alternatives; nature of comments received on the NOP; and areas of known controversy and issues to be resolved.
- Section 2 Introduction. This section describes the type, purpose, and function of the EIR; the environmental review process; and the organization of the EIR.
- Section 3 Project Description. This section summarizes the proposed project, including the location of the site and project boundaries, characteristics of the proposed project, and objectives sought by the proposed project.
- Section 4 Environmental Setting, Environmental Impacts and Mitigation. This section includes the environmental setting; regulatory background; approach to analysis; project-specific and cumulative impacts; and mitigation measures, when appropriate. Staff evaluates the potential environmental impacts that might reasonably be anticipated to result from construction and operation of the proposed project. Staff's analysis is broken down into the following environmental resource topics derived from CEQA Appendix G:

  - Aesthetics
  - Agricultural and Forestry Resources
  - Air Quality
  - Biological Resources
  - Cultural and Tribal Cultural Resources
  - Energy
  - Geology and Soils
  - Greenhouse Gas Emissions
  - Hazards and Hazardous Materials
  - Hydrology and Water Quality
  - Land Use and Planning
  - Mineral Resources
  - Noise
  - Population and Housing
  - Public Services
  - Recreation
  - Transportation
  - Utilities and Service Systems
  - Wildfire
  - Mandatory Findings of Significance

In addition, the CEC's CEQA analysis documents include an analysis of how the project would potentially impact an Environmental Justice[1] population.

For each subject area, the analysis includes a description of the existing conditions and setting related to the subject area, an analysis of the proposed project's potential environmental impacts, and a discussion of mitigation measures, if necessary, to reduce potentially significant impacts to less than significant levels.

- Section 5 Alternatives. This section includes a discussion of a reasonable range of alternatives to the proposed project, or to the location of the project, which could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and an evaluation of the comparative merits of the alternatives. This section also includes an evaluation of the no project alternative.

Section 3

Project Description

3 Project Description

The applicant, Digital Realty, filed an application with the California Energy Commission (CEC) seeking an exemption from the CEC's jurisdiction (Small Power Plant Exemption or SPPE) for the Lafayette Backup Generating Facility (LBGF) (20-SPPE-02). The LBGF would be part of the Lafayette Data Center (LDC) located in the city of Santa Clara. Together, the LBGF and the LDC comprise the project that is subject to the CEC's review under the California Environmental Quality Act (CEQA).

3.1 Project Title

Lafayette Backup Generating Facility/Data Center (LBGF/LDC)

3.2 Lead Agency Name and Address

California Energy Commission
715 P Street
Sacramento, California 95814-6400

3.3 Lead Agency Contact Person and Phone Number

Eric Veerkamp, Project Manager
Siting, Transmission and Environmental Protection Division
California Energy Commission
(916) 661-8458

3.4 Project Location

The proposed project would be located at 2825 Lafayette Street in Santa Clara, California. **Figure 3-1** shows the regional location and **Figure 3-2** identifies the project location.

3.5 Project Overview

The proposed project site, to be located at 2825 Lafayette Street in Santa Clara, California, would encompass 15.45 acres total. The site currently consists of two legal parcels, the northern parcel at 2825 and 2845 Lafayette Street is 13.04 acres, and the southern parcel at 2805 Lafayette Street is 9.72 acres. A lot line adjustment is proposed that would create the 15.45-acre project site parcel and a 7.31-acre parcel containing an existing data center building that would continue unchanged. Existing structures, not including the existing data center, would be demolished to construct a three-story 575,401 square foot data center building, generator equipment yard, surface parking, and landscaping. The LDC would be supplied electricity by Silicon Valley Power (SVP) through a new distribution substation to be constructed on the project site as part of the LDC. The substation would be owned and operated by SVP.

The LDC would consist of two main components: first, the three-level power base building (PBB) component and a three-level data center suite component. The PBB would be located on the Lafayette Street and the Central Expressway sides of the building (easterly). The PBB components of the project would include support facilities including the building lobby, restrooms, conference rooms, landlord office space, customer office space, and loading dock and storage areas.

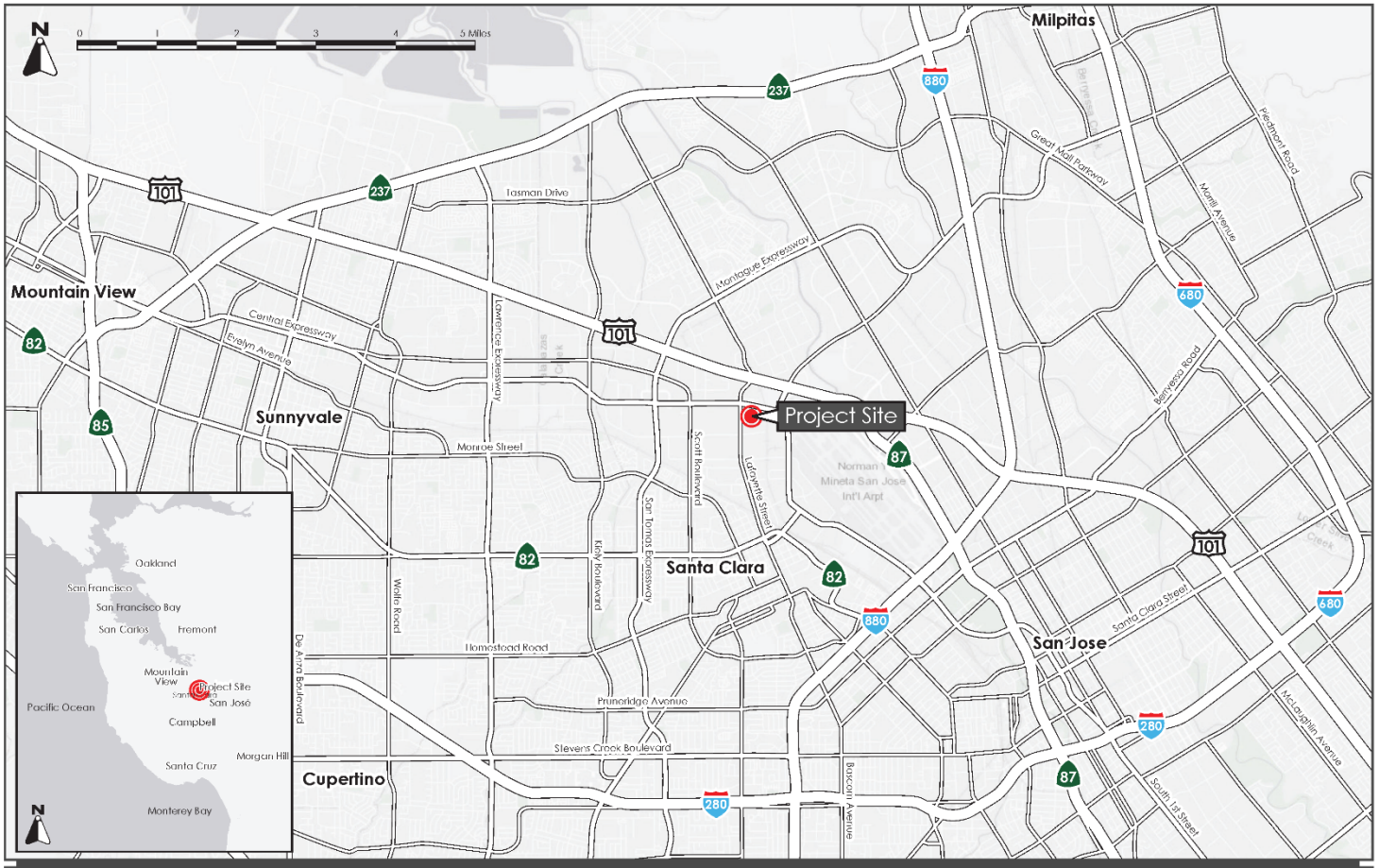
The LBGF would consist of 44 3.0-megawatt (MW) emergency backup generators (gensets), plus one 1.0-MW genset for the PBB, for administrative and life safety purposes, located at the site in a generation yard adjacent to the south side of the LDC building, providing a total of 99 MW (total generation capacity of 99.8 MW). The PBB generator would be solely connected to the administrative portion of the building located on the LDC building to the west side of the generation yard and at the northeast corner of the LDC.

Each genset is a fully independent package system with dedicated fuel tanks located on a skid below the generator. The generation yard would be electrically connected to the LDC building through combination of underground and aboveground cable bus to a location within the building that houses electrical distribution equipment. All the gensets would have a combined diesel fuel storage capacity of 284,600 gallons, with the total on site estimated fuel capacity to be 227,680 gallons necessary for 24 hours of emergency service at full demand.

The proposed three-level LDC building would have approximately 575,400 square feet of space, Level 1 and Level 2 would contain four data center suites and corresponding electrical/UPS rooms, and Level 3 would contain three more data center suites and corresponding electrical/UPS rooms. A portion of the building along the east side would be reduced to a two-story building due to its proximity to the north end of the Norman Y. Mineta San José International Airport runway. An architectural site plan is provided in **Figure 3-3**.

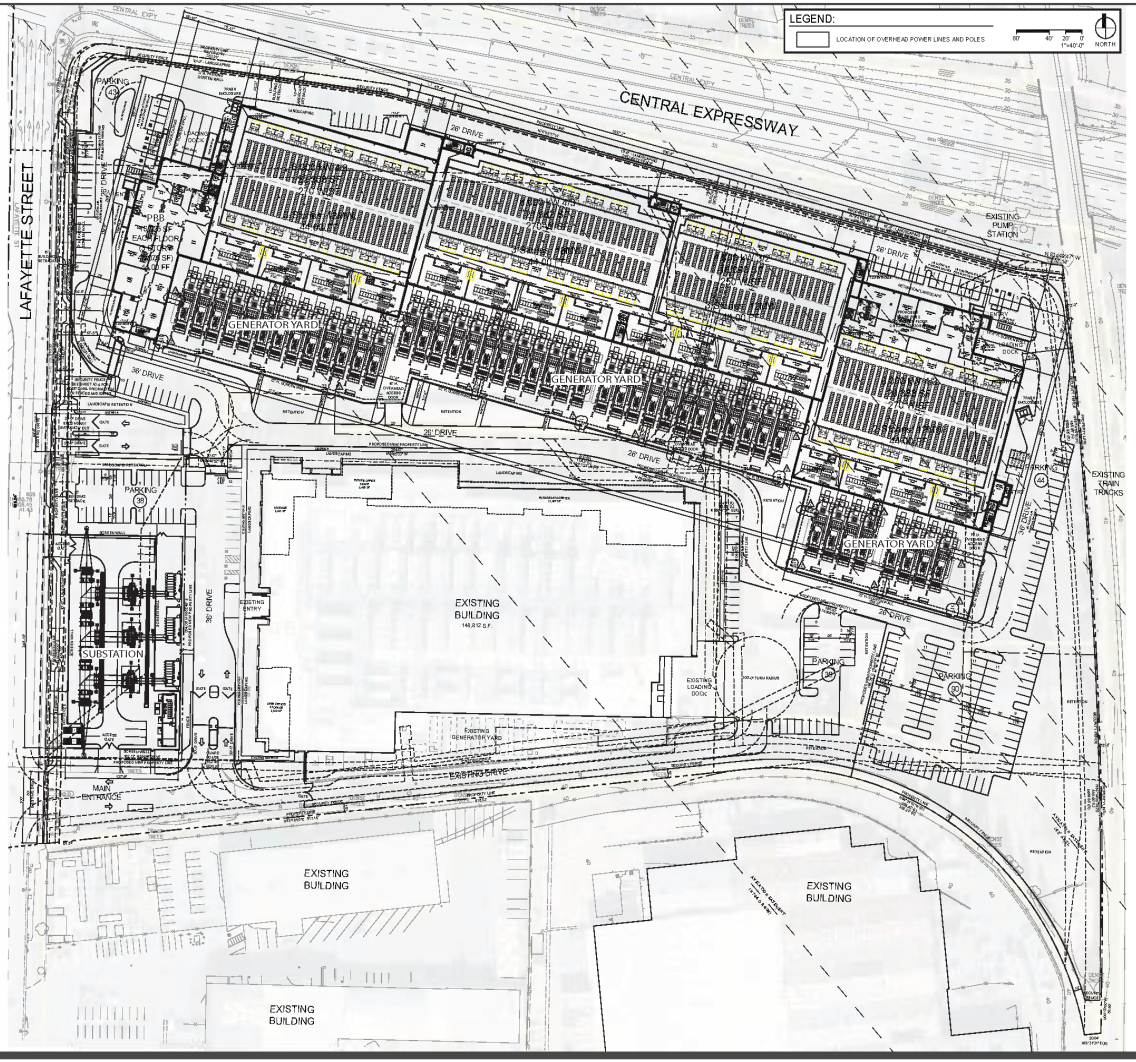
The new three-bay substation would deliver electricity to the LDC from SVP via the new switching station, providing effectively 100 megavolt-ampere total power (via a 2-to-make-3 design) to the site and supporting the need for the LBGF to provide uninterruptible power supply for the LDC servers. The LBGF would only be operated for maintenance, for testing, and during emergency utility power outages.

The data center building would be in the center of the site, set back a minimum of 15-feet on the front (west) and side (north) yards (Lafayette Street and Central Expressway), and a minimum of 50-feet on the rear (east) yard (railroad tracks). The side yard to the south (non-residential) has no setback requirement. The data center building would be approximately 64 ½ feet in height to the top of the parapet (approximate elevation 104 ½ feet above mean sea level (AMSL), while the mechanical equipment screen on the roof of the building would extend to an additional height of 73 feet (approximate elevation of 122 feet AMSL).



REGIONAL MAP | FIGURE 3-1

AERIAL PHOTOGRAPH AND SURROUNDING LAND USES | FIGURE 3-2



STIE PLAN | FIGURE 3-3

This Environmental Impact Report (EIR) analyzes the environmental impacts of the whole project, as described above, because of the CEC's lead agency status for this proposed project.

3.5.1 Electrical Power Delivery

Electrical Supply

Electricity for the project would be supplied via a new SVP-owned substation constructed on the project site. The proposed new substation would be interposed on SVP's South Loop between the 115-kV receiving station and an adjacent 60-kV substation. The South Loop terminal ends are comprised of 115-kV receiving stations (#1 and #2) which are connected to the greater SVP Bulk Electric System (BES). Each 115-kV receiving station steps the voltage down to SVP's service territory transmission voltage of 60 kv. In case of a fault reliability would be maintained along any section of the Loop since electric service is still supplied from the receiving stations from either end.

The new conductor that interconnects the new substation to the BES would be an aluminum conductor composite reinforced type, size 715 double bundle with a carrying capacity of 310 megavolt ampere. SVP's general practice is to use tubular steel transmission poles for the two dead end structures. SVP has estimated that one transmission line would enter the site from the north and one from the south, both routes paralleling the future Lafayette Street lines. Final design of the transmission line is pending; there may be up to two new transmission poles.

Electrical Generation Equipment

Each of the 45 gensets would be a Tier-4 standby diesel fired generator equipped with a Miratch system which includes both selective catalytic reduction system and diesel particulate filters (DPF) to achieve compliance with Tier 4 emission standards. Forty-four of the gensets would be Cummins Model C3000 D6e internal combustion engines, and the PBB genset would be a Cummins Model DQGAF. The DPFs would reduce the diesel particulates to less than or equal to 0.01 grams/brake horsepower. The maximum peak generating capacity of each backup genset for standby applications is 3.0 MW and under normal operations, the maximum load is designed to be 2.25 MW for each. The maximum capacity for the PBB genset is 1.0 MW. Each individual genset is a fully independent package system, each with dedicated fuel tank and urea storage on a skid below the unit and within the generator enclosure. (DayZen 2020a).

To ensure no interruption of electricity service to the servers housed in the LDC building, the servers would be connected to uninterruptable power supply (UPS) systems that store energy and provide near-instantaneous protection from input power interruptions. However, to provide electricity during a prolonged electricity interruption, the UPS systems would require a flexible and reliable backup power generation source to continue supplying steady power to the servers and other equipment. The LBGF provides that backup power generation source with the gensets. The LBGF would only be interconnected to the LDC and would not be interconnected to the transmission or

distribution grid; therefore, the LBGF would be unable to supply electrical power or respond to power demands off the project site.

Fuel System. The gensets would primarily use renewable diesel, with ultra-low sulfur diesel fuel (<15 parts per million sulfur by weight) used secondarily if renewable diesel is unavailable. The total diesel fuel available across 44 operational backup gensets would be approximately 228,000 gallons, enough to provide 24 hours of operation at full demand.

Cooling System. The LBGF would be air cooled independently as part of its integrated package and therefore there is no common cooling system for the LBGF.

3.5.2 Water Use

Project application materials indicate that, "The LBGF will not require any consumption of water." (DayZen 2023a), primarily due to the dry cooling process. However, CEC staff estimates, based on similar projects, that the LDC/LBGF could be expected to use approximately 1.25 to 1.75-acre feet of water for each of the two phases of construction. In addition, the LDC/LBGF could be expected to use approximately 1.0 acre-feet per year (AFY) for personal hygienic purposes and landscape, 0.08 AFY of which would be recycled water used for landscaping.

For potable water, the project site is within the jurisdiction and service territory of the city of Santa Clara Department of Water and Sewer Utilities. Water is provided via the San Francisco Public Utilities Commission, the Santa Clara Valley Water District, and 26 groundwater wells operated by the city's Water and Sewer Utility. For recycled water, the project would be served by South Bay Water Recycling program (SBWRP), with the project in position to utilize the nearest recycled water lines in Lafayette Street and in the western section of Walsh Avenue prior to the intersection at Lafayette.

3.5.3 Proposed Utility Connections

The project would not require new connections to utilities and service systems. Rather, because of the previous industrial tenant at the site, the project would utilize the pre-existing connections to the city's storm water, electric, telecommunications, and waste systems where possible. The following sections highlight the current conditions of those connections and where the proposed project would make minor adjustments to them.

Electrical

The project proposes to construct a new substation to SVP specifications to provide 60 kV service to the site. The substation would be placed in the middle of a looped system with the ability to maintain electric service in case of a fault along any section of the loop. If a fault were to occur along any section of the loop, electric service would still be supplied from the receiving station at the other end of the 60 kV loop, maintaining reliability. (DayZen 2020a).

Storm Drainage

The city of Santa Clara owns and maintains the municipal storm drainage system that currently serves the developed site and would continue to serve the proposed project. Existing stormwater runoff exits the site into a 15-inch and then 18-inch storm drain line along Lafayette Street. The on-site drainage system is comprised of overland flows, a trench drain, and a pipe network with a diameter of 12-inches to convey the anticipated peak flows that eventually empty into the Guadalupe River and ultimately into the San Francisco Bay. (DayZen 2020a).

Domestic (Potable) Water

Water services to the site are provided by the city of Santa Clara Department of Water and Sewer Utilities. Approximately 70 percent of the city's potable water is provided by an extensive underground aquifer (accessed by the city's wells). The remaining roughly 30 percent is provided by two wholesale water importers: the Santa Clara Valley Water District (imported from the Sacramento-San Joaquin Delta) and the San Francisco Hetch Hetchy Regional Water System (imported from the Sierra Nevada). The water system consists of more than 335 miles of water mains, 27 active water wells, and seven storage tanks with 28.8 million gallons of water storage capacity.

Recycled Water

Tertiary treated (or "recycled") water comprises approximately 16 percent of the overall water supplied by the city. Recycled water is supplied from SBWRP, which provides advanced tertiary treated water from the San Jose-Santa Clara Regional Wastewater Facility (RWF), formerly known as the San Jose/Santa Clara Water Pollution Control Plant. The city's recycled water program delivers recycled water throughout the city in addition to existing potable water supplies. Recycled water is used for landscaping, parks, public services, and businesses. The proposed project plans to utilize recycled water for landscaping needs.

Fire Water

Planned construction of the project would utilize existing city infrastructure systems located along Lafayette Street and Central Expressway, including fire water service. (DayZen 2020a).

Wastewater (Sanitary Sewer)

Wastewater from the city of Santa Clara is treated at the RWF. Until recently, wastewater from the pre-existing buildings on-site discharged to either a 15-inch sanitary sewer line flowing to a 30-inch line in Lafayette Street, and eventually to the RWF. Sanitary sewer lines that serve the project site are and would continue to be maintained by the city of Santa Clara Water and Sewer Utilities.

The RWF is owned jointly by the two cities and operated by the city of San Jose's Department of Environmental Services. The facility is one of the largest advanced wastewater treatment facilities in California and serves over 1,400,000 people in Santa

Clara and the surrounding region. The RWF provides primary, secondary, and tertiary treatment of wastewater and has the capacity to treat 167 million gallons of wastewater a day. Approximately 10 percent of the RWF's effluent is recycled for non-potable uses and the remainder flows into San Francisco Bay. The National Pollutant Discharge Elimination System (NPDES) permit for RWF includes wastewater discharge requirements.

3.5.4 Landscaping

Along with demolishing the existing structure and ancillary improvements, the project would remove existing trees (approximately 375) and other vegetation (primarily within the parking lot) associated with the existing commercial enterprise. Trees would be replaced according to the city of Santa Clara landscape ordinance standards (a 2:1 replacement with 24-inch box trees, or a 1:1 replacement with 36-inch trees). Other new landscaping, including shrubs and groundcover, would be planted throughout the site, including along the LDC building's perimeter and property boundaries. All landscaping would meet city of Santa Clara requirements for low water use (DayZen 2023a).

3.5.5 Storm Water Management

The San Francisco Bay Regional Water Quality Control Board (RWQCB) has issued a Municipal Regional Stormwater NPDES Permit (MRP) to regulate storm water discharges from municipalities and local agencies. Under Provision C.3 of the MRP, new and redevelopment projects that create or replace 10,000 square feet or more of impervious surface area are required to implement site design, source control, and Low-Impact Development (LID)-based storm water treatment controls to treat post-construction storm water runoff.

According to Appendix E-2, HMP Applicability Map, of the "C.3 Stormwater Handbook" published by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), the project site is in a "red area," defined as greater than or equal to 65 percent impervious. According to the MRP, hydromodification controls (HMC) are not required for projects located in red areas of the HMP Applicability Map. Therefore, the project would not incorporate HMC, but would incorporate best management practices to reduce stormwater runoff water quality impacts to less than significant.

The measures to be implemented for the project would include, but are not limited to, the following:

- Low-Impact Development-based controls:
    - Bioretention areas in on-site landscaping to help detain stormwater runoff and infiltrate water into the soil.
    - Directing runoff to vegetated swales.

3.5.6 Waste Management (Solid Waste)

The project would not create any waste material other than minor amounts of solid waste created during construction and maintenance activities. Solid waste and recycling

collection in the city of Santa Clara is provided by Mission Trail Waste System through a contract with the city. The city has an arrangement with the owners of Newby Island Sanitary Landfill (NISL), located in San Jose to provide disposal capacity for the city of Santa Clara through 2024. Recycling services are provided through Stevens Creek Disposal and Recycling (Dayzen 2020a).

3.5.7 Hazardous Materials Management

The project applicant would prepare a Spill Prevention, Control, and Countermeasure Plan (SPCC) to address the storage, use, and delivery of diesel fuel for the gensets. Each genset and its integrated fuel tanks would be designed with double walls. The interstitial space between the walls of each tank would be continuously monitored electronically for the existence of liquids. This monitoring system would be electronically linked to an alarm system in the engineering office that alerts personnel if a leak is detected. Additionally, the gensets would be housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel would be delivered on an as-needed basis in a compartmentalized tanker truck with a maximum capacity of 8,500 gallons. The tanker truck would park on the access road to the south of the generator yard and extend the fuel fill hose through one of multiple hinged openings in the precast screen wall surrounding the generator equipment yard. There would be no loading/unloading racks or containment for re-fueling events; however, a spill catch basin would be located at each fill port for the gensets. To prevent a release from entering the storm drain system, drains would be blocked off by the truck driver and/or facility staff during fueling events. Rubber pads or similar devices would be kept in the generation yard to allow for the quick blockage of the storm sewer drains during fueling events. To further minimize the potential for diesel fuel to come into contact with stormwater, to the extent feasible, fueling operations would be scheduled at times when storm events are improbable. Warning signs and/or wheel chocks would be used in the loading and/or unloading areas to prevent vehicles from departing before the complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off would be used if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures would be posted at the loading and unloading areas. Urea or diesel exhaust fluid (DEF) would be used as part of the diesel engine combustion process to meet the emissions requirements. Proper management and storage of urea tanks includes secondary containment for each genset, and filling the tank would be performed by the DEF supplier and follow best management practices similar to the use of diesel fuel refilling.

3.6 Project Construction

Project construction is expected to last approximately 24 months to the initial occupancy of the building. Interior room buildout is estimated to continue for an additional 60 months as suites are completed and leased. Site preparation activities for the LDC would include the ground preparation and grading of the entire LDC site; therefore, the only construction activities for the LBGF would involve constructing the generation yard.

Construction of the generator yard is anticipated to take roughly six months during overall construction. Activities associated with the generator yard include construction of concrete slabs, fencing, installation of underground and above-ground conduit and electrical cabling to interconnect to the LDC building switchgear, construction of the racking system to support the second level of generators, and placement and securing the generators. Generators would be assembled offsite and delivered to site by truck. Each generator would be placed within the generation yard by a crane.

After provision of the requisite time necessary to complete the CEQA environmental review and local permitting, CEC staff estimates that construction is likely to begin during the third or fourth quarter of 2023.

3.7 Workforce

The construction workforce is estimated to employ an average of 90 workers at any given time and reach a peak workforce of 175 workers in month 10 (DayZen 2020b).

Operations personnel for the project is estimated to be 30-35 persons per typical workday (DayZen 2020a). Operations personnel typically includes security guards, a janitor, tenants, and possibly visitors.

3.8 Site Access

The existing project site has two driveways on Lafayette Street, one that serves the existing 2805 building and one that serves the existing 2825 and 2845 Lafayette Street. No changes are proposed to the location of the existing driveways. An additional new driveway would be constructed on Lafayette Street between the two existing driveways to provide access to the site.

The project would provide a total of 253 off-street parking spaces on the site. Of these spaces, 11 spaces for electric vehicles would be provided on site and 15 spaces would be for clean air vehicles.

3.9 Existing Site Condition

The project site is in a developed industrial park with a heavy industrial zoning. The area is surrounded by mixed industrial and office/commercial uses on the north, east, and west. These uses are characterized by data centers, manufacturing, and auto-related services typically up to four stories high.

The approximately 15-acre project site on Lafayette Street is within a developed office/industrial park and contains a two-story office building planned for demolition. Roughly 4,000 cubic yards of soil and undocumented fill would be removed from the site to be replaced by 34,000 cubic yards of imported fill. The building is surrounded by a parking lot, interspersed with landscaping and sidewalks. See **Figure 3-1**, **Figure 3-2**, and **Figure 3-3** for regional, vicinity, and aerial site location maps.

As stated above, existing municipal storm drainage system, existing wastewater lines, domestic water, and recycled water currently serve the project site and would continue to do so.

3.10 Project Objectives

The applicant's primary goal is to provide the most reliable and flexible backup generating system to support the LDC clients. Digital Realty's mission is to provide data centers that provide the highest quality uninterruptible power supply.

In addition to its primary goal, the applicant has set forth the following criteria to evaluate the success of the project:

Commercial Availability and Feasibility The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility.

Reliability. The technology must evidence reliability in the case of an emergency.

Industry Standard. The selected technology must be considered industry standard or best practice. The customers of Digital Realty are informed consumers and would request Digital Realty to provide a detailed description of the type of backup generation that Digital Realty provides as pert of the customer's due diligence. If the technology does not meet the customer's requirements they would not put their servers in the LDC.

Techincal Feasibility. The selected backup electric generation technology must utilize systems that are compatible with one another. (Dayzen 2020b)

3.11 Facility Operation

3.11.1 Electricity Usage and Building Load

Data centers are an energy-intensive land use, requiring more electricity than other types of development. The proposed project houses computer servers, which require electricity and cooling 24 hours a day to operate. Other electricity using components of the project in addition to the LDC servers and cooling are general lighting, the UPS, data center monitoring equipment, and miscellaneous power loads. The worst-case daily maximum load scenario is 99.8 MW, considering both the data center suites and the PBB, but this is unlikely to ever occur. Digital Realty's experience is that data center demand loads between 50 and 60 percent are more typical since customers do not utilize the entire load identified in their lease.

Annual greenhouse gas (GHG) emissions associated with electricity usage are the product of the maximum estimated annual electricity usage and the utility-specific carbon intensity factor, which depends on the utility's portfolio of power generation sources, and in other words, which generation technology the energy comes from. Electricity would be provided to the project by SVP.

The projected maximum demand for the LDC is 99 MW. On an annual basis, the LDC would consume up to the maximum electrical usage of 867,240 MWh per year. The LDC's

annual GHG emissions related to electricity use would be about 13 percent less per year by using SVP's power mix than if the California statewide average power mix was used (DayZen 2020c).

3.11.2 Backup System Design

There would be 11 data center suites in the LDC, and each data center suite would be designed to handle 6.0 MW of IT equipment load. The total maximum load of each data center suite would be 9.0 MW, which includes the IT equipment load, mechanical equipment to cool the IT equipment load, lighting, and data center monitoring equipment. The sum of the 11 data center suite would result in 66 MW of IT equipment load and 99 MW of total electrical load.

The load in each data center suite would be served by four "capacity groups" with each electrical capacity group sized at 3.0 MW (3,000 kW) of total power. An electrical capacity group consists of one 3,000 kW generator, one 3,000 kW 12kV-480V medium voltage transformer, one 4,000 ampere 480 volt service switchboard and a 2,000 kW uninterruptible power supply (UPS) system.

The IT equipment would have dual cords that would take power from two different capacity groups. The dual cords are designed to evenly draw power from both cords when power is available on both cords, and automatically draw all its power from a single cord when power becomes unavailable on the other cord.

The data center suite would be designed to continue supporting all the IT equipment load in the suite when one of the four capacity groups is either scheduled to be out-of-service for maintenance or becomes un-available due to equipment failure. Therefore, the 12.0 MW of total power installed for each data center suite effectively provides only 9.0 MW of total power.

The dual corded IT equipment load gets power from two different capacity groups. Six different cord configurations are used to evenly balance the loads between these pairs of capacity groups: A-B, AC, A-D, B-C, B-D and C-D. As an example of the electrical system design, when electrical capacity group A becomes unavailable, the IT equipment connected to the A and B electrical capacity group will automatically shift its entire load to the B electrical capacity group. IT equipment connected between the A-C and A-D electrical capacity groups also performs a similar power transfer in the event of an A capacity group failure.

As part of the electrical design, the IT equipment load that started on electrical capacity group A is evenly transferred to the B capacity group (750 kW), C capacity group (750 kW) and D capacity group (750 kW). To allow for this power transfer, each electrical capacity group can only be loaded to 75 percent (2,250 kW of the 3,000-kW electrical capacity group capacity).

The electrical load on each electrical capacity group is monitored by the building automation system. When any of the electrical capacity groups reach 67.5 percent loaded (based on 90 percent of the 75 percent maximum loading under normal operation), an alarm is activated in the engineering office. The operations staff would work with the tenants to ensure that the leased power levels are not exceeded.

The consequence of electrical capacity groups exceeding 75 percent loaded could lead to dropping IT equipment when coupled with a capacity group failure event. If all the capacity groups serving a data center suite (four capacity groups) are loaded over 75 percent and an electrical capacity group fails, the resulting load transferring to the three available capacity group would exceed the rating of the capacity groups and would lead to over-current protection devices tripping open due to the overload condition. Therefore, it is vital to the reliability of the data center to make sure that all capacity groups remain below 75 percent loaded (DayZen 2020a).

3.11.3 Energy and Water Efficiency Measures

Due to the heat generated by the data center equipment, cooling is one of the main uses of electricity in data center operations. To reduce GHG emissions and reduce the use of energy related to building operations, the LDC proposes to implement the following energy (and water) efficiency measures:

- LEED Silver certification
- Dedicated roof space for future solar
- Daylight penetration to offices
- Reflective roof surface
- Meet or exceed Title 24 requirements
- Electric vehicle (EV) parking
- Low flow plumbing fixtures
- Landscaping would meet City of Santa Clara requirements for low water use

The data center industry utilizes a factor called the Power Utilization Efficiency Factor (PUE) to estimate the efficiency of its data centers. It is defined as the ratio of total facility energy draw, including the facility's mechanical and electrical loads to IT server electrical power draw (PUE = total facility source energy [including the Critical IT source energy] critical IT source energy). The PUE is calculated by dividing the total demand of the data center by the Critical IT load. The theoretical peak PUE for the Worst Day Calculation would be 1.50 (Total 99.0 MW demand of Building on Worst Case Day divided by 66.0 MW Total Critical IT Load). The annual PUE would be 1.42 (Total 93.8 MW demand of Building average conditions divided by 66.0 MW Design Critical IT Load). These PUE estimates are based on design assumptions and represent worst case (DayZen 2020a).

As described above, the expected PUE is much lower because the client leases are rarely fully utilized. The actual PUE will be closer to 1.30. While the PUE is always greater than

1, the closer it is to 1, the greater the portion of the power drawn by the facility that goes to the critical IT server equipment. The PUE has been used as a guideline for assessing and comparing energy and power efficiencies associated with data centers since 2007. According to the Uptime Institute 2019 Annual Data Center Survey Results, the current industry average PUE is 1.67. (DayZenLLC 2021e)

3.12 Required Approvals and Permits

If the CEC grants a small power plant exemption for the project, the city of Santa Clara's Project Clearance Committee (PCC) would then be responsible for completing its review of a Master Plan submitted by Digital Realty on November 19, 2019, and final approval or denial of the project. In addition, the project would seek approval from the Zoning Administrator for a minor modification for the exceedance of the maximum building height. The Bay Area Air Quality Management District would need to grant approval for an Authority to Construct permit and a Permit to Operate.

3.13 References

DayZen 2020a – Digital Realty Responses to Data Request Set 1- LBGF (Part 1): Lafayette Data Center (TN234295). August 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=234295&DocumentContentId=67140

DayZen 2020b – Application for Small Power Plant Exemption, Part 2, Section 5 App A-C: Lafayette Data Center (TN233041-2). May 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=233041-2&DocumentContentId=65520

DayZen 2020c – Application for Small Power Plant Exemption, Part 1: Lafayette Data Center (TN233041-1). May 2020. Accessed on: June 5, 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=233041-1&DocumentContentId=65519

DayZenLLC 2021e – DayZenLLC (DayZenLLC). (TN 237423). VDC CA3BGF SPPE Application Part II, dated April 12, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-SPPE-01

DayZen 2023a – Digital Realty Revised Project Description to Conform to Data Responses and PCC-LBGF-Part 1 (TN248684). February 2023. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=248684&DocumentContentId=83197

Section 4

Environmental Setting and Environmental Impacts

4 Environmental Setting, Environmental Impacts and Mitigation

Under the California Environmental Quality Act (CEQA), the environmental setting of a project is generally the physical environmental conditions in the vicinity of the project as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced (CEQA Guidelines, § 15125(a)(1)). The environmental setting described in an EIR by the lead agency will normally constitute the baseline physical conditions by which the lead agency determines whether an impact is significant (CEQA Guidelines, § 15125(a)).

4.1 Aesthetics

This section describes the environmental and regulatory setting and discusses impacts specific to aesthetics associated with the construction and operation of the project in the existing landscape.[1]

AESTHETICS Except as provided in Public Resources Code Section 21099[2], would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.1.1 Environmental Setting

The proposed project is to be built on relatively flat land in a highly developed urban area within the City of Santa Clara, California. Norman Y. Mineta San Jose International Airport (Airport) is approximately 1,000 feet to the east. U.S. Highway 101 is 2,300 feet to the north.

1 Landscape is defined as, "The outdoor environment, natural or built, which can be directly perceived by a person visiting and using that environment. A scene is the subset of a landscape which is viewed from one location (vantage point) looking in one direction." (Hull and Revell 1989) "The term landscape clearly focuses upon the visual properties or characteristics of the environment, these include natural and man-made elements and physical and biological resources which could be identified visually; thus non-visual biological functions, cultural/historical values, wildlife and endangered species, wilderness value, opportunities for recreation activities and a large array of tastes, smells and feelings are not included." (Daniel and Vining 1983; Amir and Gidalizon 1990)

2 Public Resources Code section 21099 asks is the proposed project an "employment center project" on an "infill site" within a "transit priority area" as defined in this section. Public Resources Code section 21099(d)(1) states, "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment."

Industrial uses are the predominant land use between U.S. 101 and the Caltrain[3] corridor, as well as adjacent to the Airport off De La Cruz Boulevard. Uses include manufacturing, construction-related industries, warehousing and distribution, data centers, and repair services.

The 15-acre project site is currently developed with two two-story office buildings (approximately 326,000 square feet) and associated paved parking and loading dock areas. The buildings are to be demolished.

The project includes a three-story 575,401 square foot data center building and supporting facilities, 45 emergency diesel-fired generators, a 99-megavolt substation, paved parking, and landscaping. Refer to the **Section 3 Project Description** for details about the project.

Regulatory Background

Federal

No federal regulations related to aesthetics apply to the project.

State

California Scenic Highway Program. The California Scenic Highway Program was established by the Legislature as Article 2.5 (commencing with section 260) of the Streets and Highways Code. Its purpose is to protect and enhance the natural scenic beauty of California highways and adjacent corridors, through special conservation treatment.

Section 263 of the Streets and Highways Code, the "State Scenic Highway System List" provides a list of highways that have been either officially designated or are eligible for designation as a State scenic highway. Review of the list shows the project site is not along a designated state scenic highway.

Local

City of Santa Clara General Plan. The City of Santa Clara 2010–2035 General Plan (Santa Clara General Plan) adopted November 16, 2010. The General Plan Map 2018 shows the project site designated Light Industrial. "This classification is intended to accommodate a range of light industrial uses, including general service, warehousing, storage, distribution and manufacturing. It includes flexible space, such as buildings that allow combinations of single and multiple users, warehouses, mini-storage, wholesale, bulk retail, gas stations, data centers, indoor auto-related uses and other uses that require large, warehouse-style buildings.... The maximum FAR [floor area ratio] is 0.60." (Santa Clara 2010)

3 Commuter rail service between San Francisco and San Jose, with weekday commute-hour service to Gilroy.

City of Santa Clara City Code. The Santa Clara zoning map shows the project site within the Heavy Industrial (MH) zoning district (Santa Clara 2020a, Chapter 18.50). "This district is intended to encourage sound heavy industrial development in the City by providing and protecting an environment exclusively for such development, subject to regulations necessary to ensure the purity of the air and the waters in the bay area, and the protection of nearby uses of the land from hazards, noise, or other radiated disturbances." (Santa Clara 2020a, § 18.50.020)

Staff reviewed the following zoning requirements that have some relation to aesthetics specific to governing scenic quality in accordance with Public Resources Code section 21071 applicable to the project. Section 21071, zoning and other regulations are discussed under subsection "4.1.2 Environmental Impacts."

- The MH zoning district maximum building height is 70 feet (Santa Clara 2020a, §18.50.070).
- The MH zoning district requires open landscaped area on a project site containing ground cover, trees, and shrubs (Santa Clara 2020a, § 18.50.120).
- The MH zoning district requires new onsite lighting be reflected away from residential areas and public streets (Santa Clara 2020a, § 18.50.140(c)).
- The MH zoning district requires trash disposal areas be screened from public view by a masonry enclosure, with solid wood gates, at least six feet in height (Santa Clara 2020a, § 18.50.140(d)).
- The MH zoning district states the height of mechanical equipment, and any accompanying screening shall be subject to architectural committee approval (Santa Clara 2020a, § 18.50.140(f)).

Architectural Review. The project's buildings and site improvements would be subject to the City of Santa Clara's architectural review (Santa Clara 2020a, Chapter 18.76). Architectural review is to "encourage the orderly and harmonious appearance of structures and property; maintain the public health, safety and welfare; maintain the property and improvement values, and to encourage the physical development of the City as intended by the general plan..." (Santa Clara 2020a, §18.76.010).

"The Architectural Review process is the responsibility of the Architectural Committee or Zoning Administrator, as designated.... The Committee reviews plans and drawings submitted for architectural review for design, aesthetic considerations, and consistency with zoning standards, generally prior to submittal for Building Permits. The Architectural Committee may require the applicant or owner of any such proposed development to modify buildings, parking areas, landscaping, signs, and other facilities and improvements as conditions of approval. No permit shall be issued, and no structure, building, or sign shall be constructed or used in any case until such plans and drawings have been approved by the Architectural Committee." (Santa Clara 1986)

4.1.2 Environmental Impacts

a. Would the project have a substantial adverse effect on a scenic vista?

Neither CEQA nor the CEQA Guidelines provide a clear-cut definition of what constitutes a scenic vista. Lead agencies may look to local planning thresholds for guidance when defining the visual impact standard for the purpose of CEQA.[4] A general plan, specific plan, zoning code or other planning document may provide guidance.

Construction and Operation

Less Than Significant Impact. The construction and operation of the project would not have a substantial adverse effect on a scenic vista.

The Santa Clara General Plan does not identify a distinct scenic vista or a specific related policy.

In addition, this analysis used as the definition for a scenic vista "a distant view of high pictorial quality perceived through and along a corridor or opening." The California Energy Commission in its decisions for a number of thermal power plant projects used this definition.[5] Staff review of aerial and street view imagery (Google Maps), and site photographs concluded the project would be located on a relatively unenclosed plain, the Santa Clara Valley floor, and not within a scenic vista as defined.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Neither CEQA nor the CEQA Guidelines provide a clear-cut definition of what constitutes a scenic resource. A scenic resource may be explained in general as a widely recognized natural or man-made feature tangible in the landscape (e.g., a scenic resource designated in an adopted federal, state, or local government document, plan, or regulation, a landmark, or a cultural resource [historic values however differ from aesthetic or scenic values]). This analysis evaluated if the project would substantially damage—eliminate or

4 Mira Mar Mobile Community v. City of Oceanside (2004) 119 Cal. App. 4th 477.

5 California Energy Commission Final Decision for GWF Tracy Combined Cycle Power Plant Project Docket Number 08-AFC-7, Visual Resources, pg. 321; California Energy Commission Decision for Mariposa Energy Project Docket Number 09-AFC-3, Visual Resources, pg. 5; California Energy Commission Decision for Blythe Solar Power Project Docket Number 09-AFC-6, Visual Resources, pg. 514; California Energy Commission Decision for Genesis Solar Energy Project Docket Number 09-AFC-8, Visual Resources, pg. 7-8; California Energy Commission Decision for Pio Pico Energy Center Docket Number 11-AFC-01, Visual Resources, pg. 8.5-4.

obstruct—the public view[6] of a scenic resource. Also, is the project situated so that it changes the visual aspect of a scenic resource by being different or in sharp contrast?

Construction and Operation

Less Than Significant Impact. The construction and operation of the project would not substantially damage scenic resources.

Review of the General Plan, and aerial and street view imagery concluded there is no recognized scenic resource on the site or in the vicinity that would have a public view of the project. A three-mile[7] distance zone surrounding the project was used in the identification and evaluation of scenic resources. In this urban area there are existing aboveground buildings, structures, earthworks, equipment, trees, and vegetation, etc., that would block or limit the public view of the project.

c. Would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Public Resources Code section 21071 defines an "urbanized area."[8] The City of Santa Clara is an incorporated city with a population greater than 100,000 which constitutes an urbanized area. Information from the U.S. Census Bureau shows the City of Santa Clara population 127,647 (Census 2020). As a result, the project was reviewed for conformance with zoning and other regulations governing scenic quality.

Review of Public Resources Code section 21099 concluded the proposed project is not an employment center project located within a transit priority area.

Construction and Operation

Less Than Significant Impact. Construction and operation of the project would not conflict with applicable zoning and other regulations governing scenic quality.

6 A public view can be defined as the visible area from a location where the public has a legal and physical right of access to real property (e.g., city sidewalk, public park, town square, state highway). CEQA Guidelines Appendix G Environmental Checklist Form, I. Aesthetics, c. states "Public views are those that are experienced from publicly accessible vantage point."

7 "Based on the curve of the Earth: Standing on a flat surface with your eyes about 5 feet off the ground, the farthest edge that you can see is about 3 miles away." (Health Line 2019)

8 An "urbanized area" includes "(a) An incorporated city that meets either of the following criteria: (1) Has a population of at least 100,000 persons. (2) Has a population of less than 100,000 persons if the population of that city and not more than two contiguous incorporated cities combined equals at least 100,000 persons." (Public Resources Code section 21071)

The MH zoning district is "intended to encourage sound heavy industrial development in the City by providing and protecting an environment exclusively for such development, subject to regulations necessary to ensure the purity of the air and the waters in the bay area, and the protection of nearby uses of the land from hazards, noise, or other radiated disturbances." (Santa Clara 2020a, §18.50.070)

- The MH zoning district maximum building height is 70 feet (Santa Clara 2020a, §18.50.070).

The data center building height of 82 feet would conform with the zoning on the site with approval of a minor modification by the City. The City allows up to a 25 percent increase in permitted building heights with a minor modification to the zoning requirements. The proposed parapets are not subject to the height restrictions per Santa Clara City Code section 18.64.010(a).

A few purposes of a height limit include to preserve a scenic vista, protect the public view of a scenic resource (e.g., architectural structure, a landmark, natural feature), and to maintain the character of a site and surrounding area (e.g., residential or commercial area). As previously discussed, review of aerial, surface, and street imagery shows the project's buildings and structures are not within a scenic vista, would not block the public view of a scenic resource, and elevations submitted show the project's building and structure heights would be concordant with heights of buildings and structures on adjacent properties and in the surrounding area.

- The MH zoning district requires open landscaped area on a project site containing ground cover, trees, and shrubs (Santa Clara 2020a, § 18.50.120).

The applicant has provided Site Plan Figure 2.3-1 and conceptual Landscape Plan Figure 2.3-2. They show new landscaping consisting of trees, large and medium shrubs, and groundcovers being installed along the property boundaries, building perimeters, and landscape beds distributed throughout the parking facilities. Bioretention areas[9] would be installed. The project proposes to replace all 375 trees onsite. Pervious surface information about the project indicates the proposed surface to be replaced is 124,220 square feet.

- The MH zoning district requires new onsite lighting be reflected away from residential areas and public streets (Santa Clara 2020a, § 18.50.140(c)).

The project site does not border a residential area. The project design includes directional and/or shielded light fixtures to keep lighting onsite.

9 Bioretention areas function as soil and plant-based filtration measures that remove pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a ponding area, a mulch layer, plants, and biotreatment soil mix, underlain by drain rock and an underdrain.

- The MH zoning district requires trash disposal areas be screened from public view by a masonry enclosure, with solid wood gates, at least six feet in height (Santa Clara 2020a, § 18.50.140(d)).

Site Plan Figure 2.3-1 shows trash disposal areas enclosed and screened from public view.

- The MH zoning district states height of mechanical equipment and any accompanying screening shall be subject to architectural committee approval (Santa Clara 2020a, § 18.50.140(f)).

The predominant rooftop mechanical equipment would be 37 air-cooled rooftop units. The rooftop equipment would be shielded by 11-foot-tall screen walls.

The project's 45 Cummins diesel generators are to be located along the south side wall of the data center building in a generator yard shielded by a 12-foot-tall screen wall.

The project's 45 Cummins diesel generators are to provide backup generation in case of an interruption in electrical supply from Silicon Valley Power. Forty-four Cummins QSK95-G9 model generators and one Cummins QST30 model diesel generator. The Cummins QSK95-G9 diesel generator performance specification sheet provided by the vendor shows exhaust stack gas flow temperatures at a 100 percent load standby to be 828 degrees Fahrenheit and at a 75 percent load standby 712 degrees. The Cummins QST30 diesel generator performance at 100 percent load standby 890 degrees Fahrenheit and at 75 percent 814 degrees. These extremely high temperatures (greater than 212 degrees Fahrenheit heating steam) would eliminate the necessary saturated moisture (vapor) rising from the generator exhaust stack that could condense in the atmosphere forming a publicly visible water vapor plume (visible plume). There is no water content in the generator's exhaust stack flow (dry air mass flow). The operation of the generators would not result in visible plumes.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Light pollution is the "inappropriate or excessive use of artificial light...." (IDA 2021) Light pollution "occurs when outdoor lighting is misdirected, misplaced, unshielded, excessive or unnecessary. As a result, light spills unnecessarily upward and outward, causing glare, light trespass, and a nighttime urban 'sky glow' overhead, indicating wasted energy and obscuring the stars overhead." (DSS 2017)

The International Dark-Sky Association (IDA) is the authoritative voice on light pollution. IDA recognizes to minimize the harmful effects of light pollution, lighting should: only be on when needed; only light the area that needs it; be no brighter than necessary; minimize blue light emissions;[10] and be fully shielded.

10 Studies show exposure to blue light can cause eye strain, fatigue, headaches, and sleeplessness.

"Reflectivity is defined as the property of a material to reflect the light or radiation. It is a measurement of reflectance irrespective of the thickness of a material." (Electrical4U 2020) Materials and coatings that diffuse illumination or collection, reflectance and scattering are of utmost importance. A few examples of materials and surfaces that should be avoided if possible: any material with a reflectance greater than 35 percent; any shiny, highly reflective materials even for small surfaces; large smooth surfaces; and large expanses of glass. Material with a non-shiny, textured or matt/powder finish are preferable to flossy or shiny finishes. "An ideal coating is non-specular (to decrease geometrical effects) durable, high in reflectance and spectrally flat over a wide wavelength range to give a flat spectral response in input or output." (Labsphere 2020)

Construction and Operation

Less Than Significant Impact. The construction and operation of the project would not create a new source of substantial light or glare adversely affecting day or nighttime views in the area.

The project includes outdoor lighting for driveways, entrances, walkways, parking areas, and security purposes. The project site does not abut residential uses.

The project design includes directional and shielded light fixtures to keep lighting onsite and to minimize brightness and glare from lights. Fully shielded light fixtures prevent light emission above the horizon into the sky, greatly reducing sky glow.

The data center building would largely be precast concrete with a low-glare finish to reduce reflectivity during daytime hours.

The construction laydown and staging areas may have nighttime lighting for security purposes. Outdoor construction-related lighting would be directed away from surrounding properties and the public right of way. Light fixtures would be hooded/shielded.

4.1.3 Mitigation Measures

None required.

4.1.4 References

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Santa Clara 2020a – City of Santa Clara (Santa Clara). City of Santa Clara City Code. March 24, 2020. Accessed on: June 10, 2020. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/zoning

4.2 Agriculture and Forestry Resources

This section describes the environmental and regulatory setting and discusses impacts specific to agriculture and forestry resources associated with the construction and operation of the project.

AGRICULTURE AND FORESTRY RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.2.1 Environmental Setting

Historical data show farmland uses on the project site and most other properties surrounding the site until approximately 1950 (ATC 2018). Railroad tracks have bordered the east side of the site since at least 1939. Between the mid-1950s and 1982, the project site was developed for use as an asbestos cement pipe manufacturing facility. The two office buildings on the site were constructed in the mid-1980s. These buildings and other structures on the project site would be demolished as part of the project.

Regulatory Background

Federal

No federal regulations relating to agriculture and forestry resources apply to the project.

State

Farmland Mapping and Monitoring Program. The California Department of Conservation (CDOC) established the Farmland Mapping and Monitoring Program (FMMP) in 1982 to assess the location, quantity, and quality of agricultural lands and conversion of those lands to other uses. The FMMP identifies and maps agricultural lands as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land.

The FMMP also classifies Urban and Built-up Land to indicate land occupied by structures with a building density of at least one unit to 1.5 acres, or approximately six structures to a 10-acre parcel. Common examples include residential, industrial, commercial, institutional facilities, cemeteries, airports, golf courses, landfills, sewage treatment, and water control structures.

Williamson Act. The California Land Conservation Act of 1965, or Williamson Act, is the principal method for encouraging the preservation of agricultural lands in California (Gov. Code, § 51200 et seq.). It enables local governments to enter into contracts with private landowners who agree to maintain specified parcels of land in agricultural or related open space use in exchange for tax benefits.

Local

City of Santa Clara General Plan and Zoning Ordinance. The project site is in an area of contiguous properties designated Light Industrial, as shown on the Land Use Diagrams in the *City of Santa Clara 2010–2035 General Plan*. This designation "is intended to accommodate a range of light industrial uses, including flexible space, such as buildings that allow combinations of single and multiple users, warehouses, mini-storage, wholesale, bulk retail, gas stations, data centers, indoor auto-related uses and other uses that require large, warehouse-style buildings" (Santa Clara 2010). The project site is in the MH, Heavy Industrial zoning district; permitted uses include "manufacturing, processing, assembling, research, wholesale, or storage uses…" (Santa Clara 2022, Zoning Code, tit. 18, § 18.50.030, subd. (b)).

4.2.2 Environmental Impacts

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Construction and Operation

No Impact. The project site is within the intensively developed and urbanized northwest portion of Santa Clara County. As shown on the Santa Clara County Important Farmland Map, the predominant classification for the region encompassing the site is Urban and Built-up Land (CDOC 2021). There is no Farmland located in the project area or the region surrounding the site. Therefore, the project would not convert Farmland to a non-agricultural use. Construction and operation activities would cause no impact on Farmland.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

Construction and Operation

No Impact. The project site is zoned MH, Heavy Industrial, which is a non-agricultural zoning district. CDOC agriculture maps show that the site and surrounding urbanized region is classified Urban and Built-up Land. No properties with this classification are in agricultural uses, and none would be subject to Williamson Act contracts. Therefore, construction and operation activities would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur.

c. Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

Construction and Operation

No Impact. The project site is in the MH, Heavy Industrial zoning district. Development in the area near the site primarily includes industrial and commercial uses. No land in the region is zoned for forest land, timberland, or timberland production; therefore, construction and operation activities would cause no impact on such lands or uses.

d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Construction and Operation

No Impact. The project site does not contain forest land and is not in a region where forest land is present; therefore, construction and operation activities would cause no loss of forest land, and no impact would occur.

e. Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?

Construction and Operation

No Impact. Starting in the mid-1950s, the project site and other properties in the area have been developed with manufacturing, commercial, and other business and industrial uses. The project would be consistent with these and other similar uses in the project area. Construction and operation activities would cause no changes in the existing environment that could cause conversion of Farmland to a non-agricultural use or forest land to a non-forest use. Therefore, no impact would occur.

4.2.3 Mitigation Measures

None.

4.2.4 References

ATC 2018 – ATC Group Services LLC (ATC). (TN 233041-3 and -4) *Phase I Environmental Site Assessment of Digital Realty Trust, Inc. 2825 and 2845 Lafayette Street, Santa Clara, California 95050*. Project No. Z054000167. June 1, 2018. Pages 9–11, 23, 25–32, and historical aerial photographs. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-02

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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 Lafayette Data Center (LDC) and the associated Lafayette Backup Generating Facility (LBGF), 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. In addition, broader changes to the grid being undertaken to address wildfire, accommodate renewable sources of energy and add storage will all change the potential for the deployment of the emergency backup generators (gensets).

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 non-attainment 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 with the existing building at 2805 Lafayette Street remaining, while the existing improvements on the 2825 and 2845 Lafayette Street site would be demolished to allow for construction of the new LDC building. Demolition and construction activities are estimated to last approximately 24 months to the initial occupancy of the building. Construction activities are estimated to last an additional 60 months indoors to bring the building to full occupancy (DayZen 2020a). 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 one million Increased cancer risk of >6.0 in one million within an Overburdened Community Increased non-cancer risk of > 1.0 Hazard Index (Chronic or Acute) Ambient PM2.5 increase: > 0.3 µg/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 one million (from all local sources) Non-cancer: > 10.0 Hazard Index (from all local sources) (Chronic) PM2.5: > 0.8 µg/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 and BAAQMD 2021d, pp. 2-5-7.

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).

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 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 $\mu g/m^3$ (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 98^{th} 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 are compared with the BAAQMD significance thresholds. 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,"* and CEQA allows that *"The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable.*" [CEQA Guidelines § 15064(h)(1) and (4).] 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 risks that exceed the following thresholds (BAAQMD 2017b, pp.5-3 and 5-4):

- An excess lifetime cancer risk level of more than 10 in one million (or 6.0 in one million within an Overburdened Community [BAAQMD 2021d]).
- 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 cumulative impact is 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.

In the BAAQMD Threshold of Significance Justification (BAAQMD 2017b, Appendix D, pp. D-40 and D-41), the BAAQMD CEQA Guidelines clarify that the cancer risk and PM2.5

thresholds for an individual new source are designed to ensure that the source does not contribute a cumulatively significant impact.

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. Project construction would occur for a total of about 24 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 45 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 45 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 with NOx emissions fully offset through the BAAQMD permitting process, 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 0.94 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 the use of Tier IV engines, SCRs and diesel particulate filters, a cap on the hours of generator testing allowed, and 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. Additionally, the project would not 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 50 hours of readiness testing and maintenance per year per engine. 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 50 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 2021c) 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 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 be less than significant and would be further reduced with the implementation of **AQ-1**.

Staff finds that cumulative 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 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 also uses the term precursor organic compounds (POC) or reactive organic gases (ROG) 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 site encompasses approximately 15.45 acres and is located at 2825 Lafayette Street in Santa Clara, California, APN 224-04-093. The property is bound to the North by Central Expressway, to the South by 2403 Walsh Avenue and a pair of buildings with different industrial uses, to the East by the Union Pacific Railroad (UPRR). The Norman Y. Mineta San José International Airport is located approximately 0.3 miles east of the site. 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 standards 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 note "d" 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 3.3 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 2017 to 2021, 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	2017	2018	2019	2020	2021
O_3 (ppm)	1-hour	**0.121**	0.078	**0.095**	**0.106**	**0.098**
	8-hour	**0.098**	0.061	**0.081**	**0.085**	**0.084**
PM10 ($\mu g/m^3$)	24-hour	**70**	**121.8**	**77.1**	**137.1**	45.1
	Annual	**21.3**	**23.1**	19.1	**24.8**	**20.1**
PM2.5 ($\mu g/m^3$)	24-hour (98th percentile)	34.3	**73.4**	20.6	**56.1**	23.3
	Annual	9.5	**12.9**	9.1	11.5	8.9
NO_2 (ppb)	1-hour (maximum)	67.5	86.1	59.8	51.9	47.8
	1-hour (98th percentile)	50	59	52	45	39.2
	Annual	12.24	12.04	10.63	9	8.73
CO (ppm)	1-hour	2.1	2.5	1.7	1.9	1.7
	8-hour	1.8	2.1	1.3	1.5	1.5
SO_2 (ppb)	1-hour (maximum)	3.6	6.9	14.5	2.9	1.8
	1-hour (99th percentile)	3	3	2	2	2
	24-hour	1.1	1.1	1.5	0.8	0.7

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, 2020, and 2021 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 2019 to 2021 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. The California Health and Safety Code Section 39606 requires the Air Resources Board (ARB) 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 are the legal definition of 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 oxides of nitrogen (NOx), including nitrogen dioxide (NO_2). ROG and NOx are known as precursor compounds for O_3. 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 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. 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.

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 engaged 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. Particulates can also damage materials and 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 (NO_2 and NO – nitric oxide) reacts with other chemicals in 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 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 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 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

According to section 39655 of the California Health and Safety Code, a toxic air contaminant (TAC) is "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 which have been listed as federal hazardous air pollutants (HAPs) pursuant to section 7412 of Title 42 of the United States Code are TACs under the state's air toxics program pursuant to section 39657 (b) of the California Health and Safety Code. ARB formally made this identification on April 8, 1993 (Title 17, California Code of Regulations, section 93001 [OEHHA 2021]).

TACs, also referred to as hazardous air pollutants (HAPs) or air toxics, are different from criteria air pollutants such as ground-level ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead. Criteria air pollutants are regulated using national and state Ambient Air Quality Standards as noted above. However, there are no ambient standards for most TACs[3] so site-specific health risk assessments (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. TACs that have been identified by ARB are listed at Title 17, California Code of Regulations, sections 93000 and 93001. The nearly 200 regulated TACs include asbestos, organic, and inorganic chemical compounds and compound categories, diesel exhaust, and certain metals. The requirements of the Air Toxic "Hot Spots" Information and Assessment Act 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), running 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 project 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

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

by the U.S. EPA as HAPs and by CARB as TACs. The solid material in diesel exhaust is known as DPM (CARB 2021d).

DPM has been the accepted surrogate for whole diesel exhaust since the late 1990's. ARB 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) (ARB 1998). DPM is primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust deserves 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 ARB 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 exists between occupational diesel exhaust exposure and lung cancer. Diesel exhaust is listed by the US EPA as "likely to be carcinogenic to humans" (US EPA 2003).

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 the project include:

The potential sensitive receptor locations evaluated in the HRA for LDC include:

- Residential dwellings
- Schools
- Daycare centers
- Hospitals
- 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 proposed project site encompasses approximately 15.45 acres (Dayzen 2020a, pg. 7). **Table 4.3-17** of the application lists the nearest sensitive receptors within two and a half miles of the Project's property boundary (Dayzen 2020a, pg. 68). Appendix AQ5 also contains a list of sensitive receptors within the facility regional area (Dayzen 2020b, Appendix AQ5).

The nearest sensitive receptor is the four residences at 810 Comstock Street, approximately 52 meters (170 feet) away from the northern project boundary (DayZen 2021c, pg. 4 to pg. 6). The second nearest sensitive receptor is a residence located approximately 3,000 ft. to the south of the project site's fence line. The nearest school is located 3,418 ft to the west of the project site's fence line. Please see **Figure 4.3-1** for a map of sensitive receptors near the project.

CARE Community

One goal of BAAQMD's Community Air Risk Evaluation Program (CARE Program) is to identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution[4]. The proposed LDC project is in the 2013 Cumulative Impact Area and therefore a CARE community. However, since its overall CalEnviroScreen 4.0 percentile score is 60 (less than 70), the proposed project is not located in an overburdened community[5].

4https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program

5 Overburdened Community: An area located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract (BAAQMD Regulation 2-1-243).

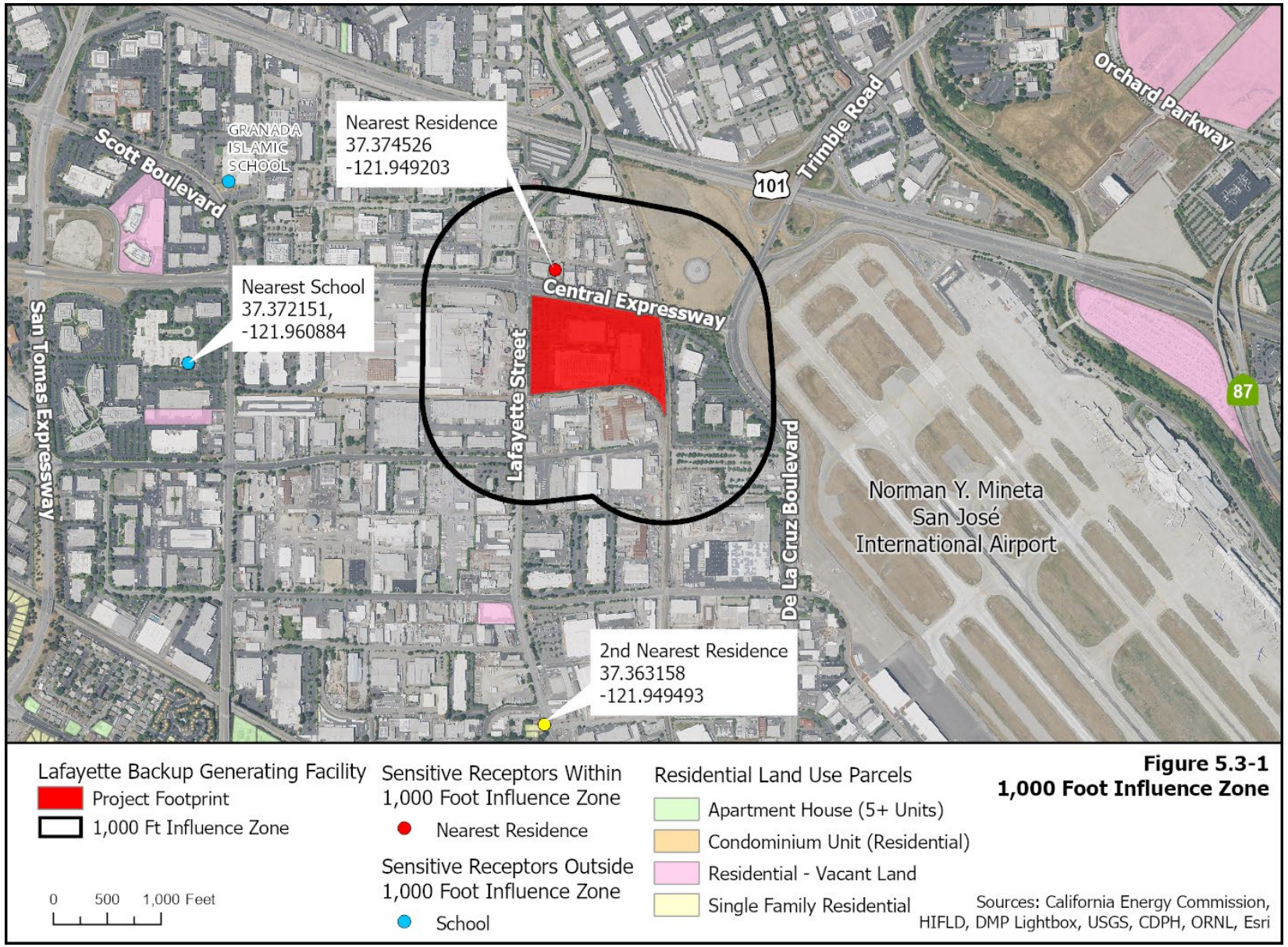

Figure 5.3-1
1,000 Foot Influence Zone

Regulatory Background

Federal, state, and regional agencies regulate air quality in the SFBAAB, within which the project site is located.

Federal

Federal Clean Air Act. The federal Clean Air Act (CAA) establishes the statutory framework for regulation of air quality in the United States. Under the CAA, the US EPA oversees implementation of federal programs for permitting new and modified stationary sources, controlling toxic air contaminants, and reducing emissions from motor vehicles and other mobile sources.

Title I (Air Pollution Prevention and Control) of the federal CAA requires establishment of NAAQS, air quality designations, and plan requirements for nonattainment areas. States are required to submit a state implementation plan (SIP) to the US EPA for areas in nonattainment with NAAQS. The SIP, which is reviewed and approved by the US EPA, must demonstrate how state and local regulatory agencies will institute rules, regulations, and/or other programs to attain NAAQS.

Prevention of Significant Deterioration (PSD) 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 potential to emit. If annual emissions of a proposed project are less than prescribed amounts, a PSD review is not required. The project is not expected to be subject to PSD, with a final determination made by the local district at the time of permitting.

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 Standard 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. 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 US Geological Survey map detailing natural occurrence of asbestos in California, NOA is not expected to be present at the project site (Van Gosen and Clinkenbeard 2011).

Regional

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

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

BAAQMD California Environmental Quality Act Guidelines. BAAQMD publishes California Environmental Quality Act (CEQA) 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 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 and/or Permit to Operate. The NSR process requires the applicant to use the Best Available Control Technology (BACT) to control emissions if the source will have the potential to emit 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 the NAAQS.

For emergency-use diesel engines with output over 1,000 brake horsepower, BAAQMD updated the definition of BACT in December 2020 to reflect 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 45 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, the 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 nitrogen oxides (NOx) or Precursor Organic Compounds (POC), or more than 100 tpy of PM2.5, PM10, or SO_2, are emitted. If the potential to emit (PTE) for NOx or POC is more than 10 tons per year (tpy) but below 35 tpy, the district would provide any required offsets from the Small Facility Banking Account at a 1:1 ratio; 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, the BAAQMD staff issued a policy to protect the Small Facility Banking Account from over withdrawal by new emergency backup power generator sources. The policy provides procedures, applicable to the determination of access to the Small Facility Banking Account only, for calculating a facility's potential to emit (PTE) for NOx and POC to determine eligibility for emission reduction credits (ERCs) from the Small Facility Banking Account for emergency backup power generators (BAAQMD 2019). When determining the PTE for a facility with emergency backup power 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 uses offsets to counterbalance increases in regular and predictable emissions, not increases in emissions occurring infrequently when emergency conditions arise. An owner/operator may reduce hours of readiness testing and maintenance or install emissions controls to achieve a PTE of less than 35 tons per year (BAAQMD 2019c).

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 if it exceeds any of the specified risk limits, which are consistent with BAAQMD's California Environmental Quality Act (CEQA) 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 amended Rule 1 and Rule 5 on December 15, 2021, the updates include[6]:

- Define overburdened communities
- Set more stringent cancer risk limit in overburdened communities from 10 in one million to 6 in 1 million
- Enhance public notifications for projects within overburdened communities
- Update health risk screening guidelines for gasoline dispensing facilities
- Extend permit review timelines

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 engines 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 wastewater;
- 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:

- Prerequisite Policies
    - 5.1.1-P24 Prior to the implementation of Phase III [of the General Plan], the city will include a community Risk Reduction Plan ("CRRP") for acceptable Toxic Air Contaminant ("TAC") concentrations, consistent with the Bay Area Air Quality Management District ("BAAQMD") CEQA Guidelines, including risk and exposure

6 https://www.baaqmd.gov/news-and-events/page-resources/2021-news/121521-permit-rule

reduction targets, measures to reduce emissions, monitoring procedures, and a public participation process.

- 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. The 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 CAP.

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 and constriction activities are estimated to last approximately 24 months to the initial occupancy of the building. (DayZen 2020a, pg. 14, 16 and 69). Accordingly, the duration of emissions from demolition and construction activities would be 24 months (DayZen 2020d, Responses 23 to 25). There would be no overlap of construction emissions with operation emissions (DayZen 2020d, Response 26). The proposed project site encompasses approximately 15.45 acres and is located at 2825 Lafayette Street in Santa Clara, California, APN 224-04-093. The property is zoned Heavy Industrial. The site is currently developed with two two-story office buildings that would be demolished and associated paved parking and loading dock areas. The total area of the existing office buildings is approximately 326,000 square feet.

Construction emissions from the construction of the project would result from demolition activities, ground preparation and grading activities, building erection, parking lot construction activities, and use of onsite construction equipment. Construction emissions from the LBGF are nearly negligible but are included in the LDC construction emission calculations. LBGF offsite construction emissions will result primarily from material transport to and from the site, and worker travel (DayZen 2020b). Emissions from the construction period of 24 months (approximately 544 total work days) were estimated using the California Emissions Estimator Model (CalEEMod) program.[7] Estimated criteria pollutant emissions during construction are summarized in **Table 4.3-5**.

TABLE 4.3-5 CRITERIA POLLUTANT EMISSIONS FROM PROJECT DEMOLITION/CONSTRUCTION

Pollutant	Average Daily Emissions (lbs/day) [a]	Maximum Annual Construction Emissions (tons)	BAAQMD Significance Thresholds for Construction-related Average Daily Emissions (lbs/day) [c]	Threshold Exceeded?
ROG/VOC	13.6	3.69	54	No
CO	10.6	2.89	None	N/A
NOx	11.1	3.03	54	No
SO_2	0.03	0.01	None	N/A
PM10 [b]	0.37 (exhaust) 1.69 (fugitive)	0.10 (exhaust) 0.46 (fugitive)	82	No

7 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 DEMOLITION/CONSTRUCTION

Pollutant	Average Daily Emissions (lbs/day) [a]	Maximum Annual Construction Emissions (tons)	BAAQMD Significance Thresholds for Construction-related Average Daily Emissions (lbs/day) [c]	Threshold Exceeded?
PM2.5 [b]	0.37 (exhaust) 0.59 (fugitive)	0.10 (exhaust) 0.16 (fugitive)	54	No

Notes:
[a] There are no annual construction related BAAQMD's thresholds of significance. The BAAQMD's thresholds are average daily thresholds. Accordingly, the results reported are the total overall emissions averaged over the entire demolition and construction duration (i.e., 24 months or approximately 544 work days).
[b] The average daily PM emissions estimates only include exhaust emissions, as the BAAQMD's thresholds are specific to exhaust emissions only. Fugitive emissions will be controlled with best management practices (BMPs), in accordance with the significance threshold.
[c] BAAQMD 2017b, Table 2-1.
Source: (DayZen 2020b, Appendix A CalEEMod results mitigated; Table 4.3-6 in DayZen 2020b).

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 (DayZen 2020a). Each of these emission sources is described in more detail below.

Stationary Sources – Generator Emissions. The project would include forty-four, 4,309 horsepower (HP), (3,000 Kilowatts (kW) @100% load emergency generators (critical backup generators) and one, 1,482 HP (1,105 kW) administrative genset for the Power Base Building (PBB) (DayZen 2021b, p.6 & p10). Each of the gensets would be a

Tier 4 standby genset equipped with a Selective Catalytic Reduction (SCR) system and diesel particulate filters (DPF). The larger gensets would be Cummins Model C3000 D6e (QSK95-G9) and the PBB generator would be a Cummins Model DQGAF (QST30) (DayZen 2021b, p6). The maximum peak generating capacity of each of the larger model genset is 3.0 MW with a steady state continuous generating capacity of 2.25 MW. The smaller PBB genset has a maximum peak generating capacity of 1.0 MW and is designed to remain below 0.8 MW (DayZen 2021b, p6).

The applicant proposes to limit operation to one genset at a time for routine maintenance and testing activities conducted pursuant to manufacturer specifications. Genset operation for emergency use and emission testing for compliance purposes is not limited. The emission calculations are based on the genset horsepower, hours of operation, and US EPA family emission factors.

Emission factors for PM, NOx, ROG and CO are provided by the EPA engine family certification levels. The emission factors for sulfur dioxide (SO_2) are calculated with the assumption that the proposed genset will use ultra-low sulfur diesel fuel which contains 0.0015% sulfur as defined under 40 CFR 80, Subpart I. Per this assumption, the SO_2 emission factor would be 0.2115 lb per 1,000 gallons of fuel (DayZen 2021a).

Testing would occur during daytime hours only; assumed to be anytime from 7 AM to 5 PM (DayZen 2021a, p10).

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 from mobile sources and general operation of the LDC buildings. The mobile sources include approximately 570 daily vehicle trips to the LDC encompassing employee and visitor trips Other operational activities include deliveries, energy and fuel use for facility electrical, heating and cooling needs, periodic use of architectural coatings, landscaping. The original application identified wet surface condensers for cooling, but the project was later revised so that it would not include cooling towers or wet surface

condensers (DayZen 2020c). The applicant estimated the miscellaneous operational emissions using CalEEMod (DayZen 2020b).

Table 4.3-6 provides the annual criteria pollutant emission estimates for project readiness testing and maintenance using the emissions source assumptions noted above. **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 the BAAQMD, the project would not exceed any of the BAAQMD emissions significance thresholds.

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 #5 (Dayzen 2022a), the applicant provided a more refined calculation of the NOx PTE assuming each genset operated for 1-hour of 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 17.26 tpy, which is less than 35 tpy (DayZen 2022a). 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.

The annual ROG emissions of the standby generators are estimated to be 3.14 tpy, assuming readiness testing and maintenance would occur 50 hours per year per engine. After applying the additional 100 hours per year per standby generator to account for emissions proportional to emergency operation for calculation of the PTE under the Small Facility Banking Account policy, the PTE is 9.42 tpy, which is still below the 10 tpy offset threshold.

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 0.94 tpy (1,880 lbs/yr), assuming the SCR is effective for a total of 50 hours per year per engine. However, since it generally takes time for the SCR to warm up to temperatures where urea could be injected, especially during low-load readiness testing and maintenance, 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 below, 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. Construction impacts would be less

than significant with mitigation incorporated and operational related impacts would be less than significant.

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)					
Miscellaneous Operational Emissions	0.376	0.096	0.028	0.0003	0.03	0.009
Standby Generators (Testing Only) [a]	3.14	27.3	47.17 [b]	0.05 [c]	0.16	0.16
Proposed Offsets [d]	--	--	(-54.25)	--	--	--
Total Net Emissions	3.5	27.4	-7.05	0.05	0.019	0.019
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]					
Miscellaneous Operational Emissions	2.06	0.53	0.16	0.002	0.17	0.046
Standby Generators (Testing Only)	28.4	245.8	425.4	0.473	1.42	1.42
Proposed Offsets [c]	--	--	(-489.2)	--	--	--
Total Net Emissions	30.5	246.3	-63.6	0.475	1.6	1.4
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 50 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 Data Responses to CEC Data Request Set 5 Air Quality (DayZen 2021a Table 4.3-15): and assuming readiness testing and maintenance would occur 50 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 (Staff calculation).
[e] The average daily emissions and offsets are based on the annual emissions and offsets averaged over 365 days per year.
Sources: Dayzen 2020b, DayZen 2021a 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 AQIA

Less Than Significant Impact with Mitigation Incorporated. Construction emissions of criteria pollutants are shown in **Table 4.3-5** under criterion "b" of the environmental checklist. Emissions during demolition and construction would not exceed significance thresholds for construction activities, as established in the BAAQMD CEQA Guidelines. With the applicant-proposed measures (**AQ-1**) to reduce fugitive dust and equipment exhaust emissions (Section 4.3.4, Mitigation Measures), the project would include controls to avoid the potential for generating substantial pollutant concentrations during the demolition and construction period. 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 demolition and construction emissions (DayZen 2020d, Response 27) (DayZen 2021c); (DayZen 2021c, Response 105). The applicant's dispersion modeling assumes construction activities would be limited to a ten-hour workday, between 7:00 am and 5:00 pm on weekdays.

Table 4.3-7 shows the impacts of the project during the demolition and construction period. The project impact column shows the worst-case modeled impacts for any receptor. The background column shows the highest concentrations 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 modeled impact for demolition and construction. The limiting standard column presents either the CAAQS or NAAQS, whichever is more stringent.

TABLE 4.3-7 LBGF MAXIMUM IMPACTS DURING DEMOLITION AND CONSTRUCTION ($\mu g/m^3$)

Pollutant	Averaging Time	Project Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24-hour	4.22	**137.1**	**141.3**	**50**	**283%**
	Annual	0.962	**24.8**	**25.8**	**20**	**129%**
PM2.5	24-hour	1.61	**73.4**	**75.0**	**35**	**214%**
	Annual	0.359	**12.9**	**13.3**	**12**	**110%**
CO	1-hour	9.44	2,778	2,787	23,000	12%
	8-hour	1.52	2,333	2,338	10,000	23%
NO_2	State 1-hour	10.09	162	172.5	339	51%
	Federal 1-hour	9.76	111	121.1	188	64%
	Annual	0.996	22.6	23.6	57	41%
SO_2	State 1-hour	0.030	37.9	37.9	655	6%
	Federal 1-hour	0.030	7.8	7.9	196	4%
	24-hour	0.007	3.9	3.9	105	4%

Notes: Concentrations in **bold** type are those that exceed the limiting ambient air quality standard.
Source: DayZen 2020d, Response 27 and DayZen 2021c, Response 105.

Table 4.3-7 shows that the impacts during demolition and 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 4.22 $\mu g/m^3$ from project demolition and construction would not exceed the US EPA PM10 SILs of 5 $\mu g/m^3$ for 24-hour impacts, and the maximum modeled annual PM10 concentration of 0.962 $\mu g/m^3$ would not exceed the PM10 SILs of 1 $\mu g/m^3$ for annual impacts. Accordingly, the PM10 impacts during demolition and construction would be less than significant.

Table 4.3-7 also shows that the existing 24-hour and annual PM2.5 background concentrations are already above the limiting CAAQS and NAAQS. 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 1.61 $\mu g/m^3$ would exceed the 24-hour PM2.5 SIL of 1.2 $\mu g/m^3$. Similarly, the annual average PM2.5 impact for demolition and construction would be 0.359 $\mu g/m^3$, and this would exceed the BAAQMD significance threshold of 0.3 $\mu g/m^3$ and the PM2.5 SIL for annual impacts of 0.2 $\mu g/m^3$ (US EPA 2018a). However, these maximum modeled PM10 and PM2.5 impacts during demolition and construction would occur at or near the project fence line and would decrease rapidly with increasing distance from the fence line.

The nearest residential receptor, at 810 Comstock Street, is approximately 52 meters (170 feet) from the project's northern property boundary (DayZen 2021c). The modeled 24-hour and annual PM2.5 concentrations at the nearest residential receptor would be no greater than 0.49 $\mu g/m^3$ and 0.090 $\mu g/m^3$, respectfully. These 24-hour and annual concentrations would be below the BAAQMD significance threshold and PM2.5 SILs, and this confirms that the demolition and construction phase activities would not expose

sensitive receptors to substantial pollutant concentrations of PM2.5 or any other criteria air pollutant.

With the applicant-provided measure (**AQ-1**) to reduce fugitive dust and equipment exhaust emissions, this impact during demolition and construction would be less than significant.

Readiness Testing and Maintenance AQIA

Less Than Significant Impact. The applicant provided an ambient air quality impact analysis to compare worst-case ground-level impacts resulting from the project's readiness testing and maintenance with established state and federal ambient air quality standards. The applicant used the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD [Version 19191, updated to 21112 for NO_2]) with regulatory default options, as recommended in US EPA's Guideline on Air Quality Models (US EPA 2017).

The applicant's modeling analysis, described in more detail below, included the standby generator engines emissions source, but did not include other on-site emissions sources, such as natural gas combustion emissions for comfort heating. The applicant's modeling analysis included an impact analysis for readiness testing and maintenance.

Meteorological Data. The applicant used the 5-year (2013-2017) record of hourly meteorological data available from the BAAQMD. The meteorological data were collected at the San Jose International Airport surface station, which is located approximately 3 km (1.9 miles) southeast of the proposed project site and best represents the meteorology at the project site. The concurrent daily upper air sounding data from the Oakland International Airport station were also included. The BAAQMD preprocessed the data with AERMET (Version 18081) for direct use in AERMOD.

Modeling Assumptions for Readiness Testing and Maintenance

The LBGF Project Description indicates that all but eight of the larger 44 (3.0-MW capacity) standby engine-generators and the smaller administrator generator would release from stacks near the top of the mechanical equipment screening on the roof of the data center building, which will extend to a height of 73 feet (DayZen 2020c, Response 9). The release height for these generators would be 75 feet (22.86 meters). Eight of the generators would have stacks below the top of the data center parapet, with release points at 59 feet (17.98 meters). Modeling assumptions include the engine exhaust stacks directed into vertical releases; the stacks of the larger 44 (3.0-MW capacity) engines would be 28 inches in diameter and would not have horizontal releases or rain caps (DayZen 2021a).

The applicant assumes that maintenance and readiness testing would occur with the following limitations: (1) only one engine will be operated in any clock hour, i.e., there would never be a clock hour where more than one engine is operated for maintenance

and readiness testing; (2) each engine would operate a maximum of 50 hours per year; (3) within a 24-hour period, up to 10 engines could run for an hour each; and (4) testing would be confined to within the 10-hour period of 7:00 am and 5:00 pm, daily (DayZen 2020d, Responses 47 to 50) (DayZen 2021a).

The annual average concentrations assume up to the limit of 50 hours per generator per year for readiness testing and maintenance purposes. The short-term (i.e., 1-hour, 8-hour, and 24-hour) and long-term (annual) impacts of readiness testing were all analyzed according to the averaging period of each standard for each hour, each day, and each year of the meteorological dataset.

Refined Analysis for 1-Hour NO_2 standards. For comparison to the 1-hour NO_2 NAAQS and CAAQS, the applicant's modeling followed a second-tier approach using the Ambient Ratio Method 2 (ARM2) option, as described in US EPA's Guideline on Air Quality Models (US EPA 2017). For the applicant's ARM2 modeling analysis, the applicant selected the national default minimum and maximum ambient NO_2/NOx ratios of 0.5 and 0.9, respectively. The applicant's refined analysis for 1-hour NO_2 concentrations (DayZen 2022a) used no site-specific in-stack NO_2/NOx ratio (ISR), which should over-estimate NO_2 concentrations relative to using an ISR assumption of 0.1, as typical ratio for diesel-fired internal combustion engines. The applicant's use of ARM2 did not rely on hourly ozone data, as would be needed in a third-tier approach, and the applicant's modeling did not include temporally-variable background data for NO_2 The applicant's modeling considered only the single highest maximum 1-hour background concentration of NO_2, and this approach conservatively over-estimates the project's highest 1-hour impacts.

Staff conducted an additional refined analysis for 1-hour NO_2 impacts to confirm whether the project impacts plus background concentrations would comply with the limiting standards. As with the applicant, staff used ARM2 and the maximum background to confirm compliance with the CAAQS. Staff also refined the treatment of background NO_2 by using the seasonal hourly (SEASHR) background data for NO_2 in the format of the NAAQS to add to the project's incremental NO_2 impact. To confirm compliance with the NAAQS, the total 1-hour NO_2 concentration for the NAAQS equals the sum of the 8^{th}-highest daily 1-hour modeled result plus the seasonal hour-by-day background, where each seasonal hourly value is the 3-year average of 98th percentile concentrations. For all 1-hour NO_2 analyses, the applicant assumed only one generator would operate at a time for readiness testing and maintenance purposes.

Table 4.3-8 shows that the impacts from standby generator engine testing during operation 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. Modeling shows that the individual project impact would be limited. The modeled PM10 concentrations from project standby generator engine testing are below the PM10 SILs of 5 $\mu g/m^3$ for 24-hour impacts and 1 $\mu g/m^3$ for annual impacts. The modeled PM2.5 concentrations are below the BAAQMD

threshold for annual-average PM2.5 of 0.3 ug/m^3, for risk and hazards, and PM2.5 concentrations also are below the 24-hour PM2.5 SIL of 1.2 µg/m^3 and the PM2.5 SIL for annual impacts of 0.2 µg/m^3.

TABLE 4.3-8 LBGF MAXIMUM IMPACTS DURING READINESS TESTING AND MAINTENANCE (µg/m^3)

Pollutant	Averaging Time	Project Impact	Background	Total Impact	Limiting Standard	Percent of Standard
PM10	24-hour	0.35	**137.1**	**137.4**	**50**	**275%**
	Annual	0.012	**24.8**	**24.8**	**20**	**124%**
PM2.5	24-hour	0.28	**73.4**	**73.7**	**35**	**211%**
	Annual	0.012	**12.9**	**12.9**	**12**	**108%**
CO	1-hour	352.6	2,778	3,130	23,000	14%
	8-hour	238.4	2,333	2,572	10,000	26%
NO_2 [a, b]	State 1-hour	99.6	162	262.1	339	77%
	Federal 1-hour	---	---	135.4	188	72%
	Annual	1.95	22.6	24.6	57	43%
SO_2	State 1-hour	0.63	37.9	38.5	655	6%
	Federal 1-hour	0.57	7.8	8.4	196	4%
	24-hour	0.16	3.9	4.1	105	4%

Notes:
Concentrations in **bold** type are those that exceed the limiting ambient air quality standard.
[a.] The NO_2 impacts are evaluated using the US EPA Ambient Ratio Method 2 (ARM2) option in AERMOD.
[b.] For CAAQS 1-hour NO_2 impacts, this is the highest 1-hour project impact and maximum background. For NAAQS 1-hour NO_2 impacts, this is the project impact plus seasonal hour of day background for source "EG42" using the maximum 8th-highest daily 1-hour result as averaged over five years to relate to the yearly 98th percentile.
Source: DayZen 2021a, Table 4.3-9, and DayZen 2022a, with independent staff analysis of 1-hour NO_2.

The results provided in **Table 4.3-8** are the maximum impacts determined at any point at the project fence line or beyond. The impacts for sensitive receptors would be lower than these values because they are located further away from the stacks. The criteria pollutant concentrations in **Table 4.3-8** show that impacts during routine operation with readiness testing and maintenance would be below the limiting standards. Accordingly, standby generator engine testing 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 level projections at any affected intersection would not exceed 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 LDC.

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 previous data center projects' analysis include various scenarios of backup power generation operations beyond routine testing and maintenance (BAAQMD 2021c). 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 2021c).

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/construction, and (2) for the period of operation, which consists of standby generator readiness testing and maintenance. A separate discussion summarizes the risk and hazards for the project in a cumulative HRA that included 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 Point of maximum impact (PMI), Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW) and Maximally Exposed Individual Sensitive Receptor (MEIS) (Dayzen 2020a, pg. 71). 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).

Staff reviewed the applicant's modeling files and agree with the inputs used by the applicant and the outputs from the model for carcinogenic and chronic health risks.

Construction HRA

Less Than Significant Impact. The duration of emissions from construction activities is estimated to be approximately 24 months. Onsite construction emissions from the construction of the LDC would result from demolition activities, site preparation and grading activities, building erection, parking lot construction activities, "finish" construction activities, and use of onsite construction equipment. Construction emissions from the LBGF are nearly negligible but are included in the LDC construction emission calculations. LBGF offsite construction emissions would result primarily from material transport to and from the site, and worker travel (DayZen 2020a, pg. 54). Emissions from 24-month construction period were estimated using the California Emissions Estimator Model (CalEEMod) program. Construction risk is based solely on DPM emissions (DayZen 2020d, pg. 9). DPM is a surrogate for diesel exhaust.

Applicant's Construction HRA

Per staff's request in Data Request 42, the applicant provided a brief list of the non-default assumptions (DayZen 2020d, pg. 9):

- Construction emissions were evaluated for a two (2) year exposure period for purposes of HRA impacts.
- BAAQMD health tables were enabled.
- FAH=1 was used for residential risk.
- Construction emissions from the combustion activities as derived from CalEEMod were apportioned to 24-point sources across the construction area for the appropriate modeling periods. The stack parameters were based on an average sized engine used for construction and included the following:
  - 3.048-meter release height
  - 750 K exit temperature
  - 64.681 m/s exit velocity
  - 0.01524 exit diameter
- Fugitive PM10 and PM2.5 were modeled as a single polygonal source with a release height of 0.5 meters.
- Construction risk was based solely on DPM emissions.

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 HRA for construction activities are presented in **Table 4.3-9** (DayZen 2021c, pg. 8 and Table 4.3-23. DayZen 2020d, pg. 9 and Table 4.3-23) and show that the excess cancer risks and chronic HIs at the MEIR, MEIW and MEIS are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively.

The cancer risk of Point of Maximum Impact (PMI) computed by the applicant is 10.7, slightly higher than 10. However, it is located on the east side of the project fence line, neither a residential nor a sensitive receptor. In addition, the chronic, non-hazard impact at the PMI is 0.00624, which is less than the threshold of 1.0. Staff does not expect a person to stay at the PMI location throughout the construction period. Staff relies on the impacts to MEIR, MEIW, and MEIS to determine whether the project would expose sensitive receptors to substantial pollutant concentrations. Also, MEIW, which is very close to PMI, is below the threshold. Moreover, the applicant would install add-on devices such as diesel particulate filters (DPF) in its Exhaust Control Measures (Dayzen 2021b, pg. 6 and Dayzen 2021a, pg. 1). Moreover, the HRA was based on extremely conservative assumptions. Finally, other nearby sensitive receptors are all below the thresholds. Considering all these, the health risks of construction of the project would be a less than significant impact.

Please 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)	Acute Non-Cancer Hazard Index (HI)
MEIR[1]	2.3	0.00134	NA
MEIW[2]	0.585	0.00539	NA
MEIS[3]	0.00718	0.000042	NA
BAAQMD Threshold	**10**	**1**	NA

Notes:
[1] Maximally Exposed Individual Resident (MEIR). It is the nearest residences at 810 Comstock Street about 300 feet away from the project.
[2] Maximally Exposed Individual Worker (MEIW). It is located to the east of the site at a distance of approximately 100 ft. from the project fence line.
[3] Maximally Exposed Individual Sensitive Receptor (MEIS). The nearest sensitive receptor is a school located to the west of the site at approximately 3,130 feet.
[4] The proposed LCD project is not located within an overburdened community.
Source: Dayzen 2021c, pg. 8 and Table 4.3-23. Dayzen 2020d, pg. 9 and Table 4-3-23.

Operation HRA

Less Than Significant Impact. Project operation would include TAC emissions from the diesel-fired emergency standby engines. The only on-site emissions included in the applicant's HRA are the TAC emissions from testing and maintenance of the diesel-fueled emergency standby engines. Offsite vehicle trips for worker commutes and material deliveries were not included in HRA. Diesel particulate matter (DPM) was the only TAC considered to result from readiness testing and maintenance of the LDC (Dayzen 2020a, pg. 56). DPM emissions resulting from diesel stationary combustion were assumed equal to PM10/2.5 emissions (Dayzen 2021a, pg. 3).

BAAQMD's Authority to Construct and the CARB's Airborne Toxic Control Measures (ATCM) for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR) limits each engine to no more than 50 hours annually for reliability purposes (i.e., testing and maintenance) (Dayzen 2020a, pg. 14). Therefore, each generator would be limited to a maximum of 50 hours per year of non-emergency operations (testing and maintenance). But the generators would only be operated when necessary for testing and maintenance and could not be used regularly for electricity generation (Dayzen 2020a, pg. 94). And it is the applicant's experience that each engine will be operated for considerably less than 50 hours a year (Dayzen 2021a, pg. 3).

For conservative evaluation purposes, it was assumed that testing (weekly, monthly, quarterly, annual, and special testing) would occur for no more than 50 hours per year. Maintenance and readiness testing usually occurs at loads ranging from 10 to 100% load. For purposes of this application, emissions were assumed to occur at 100% load (Dayzen 2021a, pg. 3). Annual emissions of TAC (DPM) for each engine are based on Scenario 2 - Maintenance/Readiness operations, 50 hrs/yr, Tier 4 emissions factors, 100% load, with Miratech catalyst/DPF controls (ATCM limit) (Dayzen 2021a, pg. 3 and Table 4.3-5).

Applicant's Operation HRA

The health risk assessment (HRA) was prepared using guidelines developed by OEHHA and CARB, as implemented in the latest version of the HARP model (ADMRT 21081). The BAAQMD risk assessment options in HARP were used for all analyses (BAAQMD 2016) (Dayzen 2021a, pg. 15).

The HRA included potential health impacts from TAC exposure on receptors through the inhalation, dermal absorption, soil ingestion, mother's milk pathways, and homegrown crops, as required by OEHHA Guidance (Dayzen 2021a, HARP output files). The inhalation cancer potency, oral slope factor values, and reference exposure levels (RELs) used to characterize health risks associated with the modeled impacts were obtained from the Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values (OEHHA 2018).

Air was the dominant pathway for public exposure to chemical substances that would be released by the project. Emissions to the air would consist primarily of combustion by products produced by the standby generators. Inhalation was the primary exposure pathway for all modeled sources and substances. For multi-pathway substances, non-inhalation exposure pathways are also to be evaluated (Dayzen 2020a, pg. 68). Additional pathways conservatively included in the health risk modeling were dermal absorption, soil ingestion, mother's milk, and homegrown crops. The pathways for surface drinking water, still-water fishing, and subsistence farming (the consumption of beef, dairy, pork, chicken, and eggs) were not in the assessment (Dayzen 2021a, HARP output files).

As mentioned above, DPM is the approved surrogate compound for diesel fuel combustion for purposes of health risk assessment. Annual emissions for each engine are based on the max allowed runtime of 50 hours per year Miratech catalyst/DPF emission, Scenario 2 (Dayzen 2020a, Table 4.3-13, and Dayzen 2021a, Table 4.3-5).

The results of the applicant's HRA for facility wide LBGF operation are presented in **Table 4.3-10** (Dayzen 2021c, pg. 7, Table 4.3-14 and Table 4.3-15. Dayzen 2021a, pg. 17 and Table 4.3-14) and show that the excess cancer risks, chronic HIs and acute HIs at the PMI, MEIR, MEIW and MEIS are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively. Staff concludes that the health risks from the project's operation would be less than significant.

The proposed LDC project is not located within an overburdened community; therefore, it is not subject to the new cancer risk threshold (i.e., 6 in one million if within an overburdened community) specified in BAAQMD Regulation 2, Rule 5 adopted on December 15, 2021. The proposed LDC project is in an 2013 Cumulative Impact Area and therefore a CARE community. However, as explained above, since its overall CalEnviroScreen 4.0 percentile score is 60 (less than 70), the proposed project is not located in an overburdened community.

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.

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**. Also, the 45 diesel back-up emergency generators are equipped with SCR equipment and DPF to achieve compliance with Tier 4 emission standards, Therefore, staff concludes that the health risks from the project's routine operation would be less than significant.

TABLE 4.3-10 OPERATION – MODELED RECEPTOR MAXIMUM HEALTH RISK

Receptor Type	Cancer Risk Impact (in one million)	Chronic Non-Cancer Hazard Index (HI)	Acute Non-Cancer Hazard Index (HI)
PMI[1]	8.34	0.00193	NA
MEIR[2]	6.1	0.00141	NA
MEIW[3]	1.83	0.00193	NA
MEIS[4]	0.147	0.000034	NA
BAAQMD Threshold	10	1	NA

Notes:
[1] Point of Maximum Impact (PMI). It is located on the east side of the project fence line.
[2] Maximally Exposed Individual Resident (MEIR). It is the nearest residences at 810 Comstock Street about 300 feet away north from the project.
[3] Maximally Exposed Individual Worker (MEIW). It is at the same location of PMI. This receptor is located along the property boundary/fence line on the east side of the project next near the existing rail line. This represents a non-habitable location that neither represents a worker or residential location. However, staff used the project impacts at PMI to conservatively represent the impacts at MEIW.
[4] Maximally Exposed Individual Sensitive Receptor (MEIS). The nearest sensitive receptor is a school located to the west of the site at approximately 3,130 feet.
Source: Dayzen 2021c, pg. 7, Table 4.3-14 and Table 4.3-15. Dayzen 2021a, pg. 17, Table 4.3-14. Dayzen 2022a, Table 4.3-21 and Table 4.3-22.

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. As mentioned above, the cumulative local community risk and hazard impact is 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 $\mu g/m^3$

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 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." However, the 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 (BAAQMD 2012) 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. After thoroughly searching, staff found that the stacks at the Donald Von Raesfeld (DVR) power plant are just beyond 1,000 feet from project fence line. Since power plants are considered large sources, staff included the DVR power plant in staff's cumulative HRA. Staff did not identify any other large sources, therefore staff conducted the cumulative HRA within 1,000 feet of the project fence-line with the addition of the DVR power plant.

Per staff's request in Data Request #5, the applicant provided a cumulative HRA and compared results with the BAAQMD threshold of significance for cumulative risk and hazards (Dayzen 2022a, pg. 5-8). The applicant identified eight stationary sources and mobile source impacts from the nearest major roadway within 1,000 feet of the project boundaries (Dayzen 2022a, pg. 5-6). The maximum cumulative cancer risk was 34.26, below the threshold of 100. The maximum cumulative Hazard Index (0.19) was also below the threshold of 10. The maximum cumulative Maximum PM2.5 (3.14 $\mu g/m^3$) was above the thresholds of 0.8 $\mu g/m^3$ (Dayzen 2022a, pg. 8 and Table 4.3-28). However, the applicant only conducted the cumulative HRA for the MEIR as part of the project (Dayzen 2022a, pg. 7), but not for other sensitive receptors.

Staff also conducted an independent cumulative HRA, assessing the proposed project's impact summed with the impacts of existing sources within 1,000 feet[8] of the maximally exposed sensitive receptors, including MEIR, MEIW, and MEIS. The results of staff's cumulative HRA were compared to the BAAQMD CEQA cumulative thresholds of significance (BAAQMD, 2017b) in **Table 4.3-11, Table 4.3-12** and **Table 4.3-13**. The staff's cumulative HRA includes six major sources of impacts: (1) existing stationary sources; (2) surrounding highways, main streets, and railways; (3) San Jose International Airport; (4) the Walsh Data Center; (5) the Sequoia Data Center; and (6) the project. 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 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 hazard index, and PM2.5 concentrations of existing stationary sources were first retrieved from BAAQMD'S Permitted Sources Risk and Hazards Map[9]. Staff used this mapping tool to identify the location of stationary sources and their estimated screening level cancer risk and hazard impacts. 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 toxic air contaminants emitted from an existing stationary source and how far a stationary source is from the receptors (i.e. Project's MEIR, MEIW or MEIS) to calculate overall cancer risk, hazard index, and PM2.5 concentration from a stationary source. Staff searched the emissions data from existing stationary sources within 1,000 feet of the proposed project and estimated the distances of these stationary sources to the project's MEIR, MEIW, and MEIS. Staff then applied these distances in the Health Risk Calculator to get the refined cumulative cancer risk, non-cancer hazard index, and PM2.5 concentration of the stationary sources at the project's MEIR, MEIW, and MEIS. It should also be noted that staff's cumulative HRA did consider nearby data centers such as Digital Realty's data centers at 2805 Lafayette Street and at 3011 Lafayette Street, Microsoft Corporation at 2045 Lafayette Street if they fall into the 1,000-foot radius and the DVR power plant.

For the DVR power plant, staff noticed that the screening health risks from the BAAQMD's Permitted Sources Risk and Hazards Map are extremely high. The BAAQMD screening cancer risk, chronic HI, and PM2.5 impact of DVR are shown to be 64.75 in one million,

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

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, Accessed May 2022.

10 The 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, Accessed May 2022.

1.1, and 26.27 µg/m^3 respectively, which are all above the significance thresholds for single sources. BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD 2012) recommends refined modeling analysis to be done if screening health risks are above the thresholds. The staff assessment of the Pico Power Plant (renamed to DVR) project (CEC 2003a and CEC 2003b) includes health risks of DVR from refined modeling. The cancer risk and chronic HI of DVR for maximally exposed individual were modeled to be 0.133 in a million and 0.014 respectively. Staff added these refined modeling results to the cumulative health risks from existing stationary sources at the MEIW, MEIR and MEIS for the LDC project (shown in **Tables 4.3-11** and **4.3-12**). Adding these values together assumes the maximally exposed individual receptors for the DVR and the LDC project would occur at the same locations, which is unlikely to occur. These are worst-case additions for screening purposes and should not be used as precedent for future projects. Staff could also perform an HRA to estimate the health risks from DVR at the maximally exposed individual receptors of the LDC project, but such analysis is not necessary for the cancer risks and chronic HI. However, the worst-case modeled PM impact from DVR was shown as 0.89 µg/m^3 in the staff assessment of DVR (CEC 2003b), which itself is already above the cumulative threshold of 0.8 µg/m^3. Therefore, staff performed a refined modeling analysis of the PM2.5 impacts from DVR at the maximally exposed individual receptors of the LDC project. Staff's modeling analysis is based on stack parameters, building dimensions, and worst-case emissions from the 2002 AFC for the DVR project. The PM2.5 impacts from staff's refined modeling of the DVR are included in the row for existing stationary sources in **Table 4.3-13**.

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. The tools developed by BAAQMD incorporate risk assessment procedures from the 2015 OEHHA Air Toxics Hot Spots Program Guidance. The cancer risk and PM2.5 concentration from surrounding highways, major streets, and railways within 1,000 feet of the project 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.

If considering the electrification of the Caltrain as a probable future and foreseeable project, the emission from the railways would be substantially reduced. Therefore, staff conducted a refined cumulative HRA. The 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.

In Caltrain 2017 Sustainability Report, it is said that "the improved system will reduce criteria air pollutant emissions by up to 97 percent[11]." In the Peninsula Corridor Electrification Project (PCEP) FEIR 2014[12] for the Caltrain electrification project, it says annual DPM emissions would be reduced by 87 percent in 2020 and 100 percent in 2040 (assuming 100 percent electrified service between San Jose and San Francisco). Therefore, staff used the 87 percent reduction as a more conservative approach to refine the PM2.5 concentration of railroad.

In applicant's cumulative HRA for MEIR, they used the CARB EMFAC2017 emission model (CT-EMFAC2017) for traffic emissions. DPM emissions were projected to decrease in the future and were reflected in the CT-EMFAC2017 emissions data (Dayzen 2022a, pg. 6-8 and Table 4.3-28). Since the data is more updated and the assumption is reasonable, staff used the results of the applicant for traffic to refine the cumulative HRA of PM2.5 concentration on MEIR.

3. San Jose International Airport

The majority of the Norman Y. Mineta San Jose International Airport, and TAC sources therein, is more than 1,000 feet away from the Lafayette project boundary. The November 2019 Draft Environmental Impact Report (EIR), published by the city of San Jose, for the airport master plan update is available on the city's website[13]. Staff obtained the modeling files for the airport from the city of San Jose.

Based on the modeling files from city of San Jose for baseline year 2018, staff performed an independent HRA of the airport sources located within 2,000 feet of the project, as suggested previously by BAAQMD staff for the Walsh Data Center and Sequoia Data Center projects. Staff excluded sources beyond 2,000 feet, as this distance precludes the possibility the sources would combine to produce a cumulative impact. The 2,000-foot zone area focuses on the northwestern portion of the airport. The results of staff's independent analysis are shown below in **Table 4.3-11** for 30-year cancer risk for residential/sensitive receptors and 25-year cancer risk for worker receptors, **Table 4.3-12** for chronic hazard indices, and **Table 4.3-13** for annual PM2.5 concentrations.

4. The Walsh Data Center

The CEC approved a Small Power Plant Exemption for the Walsh Data Center in August 2020 and the project has since commenced construction. Staff obtained the health risks at the MEIW, MEIR, and Maximally Exposed Individual Sensitive Receptor (MEI SR) for the Walsh Data Center from the cumulative HRA tables shown in CEC Staff Responses to

11 Caltrain 2017 Sustainability Report, https://www.caltrain.com/media/1625/download

12 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

13 https://www.sanjoseca.gov/your-government/department-directory/planning-building-code-enforcement/planning-division/environmental-planning/environmental-review/active-eirs/sjc-airport-master-plan-update

Committee Questions for the Walsh Data Center (TN 232977). These are the highest risk values modeled for each type of sensitive receptors. Staff then added these values to the cumulative health risks at the MEIW, MEIR and MEIS for the LDC project. Adding these values together assumes the maximally exposed individual receptors for the Walsh Data Center and the LDC project would occur at the same locations, which is unlikely to occur. These are worst-case additions for screening purposes and should not be used as precedent for future projects. Staff could also refine the calculation by searching for the health risks from the Walsh Data Center at the maximally exposed individual receptors of the LDC project, but such analysis is not necessary for this project.

5. The Sequoia Data Center

Similarly, CEC staff approved a Small Power Plant Exemption for the Sequoia Data Center in June 2021, and the project (substation component) is under construction. Staff obtained the health risks at the MEIW, MEIR, Maximally Exposed Soccer Child Receptor (MESCR), and Maximally Exposed Childcare Receptor (MECR) for the Sequoia Data Center from the cumulative HRA tables shown in the Commission Final Decision for the Sequoia Data Center (TN 238706). These are the highest risk values modeled for each type of sensitive receptors. Staff then added these values to the cumulative health risks at the MEIW, MEIR, and MEIS for the LDC project. Adding these values together assumes the maximally exposed individual receptors for the Sequoia Data Center and the LDC project would occur at the same locations, which is unlikely to occur. These are worst-case additions for screening purposes and should not be used as precedent for future projects. Staff could also refine the calculation by searching for the health risks from the Sequoia Data Center at the maximally exposed individual receptors of the LDC project, but such analysis is not necessary for this project.

6. The Project

For the proposed project, please see the result of the applicant's HRA for facility wide operation of LDC presented in **Table 4.3-10**. The PM2.5 concentration is based on the applicant's modeling files for annual PM2.5 impacts.

Table 4.3-11, **Table 4.3-12**, and **Table 4.3-13** 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 4.3-11**, **Table 4.3-12**, and **Table 4.3-13** show that 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 of each receptor.

To minimize the project's contribution to the cumulative impact, the project would implement the necessary BACT to reduce diesel particulate matter and PM2.5. Each of the 45 diesel gensets would be equipped with SCR equipment and DPF to achieve compliance with Tier 4 emission standards. Staff expects this would reduce the risk and

PM2.5 concentration. Therefore, staff concludes that the proposed project would not cause cumulatively considerable impacts.

TABLE 4.3-11 CANCER RISKS (PER MILLION) FROM CUMULATIVE SOURCES

Sources of Cumulative Impacts	Cancer Risk at MEIW[a]	Cancer Risk at MEIR[b]	Cancer Risk at MEIS[c]
Existing Stationary Sources	0.29	1.90	1.01
Surrounding Highways, Major Streets, and Railways[d]	20.10	51.02	26.39
San Jose International Airport[e]	2.69	23.74	5.35
Walsh Data Center[f]	4.64	0.04	0.04
Sequoia Data Center[g]	2.2	0.19	0.5
LDC (project)	1.83	6.1	0.15
Total - Cumulative Sources	31.75	83.00	33.44
Significance Threshold	100	100	100
Potential Significant Impact?	No	No	No

Notes:
[a] Maximally Exposed Individual Worker (MEIW). It is at the same location of PMI. This receptor is located along the property boundary/fence line on the east side of the project next near the existing rail line. This represents a non-habitable location that neither represents a worker or residential location. However, staff used the project impacts at PMI to conservatively represent the impacts at MEIW. Staff used the cumulative HRA 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.
[b] Maximally Exposed Individual Resident (MEIR). It is the nearest residences at 810 Comstock Street about 300 feet away north from the project.
[c] Maximally Exposed Individual Sensitive Receptor (MEIS). The nearest sensitive receptor is a school located to the west of the site at approximately 3,130 feet.
[d] Staff assumed railway impacts would be reduced by 87% to reflect the effects of Caltrain Modernization Program.
[e] Staff modeled the health risks of the emissions from portions of the San Jose International Airport that are within 2,000 feet of the project boundary.
[f] The health risks at the MEIW, MEIR, and MEI SR for the Walsh Data Center are obtained from the cumulative HRA tables shown in CEC Staff Responses to Committee Questions for the Walsh Data Center (TN 232977). These are worst-case additions for screening purposes and should not be used as precedent for future projects.
[g] The health risks at the MEIW, MEIR, MESCR, and MECR for the Sequoia Data Center are obtained from the cumulative HRA tables shown in the Commission Final Decision for the Sequoia Data Center (TN 238706). These are worst-case additions for screening purposes and should not be used as precedent for future projects.
Sources: CEC staff analysis of data from BAAQMD, Dayzen 2022a, Table 4.3-21 and Table 4.3-22, and CEC 2003a, Public Health Table 2.

TABLE 4.3-12 CHRONIC HAZARD INDICES FROM CUMULATIVE SOURCES

	Chronic Hazard Index		
Sources of Cumulative Impacts	**MEIW[a]**	**MEIR[b]**	**MEIS[c]**
Existing Stationary Sources	0.0144	0.02	0.021
Surrounding Highways, Major Streets, and Railways	No Data Available	No Data Available	No Data Available
San Jose International Airport[d]	0.097	0.071	0.012
Walsh Data Center[e]	0.004	0.00001	0.00001
Sequoia Data Center[f]	0.007	0.00005	0.00006
LDC (project)	0.0019	0.0014	0.00003
Total - Cumulative Sources	0.11	0.091	0.033
Significance Threshold	10	10	10
Potential Significant Impact?	No	No	No

Notes:
[a] Maximally Exposed Individual Worker (MEIW). It is at the same location of PMI. This receptor is located along the property boundary/fence line on the east side of the project next near the existing rail line. This represents a non-habitable location that neither represents a worker or residential location. However, staff used the project impacts at PMI to conservatively represent the impacts at MEIW.
[b] Maximally Exposed Individual Resident (MEIR). It is the nearest residences at 810 Comstock Street about 300 feet away north from the project.
[c] Maximally Exposed Individual Sensitive Receptor (MEIS). The nearest sensitive receptor is a school located to the west of the site at approximately 3,130 feet.
[d] Staff modeled the health risks of the emissions from portions of the San Jose International Airport that are within 2,000 feet of the project boundary.
[e] The health risks at the MEIW, MEIR, and MEI SR for the Walsh Data Center are obtained from the cumulative HRA tables shown in CEC Staff Responses to Committee Questions for the Walsh Data Center (TN 232977). These are worst-case additions for screening purposes and should not be used as precedent for future projects.
[f] The health risks at the MEIW, MEIR, MESCR, and MECR for the Sequoia Data Center are obtained from the cumulative HRA tables shown in the Commission Final Decision for the Sequoia Data Center (TN 238706). These are worst-case additions for screening purposes and should not be used as precedent for future projects.
Sources: CEC staff analysis of data from BAAQMD, Dayzen 2022a, Table 4.3-21 and Table 4.3-22, and CEC 2003a, Public Health Table 2.

TABLE 4.3-13 ANNUAL PARTICULATE MATTER (PM2.5) CONCENTRATIONS (µg/m³) FROM CUMULATIVE SOURCES

	Annual DPM/PM2.5 Concentration		
Sources of Cumulative Impacts	**MEIW[a]**	**MEIR[b]**	**MEIS[c]**
Existing Stationary Sources	0.13	0.0983	0.0013
Surrounding Highways, Major Streets, and Railways[d]	0.1356	0.6641	0.5397
• **Railways**	0.0025	0.0041	0.0041
• **Major Streets**	0.0546	0.14	0.2634
• **Highways**	0.0786	0.52	0.2723
San Jose International Airport[e]	0.0273	0.0206	0.0053
Walsh Data Center[f]	0.03	0.00006	0.00006
Sequoia Data Center[g]	0.04	0.0003	0.00031
LDC (project)	0.0096	0.0074	0.0002
Total - Cumulative Sources	0.37	0.79	0.56
Significance Threshold	0.8	0.8	0.8
Potential Significant Impact?	No	No	No

Notes:

[a] Maximally Exposed Individual Worker (MEIW). It is at the same location of PMI. This receptor is located along the property boundary/fence line on the east side of the project next near the existing rail line. This represents a non-habitable location that neither represents a worker or residential location. However, staff used the project impacts at PMI to conservatively represent the impacts at MEIW. Staff used the cumulative HRA 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.

[b] Maximally Exposed Individual Resident (MEIR). It is the nearest residences at 810 Comstock Street about 300 feet away north from the project. Staff refined the PM2.5 impacts from traffic for this receptor by using the numbers provided by the applicant (i.e., impacts from Central expressway/Lafayette Street Traffic). Staff also performed a refined modeling analysis of the PM2.5 impacts from the DVR power plant based on stack parameters, building dimensions, and worst-case emissions from the 2002 AFC for the DVR project.

[c] Maximally Exposed Individual Sensitive Receptor (MEIS). The nearest sensitive receptor is a school located to the west of the site at approximately 3,130 feet.

[d] Staff assumed railway impacts would be reduced by 87% to reflect the effects of Caltrain Modernization Program.

[e] Staff modeled the health risks of the emissions from portions of the San Jose International Airport that are within 2,000 feet of the project boundary.

[f] The health risks at the MEIW, MEIR, and MEI SR for the Walsh Data Center are obtained from the cumulative HRA tables shown in CEC Staff Responses to Committee Questions for the Walsh Data Center (TN 232977). These are worst-case additions for screening purposes and should not be used as precedent for future projects.

[g] The health risks at the MEIW, MEIR, MESCR, and MECR for the Sequoia Data Center are obtained from the cumulative HRA tables shown in the Commission Final Decision for the

Sequoia Data Center (TN 238706). These are worst-case additions for screening purposes and should not be used as precedent for future projects.
Sources: CEC staff analysis of data from BAAQMD, Dayzen 2022a, Table 4.3-21 and Table 4.3-22, and 2002 AFC for the DVR project.

Required Mitigation Measures: None.

d. 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 4.3-14**. Second, if the proposed project would result in an odor source and receptors within the screening level distances indicated in **Table 4.3-14**, a more detailed analysis should be conducted (BAAQMD 2017b).

TABLE 4.3-14 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

TABLE 4.3-14 PROJECT SCREENING TRIGGER LEVELS FOR POTENTIAL ODOR SOURCES

Land Use/Type of Operation	Project Screening Distance
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 project readiness testing and maintenance along with emergency operation would include diesel exhaust from standby generator 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 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. The applicant provided a mitigation measure **AQ-1**, as shown below, to ensure it reflects the assumptions used as the bases for construction equipment emissions estimates and modeling (Dayzen 2021b).

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 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. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the 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 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.
- As a condition of contract, require all on-road heavy-duty trucks to be zero emissions or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, as available. Use grid power for construction activities whenever possible; if grid power is not available, use alternative power such as battery storage, hydrogen fuel cells, or renewable fuels. If no other options are available, use Final Tier 4 diesel generators.
- Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed construction areas. Wind breaks should have at maximum 50 percent air porosity.
- Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
- 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.

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4.4 Biological Resources

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project with respect to biological resources that occur in the project area.

BIOLOGICAL RESOURCES Except as provided in Public Resources Code Section 21099, would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.4.1 Environmental Setting

The proposed project is located on an approximately 15-acre site within an industrial area in the city of Santa Clara, California. The property is zoned Heavy Industrial and currently developed with two two-story office buildings and associated paved parking and loading dock areas (Dayzen 2020a). The adjacent properties consist of industrial facilities to the north, south, and west as well as Union Pacific Railroad (UPRR) tracks and an industrial facility to the east (Dayzen 2020a). The Norman Y Mineta San Jose International Airport

(SJC) is located approximately 800 feet to the east. Mature trees and other ornamental landscaping are located along Lafayette Street to the west, along the northern, eastern, and southern property boundaries as well as throughout the parking areas and common outdoor areas of the existing office buildings. Refer to the **Section 3.0 Project Description** for further details regarding the project.

There are no natural or sensitive habitats located on or adjacent to the site. The closest habitat is non-native annual grassland located at the SJC where western burrowing owls (*Athene cunicularia hypugaea*; SSC) are known to occur (CNDDB 2020). There are no waterways, wetlands, or other aquatic resources located on or adjacent to the site. The Guadalupe River is the nearest waterway, located approximately 0.9 mile east of the site. The river drains into the San Francisco Bay.

Special-Status Species and Sensitive Habitats

Special-status species are plant and wildlife species that have been afforded special recognition by federal, state, or local resource agencies or organizations. Due to the developed nature of the project site and surrounding areas, the site does not provide habitat capable of supporting a diverse assemblage of native plants or wildlife. In addition, ongoing disturbance from use of the site and other adjacent industrial activity would further limit the suitability of the highly disturbed site as wildlife habitat. Most rare, threatened, endangered, and sensitive plant and wildlife species are not expected to occur on the site because the site does not contain suitable habitat for most species (CNDDB 2020). There is no designated or proposed critical habitat for federally-listed species in the project area (USFWS 2020). Based on the specialized habitat requirements (e.g., vernal pools, marsh, riparian, chaparral, coastal scrub, or serpentine soils) for special-status plants potentially occurring in the region, there are no special-status plant species with the potential to occur on site (CNDDB 2020; CNPS 2020).

There are several special-status wildlife species historically occurring in the project vicinity (CNDDB 2020). There are two insects that are not yet formally listed, but are candidates for state listing, which include crotch bumble bee (*Bombus crotchii*) and western bumble bee (*Bombus occidentalis*). While these species are documented within the project vicinity, based on historical records, they are not documented on the project site (CNDDB 2020). The urban habitat present on the project site is not ideal natural habitat for these species and the species are not likely to be present. Western burrowing owl are known to occur as year-round residents at the SJC, located approximately 800 feet east of the proposed project site (CNDDB 2020; Albion 1997). The SJC is separated from the project site by the Central Expressway, De La Cruz Blvd, the UPRR, and industrial development. However, this species is not expected to occur due to lack of suitable habitat, including a lack of herbaceous ground cover and foraging habitat as well as absence of burrows or burrow surrogates.

Existing mature trees on and near the project site provide potential nesting habitat and food sources for bird species, including raptors (birds of prey) and other migratory birds, protected by the Migratory Bird Treaty Act (MBTA) and Sections 3503 and 3503.5 of the

California Fish and Game Code. Cooper's hawk is special-status raptor that potentially occurs in the project area based on the presence of mature trees. Other special-status raptors are not likely to occur based on lack of specific habitat requirements for Swainson's hawk (*Buteo swainsoni*), including open grassland near agricultural areas for foraging, and American peregrine falcon (*Falco peregrinus anatum*), including high rise buildings or cliffs for nesting. Northern coastal salt marsh, located approximately 5 miles northwest, is known to support several special-status species of birds and mammals. Northern coastal salt marsh is considered a sensitive habitat by the California Department of Fish and Wildlife and is included as a sensitive natural community in the California Natural Diversity Database (CNDDB).

Landscape Trees

Mature trees and other ornamental landscaping are present along Lafayette Street to the west, along the northern, eastern, and southern property boundaries, as well as throughout the parking areas and common outdoor areas of the existing office buildings. A certified arborist conducted a survey and provided an inventory report of the trees on the project site and updates were included in Response Set 2 (DayZen 2020b; DayZen 2020d). There are 476 existing trees, including 2 stumps and 2 dead trees, which consist of 26 species; refer to Table 4.4-1: Existing Tree Summary for a complete list of the existing tree species (DayZen 2020a). Of these 26 species, 3 species are considered protected under City of Santa Clara General Plan Policy 5.10.1-P4, specifically holly oak (*Quercus ilex*), Peruvian pepper (*Schinus mole*), and bay laurel (*Laurus nobilis*). The five most common species include London plane (*Platanus* x *acerifolia*), Italian cypress (*Cupressus sempervirens*), Raywood ash (*Fraxinus angustifolia*), crape myrtle (*Lagerstroemia indica*), and ornamental cherry (*Prunus* sp.).

Regulatory Background

Federal

Endangered Species Act of 1973 (16 U.S.C.A., § 1531 et seq., and 50 C.F.R., part 17). The Endangered Species Act (ESA) of 1973 designates and provides for protection of threatened and endangered plant and animal species, and their critical habitat. "Take" of federally listed species as defined in the ESA is prohibited without incidental take authorization. "Take" is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include significant habitat modification or degradation that directly results in death or injury to a listed wildlife species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 C.F.R., part 17.3). Take authorization may be obtained through Section 7 consultation (between federal agencies) or a Section 10 Habitat Conservation Plan (non-federal landowners). The administering agencies are the United States Fish and Wildlife Service (USFWS), the National Oceanic Atmospheric Administration (NOAA), and National Marine Fisheries Service (NMFS).

Migratory Bird Treaty Act of 1918 (16 U.S.C., §§ 703–712). The Migratory Bird Treaty Act (MBTA) makes it unlawful to take or possess any migratory nongame bird (or

any part of such migratory nongame bird including nests with viable eggs). The administering agency is the USFWS.

Clean Water Act Sections 401 and 404 (33 U.S.C., § 1341 and 33 U.S.C., §§1251–1376). The Clean Water Act (CWA) requires the permitting and monitoring of all discharges to surface water bodies. Section 404 requires a permit from the United States Army Corps of Engineers (USACE) to discharge dredged or fill material into waters of the United States, including wetlands. Section 401 requires a permit from the regional water quality control board for the discharge of pollutants. The administering agencies are the USACE and State Regional Water Quality Control Board.

State

California Endangered Species Act (Fish and Game Code, §§ 2050 et seq.). The California Endangered Species Act (CESA) protects California's rare, threatened, and endangered species. CESA allows the California Department of Fish and Wildlife (CDFW) to issue an incidental take permit for a species listed as candidate, threatened, or endangered only if that take is incidental to otherwise lawful activities and specific criteria are met. These criteria are listed in Title 14 of the California Code of Regulations, section 783.4 subdivisions, (a) and (b). For purposes of CESA, "take" means to "hunt, pursue, catch, capture, or kill", or "attempt to hunt, pursue, catch, capture, or kill" (Fish and Game Code, § 86). The administering agency is CDFW.

Fully Protected Species (Fish and Game Code, §§ 3511, 4700, 5050, and 5515). These sections designate certain species as fully protected and prohibit the take of such species or their habitat unless for scientific purposes (see also Cal. Code Regs., tit. 14, § 670.7). Incidental take of fully protected species may also be authorized in a Natural Community Conservation Plan (NCCP) (Fish and G. Code, § 2835). The administering agency is CDFW.

Fish and Game Code. The following sections of the Fish and Game Code designate protections for birds and/or their nests or eggs. The administering agency is CDFW.

- Section 3503: This section protects California's birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.
- Section 3503.5: This section makes it unlawful to take, possess, or destroy any birds in the orders Falconiformes and Strigiformes or to take, possess, or destroy the nest or eggs of any such bird.
- Section 3513: This section protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame birds.

Native Plant Protection (Fish and Game Code, § 1900 et seq.). The Native Plant Protection Act (NPPA) was enacted in 1977 designates state rare and endangered plants and provides specific protection measures for identified populations. The NPPA prohibits take of endangered or rare native plants but includes some exceptions for agricultural

and nursery operations; emergencies; and, after properly notifying CDFW, for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations. The administering agency is CDFW.

Local

City of Santa Clara. The City of Santa Clara 2010–2035 General Plan (General Plan) adopted November 16, 2010, goals and policies that address the protection and preservation of the city's natural habitat and wildlife are described in Section 10, Environmental Quality, of Chapter 5 (Santa Clara 2010). The administering agency is the Planning Division of the City of Santa Clara. General Plan goals and policies applicable to the proposed project are as follows:

- 5.3.1-P10 Provide opportunities for increased landscaping and trees in the community, including requirements for new development to provide street trees and a minimum 2:1 on- or off-site replacement for trees removed as part of the proposal to help increase the urban forest and minimize the heat island effect.
- 5.10.1-G1 Protect fish, wildlife, and their habitats, including rare and endangered species.
- 5.10.1-P1 Require environmental review prior to approval of any development with the potential to degrade the habitat of any threatened or endangered species.
- 5.10.1-P3 Require preservation of all City-designated heritage trees listed in the Heritage Tree Appendix 8.10 of the General Plan.
- 5.10.1-P4 Protect all healthy cedars, redwoods, oaks, olives, bay laurel and pepper trees of any size, and all other trees over 36 inches in circumference measured from 48 inches above-grade on private and public property as well as in the public right-of-way.
- 5.10.1-P12 Encourage property owners and landscapers to use native plants and wildlife-compatible nonnative plants, when feasible.

Santa Clara City Code Chapter 12.35 Section 020. This section of the Santa Clara City Code specifies how to proceed with certain issues with trees and shrubs growing in the streets or public places (Santa Clara 2020). This includes addressing the removal, alteration, or damage to trees via trenching. Special authorization for removal or alteration is required for trees and shrubs growing in the streets or public places. The administering agency is the Streets Department in the Department of Public Works of the City of Santa Clara.

4.4.3 Environmental Impacts

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional

plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The proposed project site is within an urbanized area and located on developed land that is surrounded by industrial development. Land cover includes office buildings and paved parking lots with vegetation limited to landscaping, which consists of mature trees, shrubs, and ground cover plants (DayZen 2020a). There were no wildlife species observed during CEC staff's site visit in September 2019. Urban adapted species such as western fence lizard (*Sceloporus occidentalis*), northern mockingbirds (*Mimus polyglottos*), and house finch (*Haemorhous mexicanus*) may tolerate the conditions of disturbed habitats (Mayer & Laudenslayer, Jr. 1988); however, none of these species were observed during the site visit.

Construction

Less Than Significant with Mitigation Incorporated. Rare, threatened, endangered, and sensitive plant species are not expected to occur on site because the site does not contain suitable habitat (e.g., vernal pools, marsh, riparian, chaparral, coastal scrub, or serpentine soils), excluding Cooper's hawk. While there are several special-status wildlife species, including crotch bumble bee, western bumble bee, Swainson's hawk, American peregrine falcon, and western burrowing owl, that are known to occur in the project region, the project site does not provide suitable habitat for these species.

Existing mature trees on and near the project site provide potential habitat and food sources for bird species, including raptors and other migratory birds, protected by the Migratory Bird Treaty Act (MBTA) and Sections 3503 and 3503.5 of the California Fish and Game Code. Bat species such as pallid bat may occur occasionally on site and utilize existing landscape trees and buildings for roosting.

Nesting Birds. Tree removal associated with project implementation could result in direct destruction of active nests of protected birds and raptors protected if tree removal occurs during the nesting season (generally defined as February 15 to September 15). Project construction could also result in indirect disturbance of nesting birds on or near the project site causing nest abandonment by the adults and mortality of chicks and eggs. Destruction of active bird nests, nest abandonment, and/or loss of reproductive effort caused by disturbance are considered "take" by the CDFW, and therefore would be a significant impact.

The applicant has proposed a measure to reduce impacts to nesting birds as part of the Responses to Data Requests Set 1 (DayZen 2020c). Staff evaluated this measure in the context of the potential impacts to nesting birds and considers this measure adequate to reduce impacts to nesting birds with minor modifications based on coordination with City of Santa Clara staff (CEC 2020a). Staff proposes implementation of mitigation measure **BIO-1,** which would reduce construction impacts to a less-than-significant level because it includes requirements to attempt to conduct tree removal outside the nesting period, to conduct nesting bird surveys prior to initiation of any type of construction activities during the nesting period, and to establish buffers to avoid disturbance of nesting birds

if active nests are detected, as well as for the ornithologist to consult with CDFW on the extent of modifications to construction-free buffer zones. In addition, **BIO-1** specifies that tree removal shall not occur in any tree with an active nest until the ornithologist has determined that the young have fledged, or the nest is no longer active. A survey report, which would include recommended buffer zones, would be submitted to the Director of Community Development prior to start of any construction or issuance of permits for tree removal, demolition or grading by the City of Santa Clara.

Implementation of **BIO-1** would reduce potential impacts to protected raptors and other migratory birds resulting from implementation of the proposed project and no additional mitigation would be required. Therefore, construction of the project would not have a substantial adverse effect on special-status species and impacts would be less than significant.

Operation

Less Than Significant. Operation and maintenance activities, such as landscape and irrigation maintenance, are expected to result in the same level of human presence and disturbance as current landscape and irrigation maintenance activities. The only other operational impacts that could potentially affect biological resources are indirect impacts resulting from project-related nitrogen deposition on nitrogen sensitive habitats.

Operation of the project's 44, 3-megawatt (MW) backup diesel generators would result in emissions of oxides of nitrogen (NOx). Nitrogen deposition is defined as the input of nitrogen oxide (NOX) and ammonia (NH3) derived pollutants, primarily nitric acid (HNO3), from the atmosphere to the biosphere. The sources of these pollutants are primarily vehicle and industrial emissions, including power generation. Increased nitrogen deposition in nitrogen poor habitat allows the proliferation of non-native species which crowds out native species (Fenn et al. 2003; Weiss 2006). Threats to sensitive species habitat from noxious weeds are exacerbated by nitrogen fertilization, and the deposition of additional nitrogen in an already stressed ecosystem would be a potentially significant indirect impact.

Staff considered protected areas and designated critical habitat within a 6-mile radius around the proposed project in the analysis of nitrogen deposition from the proposed project. It has been staff's experience that by the time the emissions plume has traveled this distance, in-plume concentrations become indistinguishable from background concentrations. Further, staff considered habitat modification to protected areas and designated critical habitat to be a potentially significant effect if these communities were known to be sensitive to nitrogen deposition. There is no designated or proposed critical habitat for federally-listed species within 6 miles of the project area.

Northern coastal salt marsh located in the Guadalupe Slough near the San Francisco Bay Trail, is the only protected area within 6 miles of the project known to be sensitive to nitrogen deposition. This habitat occurs along margins of the San Francisco Bay in areas that are sheltered from excessive wave action (Mayer, K.E. and W.F. Laudenslayer, Jr.

1988). Northern coastal salt marsh is also considered a sensitive natural community by the CDFW and included in the California Natural Diversity Database (CNDDB 2020). Several special-status species are known to occur in this area of northern coastal salt marsh habitat including California Ridgway's rail (*Rallus obsoletus*; FE, SE, FP), salt marsh common yellowthroat (*Geothlypis trichas sinuosa*; SSC), Alameda song sparrow (*Melospiza melodia pusillula*; BCC, SSC), salt marsh wandering shrew (*Sorex vagrans halicoetes*; SSC), and salt marsh harvest mouse (*Reithrodontomys raviventris*; FE, SE) (CNDDB 2020).

One approach for quantifying nitrogen deposition is through critical load, which is defined as the input of a pollutant below which no detrimental ecological effects occur over the long-term. Salt marsh habitat tends to have a higher critical load than other ecosystems due to its open nutrient cycles that are less affected by atmospheric deposition than other nitrogen loading sources (Pardo et. al. 2011, pg. 3071). Critical load for early successional salt marsh has been estimated to be in the range of 30-40 kilograms nitrogen per hectare per year (kg N/ha/yr) (Bobbink et. al. 2010, pg. 47), and 50-100 kg N/ha/yr for intertidal wetlands and 63-400 kg N/ha/yr for intertidal salt marshes (Pardo et. al. 2011, pg. 3059). Staff used the conservative estimate of 30-40 kg N/ha/yr as the critical load for northern coastal salt marsh.

Impacts potentially could occur if the emissions from the proposed project in conjunction with baseline nitrogen deposition levels exceeded the critical load for the community. For a baseline nitrogen deposition estimate, staff used the Community Multiscale Air Quality (CMAQ) modeling system, which provides estimates of ozone, particulates, toxics, and acid deposition. Staff considered the most recent CMAQ-predicted value of 11.4 kg N/ha/yr from 2012 at northern coastal salt marsh habitat as the best available data to determine baseline nitrogen deposition (CMAQ 2020). Based on conservative modeling using AERMOD performed by CEC staff for similar facilities[1] in the vicinity, the project's estimated contributions to existing nitrogen deposition would be between 0.01 and 0.03 kg N/ha/yr. These values are based on the use of Tier 2 diesel engines.

The project's estimated contribution (between 0.01 and 0.03 kg N/ha/yr) when added to the baseline nitrogen deposition value (11.4 kg N/ha/yr) at northern coastal salt marsh would be substantially below the critical load (30-40 kg N/ha/yr) for this habitat type. In addition, with the switch from Tier 2 to Tier 4 engines, emissions and associated impacts from the engines would be even lower. Operation of the proposed project would not result in a substantial adverse effect from nitrogen deposition, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status. Therefore, this impact would be less than significant.

1 The similar facilities include the McLaren Data Center (47, 2.75 MW diesel fired backup generators) and Laurelwood Data Center (56, 3.0-MW diesel fired backup generators). These facilities would be located at comparable distances (approximately 4 to 5 miles) from the northern coastal salt marsh habitat as the proposed project.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Construction

No Impact. The project site is paved, developed land that is surrounded by industrial development. Land cover includes office buildings and paved parking lots with vegetation limited to landscaping, which consists of mature trees, shrubs, and ground cover plants. There are no riparian habitats or other sensitive natural communities identified in local or regional plans, policies, and regulations or by the CDFW or USFWS within the project site. Therefore, there would be no impact.

Operation

Less Than Significant Impact. No direct impacts would occur during operation of the proposed project. However, staff also considered indirect impacts from nitrogen deposition resulting from operation of the proposed project as a potential impact on sensitive natural communities. Northern coastal salt marsh is the only sensitive natural community known to occur within 6 miles of the proposed project.

As stated previously, indirect impacts could potentially occur if emissions from the proposed project along the with the baseline nitrogen deposition exceeded the critical load for the sensitive natural community. Vegetation-specific critical loads for nitrogen deposition would not be exceeded at any location with northern coastal salt marsh. Therefore, this impact would be less than significant.

c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?

Construction and Operation

No Impact. There are no state or federally protected wetlands within or adjacent to the project site. The closest aquatic feature to the project site is the Guadalupe River located approximately 0.9 mile east and separated from the site by the Central Expressway and a major roadway, De La Cruz Boulevard, and the SJC. There would be no impact resulting from construction or operation of the proposed project.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with

established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?

Construction and Operation

No Impact. There are no established wildlife corridors, such as rivers or streams, in the immediate project vicinity. The Guadalupe River is the closest corridor where movement or migration of native resident or migratory fish or wildlife species would likely occur. The nearest access point to the river is approximately 0.6-mile northeast of the proposed project. There are no known wildlife nursery sites, such as a rookery, fawning area, or fish spawning habitat, in the project area. There would be no impact resulting from construction or operation of the proposed project.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Construction

Less Than Significant Impact with Mitigation Incorporated. As part of the project, the applicant proposes removal of 375 of the 476 trees documented as occurring on site, including removal of 2 dead trees and 2 stumps (DayZen 2020c). Of the 375 trees, 371 are considered part of the urban forest under General Plan Policy 5.3.1-P10, which requires all removed trees, regardless of species, to be replaced at a minimum 2:1 ratio. No mitigation would be required for the 2 dead trees or 2 stumps. There are no trees to be removed that have a diameter greater than 36" at 48" above grade or diameter at breast height (dbh) or that would be classified as street trees. No heritage trees listed in the Heritage Tree Appendix 8.10 of the General Plan are present (Santa Clara 2010).

The project proposes to remove five protected tree species cited in Policy 5.10.1-P4, specifically Tree 341 (holly oak), Tree 343 (Peruvian pepper), Tree 172 (bay laurel), Tree 194 (bay laurel), and Tree 337 (Peruvian pepper) (DayZen 2020c). City of Santa Clara expects an applicant to retain protected trees on site, if feasible, where they would not conflict with building or required parking placement (CEC 2020a). Tree 341 (holly oak) and Tree 343 (Peruvian pepper) are both located within the Silicon Valley Power (SVP) easement and SVP has required that the applicant remove all trees within the SVP easement and wire zones to mitigate fire risk (DayZen 2020d). Tree 172 (bay laurel) and Tree 194 (bay laurel) would be in the footprint of the new building, while Tree 337 (Peruvian pepper) would be in the footprint of the new driveway. Therefore, there would be no conflict with Policy 5.10.1-P4 resulting from removal of these five trees.

Conflicts with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance or tree replacement policies (for example, General Plan policies 5.10.1-P4 and 5.3.1-P10) would be a significant impact. General Plan Policy 5.3.1-P10 also calls for new development to provide street trees and conflict with this part of the policy would also be a significant impact. The replacement ratio for removal of trees

is 2:1 with 24" box tree or 1:1 with 36" box or bigger size tree. The remaining trees to be retained would require existing tree protection fencing and Tree Protection Zones to be established to ensure the trees are not damaged during demolition or construction. The project applicant is proposing replacement of the 371 trees to be removed with 193 trees at 24" box size and 288 trees at 36" box size to be planted onsite, as well as 2 trees at 24" box size to be planted as street trees. This would be equivalent to replacement of 385 trees.

Tree species are detailed in the proposed Landscape Construction Plan and include a mix of native and ornamental species (DayZen 2020d). New landscaping is proposed to be planted around the perimeter of the site and near the building as well as along the street frontage of Lafayette Street to meet the requirements for street trees (DayZen 2020d). The City of Santa Clara would apply specific conditions of Architectural Review Approval calling for the 2:1 tree replacement and protection of trees to be retained according to the approved landscape plan. (CEC 2020a). The final Tree Removal and Protection Plan as well as the Landscape Construction Plan would be subject to review and approval by the City Community Development Department, and the project applicant would be required to receive authorization from the City prior to scheduling removal of City-protected trees (CEC 2020a).

The applicant has proposed a measure to reduce impacts to trees covered by General Plan policies 5.10.1-P4 and 5.3.1-P10 as part of the Responses to Data Requests Set 2 (DayZen 2020d). Staff evaluated this measure in the context of the potential impacts to protected trees and considers this measure adequate to reduce impacts. Staff proposes implementation of mitigation measure **BIO-2**, which would reduce construction impacts on trees covered by General Plan policies 5.10.1-P4 and 5.3.1-P10 to a less than significant level because these measures include requirements for the project applicant to implement Tree Protection Measures included as part of approval of the final design package by the City of Santa Clara Community Development Department. In addition, the applicant would be required to provide adequate replacement trees for impacts related to tree removal also as part of approval of the final design package by the City of Santa Clara Community Development Department. Standard tree protection measures include but are not limited to the establishment of Tree Protection Zones (TPZs), measures to avoid impacts during boring and trenching near tree roots, measures to avoid impacts during grading near trees, and measures to take prior to cutting any tree limbs or roots. Based on discussions with Jeff Schwilk, Associate Planner with the City of Santa Clara Community Development Department, staff has determined that the applicant proposed adequate replacement for impacts related to tree removal and the City would ensure implementation of **BIO-2** (CEC 2020a).

Implementation of **BIO-2** would ensure construction of the proposed project would not conflict with tree preservation policies and tree replacement policies. Therefore, construction of the project would not have a substantial adverse effect on biological resources protected by local policies or ordinances.

Operation

No Impact. Tree removal or other activities that conflict with any local policies or ordinances protecting biological resources are not proposed to occur during operation of the project. Therefore, no impact would occur.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Construction and Operation

No Impact. There are no approved habitat conservation plans, natural community conservation plans, or other adopted plans that would apply to the proposed project. The Santa Clara Valley Habitat Plan (SCVHA 2012) provides for the protection and recovery of resources for the majority of land in Santa Clara County, however the proposed project is not within the permitting area of this plan (SCVHA 2020). Therefore, there would be no impact during construction or operation of the proposed project.

4.4.3 Mitigation Measures

BIO-1: The project will incorporate the following measures to reduce impacts to nesting birds:

- If possible construction activities, including removal of trees and vegetation clearing shall take place between September and January. If construction activities, including tree removal and vegetation clearing, must occur during the nesting season (February 1 through August 31) a preconstruction survey for nesting raptors and other protected native or migratory birds shall be conducted by a qualified ornithologist, approved by the City of Santa Clara, to identify active nests that may be disturbed during project implementation. Between February 1 through August 31 (inclusive) pre-construction surveys shall be conducted no more than 14 days prior to the initiation of construction activities, including tree removal or vegetation clearing. Surveys will be repeated if project activities are suspended or delayed for more than 14 days during the nesting season. The surveying ornithologist shall inspect all trees in and immediately adjacent to the construction area to be disturbed by these activities, and the ornithologist shall, in consultation with the State of California, Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone around the nest. The size of all buffer zones will initially be a 250-foot radius around the nest of non-raptors and a 500-foot radius around the nest for raptors. Any changes to a buffer zone must be approved by the City of Santa Clara in consultation with CDFW. The nests and buffers will be field checked weekly by the approved ornithologist. The approved buffer zone will be marked in the field with exclusion fencing, within which no construction, tree removal, or vegetation clearing will commence until the ornithologist and the City of Santa Clara, in consultation with CDFW, verify that the nest(s) are no longer active. If an active bird nest is discovered during construction, then a buffer zone shall be established under the guidelines specified.

- The ornithologist shall submit a copy of the pre-construction nest survey report(s) indicating the results of the survey and any designated buffer zones to the City of Santa Clara's Director of Community Development prior to the start of construction activities or the issuance of permit (s) for tree removal, demolition or grading. The report(s) will contain maps showing the location of all nests, species nesting, status of the nest (e.g. incubation of eggs, feeding of young, near fledging), and the buffer size around each nest (including reasoning behind any alterations to the initial buffer size). The report will be provided within 10 days of completing a pre-construction nest survey.

BIO-2: The project will incorporate the following measures, in accordance with the arborist recommendations, to protect trees from harm that could occur during construction. Any additional measures required by the City of Santa Clara would also be implemented:

- Remove trees #1-25, 30-32, 42-97, 99-273,275-313, 316-328, 330-332, 335-354, 411, 414, 420-433, 440-442, 446-448, 450-453, 456-470, 475, and 476 upon approval from the city of Santa Clara.
- Remove deadwood from remaining Callery pears and Raywood ashes. This will benefit both tree health and worker safety.
- All tree work must be completed by trained tree care personnel under the direction of an International Society of Arboriculture Certified Arborist.
- The Applicant shall alert the Project Arborist when new drawings are available showing grading, utilities, retention area details, or material changes to project features.
- Tree protection fencing shall be installed prior to any demolition equipment entering the site.
    - Fencing shall be installed at or outside the tree protection areas of all trees to be retained.
    - Where existing pavement is within tree protection zones, install tree protection fencing at the edge of pavement. After demolition, relocate tree protection fencing to the edge of the tree protection area.
    - Install tree protection fencing at the edge of the project features.
    - For areas where no construction will occur, tree protection fencing will be installed at the perimeter of the area instead of around each tree individually.
    - Spread wood chips at least four inches thick within tree protection fencing.
- For existing hardscape to be demolished within tree protection zones:
    - Demolish the area nearest the tree first, and work outwards.
    - Do not operate machinery on unpaved areas within tree protection zones.
    - Upon completion of demolition, relocate tree protection fencing to at or outside the tree protection area.

- Minimize grading near trees. Do not complete any grading inside tree protection fencing.
- If live roots over one inch in diameter are encountered at any time, in any location, they must be pruned with a sharp saw or bypass pruners, as close to the edge of the excavation as possible. If roots over three inches in diameter are encountered, do not prune, but instead contact the Project Arborist to determine the best course of action.
- Irrigate all trees to be retained on a monthly basis with potable water, in the absence of heavy rain.
    - Irrigate using a soaker hose placed as close to the tree driplines as practical. Irrigate for 2-4 hours at a very low flow. If this causes runoff, reduce the flow rate. If this is impractical for any tree for any reason, contact the Project Arborist.

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4.5 Cultural and Tribal Cultural Resources

This section describes the environmental and regulatory setting and discusses the impacts associated with the construction and operation of the project with respect to cultural and tribal cultural resources.

CULTURAL RESOURCES Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

TRIBAL CULTURAL RESOURCES Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
d. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
e. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.5.1 Environmental Setting

This section assesses the potential impacts of the proposed Lafayette Backup Generating Facility (LBGF) and Lafayette Data Center, collectively "the project", on cultural and tribal cultural resources. The section considers four broad classes of cultural resources: prehistoric, ethnographic, historic-period, and tribal cultural resources. The next four paragraphs briefly describe these classes of resources. Afterward, the Cultural and Tribal

Cultural Resources section presents the environmental setting pertinent to these resources:

- *Prehistoric, ethnographic, and historic contexts*—generally describes who lived in the project vicinity, the timing of their occupation, and what uses they made of the area
- *Methods of analysis*—establishes what kinds of physical traces (cultural and tribal cultural resources) past peoples might have left in the project area, given the project vicinity's prehistoric, ethnographic, and historic contexts
- *Results* following from those methods—identifies the specific resources present or expectable in the project area
- *Regulatory setting*—presents the criteria for identifying significant cultural and tribal cultural resources under the California Environmental Quality Act (CEQA) and other applicable authorities, as well as criteria for identifying significant impacts on these resources
- *Impacts*—identifies any impacts on cultural and tribal cultural resources, along with the severity of any such impacts
- *Mitigation measures*—proposes measures to avoid, minimize, rectify, reduce or eliminate, or compensate for identified impacts

Prehistoric archaeological resources are those materials relating to Native American occupation and use of a particular environment. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American activity. In California, the prehistoric period began more than 12,000 years ago and extended through the eighteenth century until A.D. 1769, when Europeans first settled in California.

Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group, such as Native Americans or descendants of African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, value-imbued landscapes, cemeteries, shrines, or neighborhoods and structures. Ethnographic resources are variations of natural resources and standard cultural resource types. They are subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users. The decision to call resources "ethnographic" depends on whether associated peoples perceive them as traditionally meaningful to their identity as a group and the survival of their lifeways.

Historic-period resources are those materials, archaeological and architectural, usually but not necessarily associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, trail and road corridors, artifacts, or other evidence of historic human activity. Under federal and state requirements, historic period cultural resources must be 50 years or older to be considered of potential historic importance. A resource less than 50 years of age may be historically significant if the resource is of exceptional

importance. The Office of Historic Preservation (OHP 1995, page 2) endorses recording and evaluating resources 45 years or older to accommodate a five-year lag in the planning process.

Tribal cultural resources are a category of historical resources recently introduced into CEQA by Assembly Bill 52 (Stats. 2014). Tribal cultural resources are resources that are any of the following: sites, features, places, cultural landscapes, sacred places, or objects that are included in or determined eligible to the California Register of Historical Resources (CRHR) or are included on a local register of historical resources as defined in Public Resources Code, section 5020.1(k). Tribal cultural resources can be prehistoric, ethnographic, or historic.

Prehistoric Context

The city of Santa Clara is within the valley created by the Santa Cruz and Gavilan mountains on the west and the Diablo Range on the east. The Santa Clara Valley is a structural valley (that is, the uplifting mountains formed the valley, as opposed to erosional forces) (NPS 2018).

The proposed project would in the western Santa Clara Valley, within the watersheds created by the Guadalupe River and creeks emanating from the western mountains. Historically, the Guadalupe River was about 0.75 mile east of the proposed project site, and an unnamed slough was about 2,350 feet east of the proposed project site. An analysis of historic maps and field notes identifies the area of the proposed project as having historically been a "wet meadow", with willow groves along the sloughs that crossed the valley (SFEI 2010). Elevation at the proposed project site is situated around 40 feet above sea level. About 15,000 years before present (B.P.), the coast was about 25.0 kilometers (15.5 miles) farther west from where it is today, and slowly rose over time to its current level (Moratto 1984, page 219).

The proposed project site sits above unconsolidated soils about 500 feet thick that consist of estuarine deposits from the Alameda formation and younger alluvial fans (DayZen 2020a, page 97).

The proposed project site is located north of downtown Santa Clara, in an industrial area at 2805, 2825, and 2845 Lafayette Street. Land use in the area is primarily industrial and commercial, with railroad tracks east of the site, Central Expressway to the north, Lafayette Street to the west and commercial-industrial properties to the south.

The archaeological record in the Santa Clara Valley began about 9000 B.P. with the Metcalf Creek Aspect, the local expression of the Millingstone cultural pattern. Archaeological deposits dating to this period are characterized by milling slabs and handstones, and large wide-stemmed and leaf-shaped projectile points. Groups during this period were mobile foragers and burials were typically flexed and placed beneath millingstone cairns (Milliken et al. 2007, page 114).

This Early Holocene culture extended until ca. 5500 B.P., when the Early Period began, characterized by developments in groundstone technology (that is replacing millingstones with the mortar and pestle), increased sedentism, regional symbolic integration between cultural groups, and increased trade. Also referred to locally as the Sandhill Bluff Aspect, this pattern lasted until ca. 2500 B.P. when the Lower Middle Period began with a "major disruption in symbolic integration systems." (Milliken et al. 2007, page 115.) Archaeological assemblages from the Lower Middle Period include more olive snail-shell saucer beads and circular abalone ornaments (and a disappearance of the rectangular shell beads), and bone tools and whistles.

The Upper Middle Period began ca. 1520 B.P. with a disruption of the olive snail-shell bead trade network, abandonment of some village sites, and changes in shell bead manufacture. Some South Bay burials from this period were extended instead of flexed, and grave goods were lacking. (Milliken et al. 2007, page 116.)

The Late Period began ca. 900 B.P. with groups increasing the intensity of the creation of wealth objects as seen in burials. Smaller projectile points for use in the bow and arrow were used during this period and some of the mortuary evidence suggests the introduction of cremation, at least among the wealthiest of individuals. (Milliken et al. 2007, page 117.)

The first European in the Bay Area was Sir Francis Drake, who claimed the region for England on July 17, 1579. During this time the Russians were also exploring Northern California, coming south from Alaska and established Fort Ross in present-day Sonoma County because of worries about Spanish expansion north. More information regarding the historic period is available below.

Ethnographic Context

The Costanoans are the Native Americans who inhabited the Bay Area since time immemorial. The Costanoan designation refers to those who spoke one of eight separate, but related, languages. The Costanoan language is similar to Miwok and is part of the Utian language family within the Penutian stock. Tamyen (Santa Clara Costanoan) was spoken around the southern end of San Francisco Bay and the lower Santa Clara Valley (and would have been spoken by those around the proposed project).

Each village was a separate and politically autonomous tribelet, with about 200 people living within each. Tribelets were the basic unit of political organization, with chiefs, either women or men, descended from their patrilineal relative. There were two tribelets near the proposed project site, San José Cupertino and Santa Clara; both were presumably Tamyen speakers. (Levy 1978, Figure 1.) Kroeber (1976, Figure 42) indicates that two other settlements may have been within a few miles of the project site on the Guadalupe River, *Tamie-n* near Santa Clara, and *Ulis-tak* farther north near the Bay.

Like most other Native Americans in California, acorns were the staple food of the Costanoan people in the Santa Clara region. Other nuts such as buckeye, California laurel,

and hazelnuts were also eaten. The Costanoans practiced a type of slash and burn agriculture to promote the growth of the nuts and seeds upon which they relied. The primary mammals taken by the Costanoan included the black-tailed deer, elk, antelope, grizzly bear, mountain lion, sea lion, and whale. Waterfowl, salmon, steelhead, and lampreys were also important components of the Costanoan diet. (Levy 1978, page 491.)

Thatched, domed houses were the most common type of structure for the Costanoans. Sweathouses along the banks of rivers were also constructed, in addition to dance enclosures and assembly houses. (Levy 1978, page 492.)

Bodies were either buried or cremated on the day of death. The Chalon and Rumsen groups likely practiced inhumation, while the Chochenyo and Ramaytush usually cremated their dead. Cremations also entailed burning the deceased's property. (Kroeber 1976, page 469; Levy 1978, page 490.)

Trade was important for the Costanoan groups, and their primary partners in trade were the Plains Miwok, Sierra Miwok, and Yokuts. The Costanoan provided coastal resources such as mussels, abalone shell, dried abalone, and salt to the Yokuts in exchange for pinon pine nuts. The Miwok obtained olive snail shells from the Costanoans. Warfare was conducted both between Costanoan tribelets and among the Costanoans and the Esselen, Salinan, and Northern Valley Yokuts. (Davis 1961, page 19; Levy 1978, page 488.)

A common archaeological manifestation of a Costanoan village site is the shell mound deposits (Kroeber 1976, page 466). Mussels are the primary shells that constitute these mounds, in addition to other household wastes.

The Spanish established seven missions in Costanoan territory between 1770 and 1797. By 1810, the last Costanoan village was subsumed within the mission system. Missions in the Bay Area brought together various language and cultural groups including the Esselen, Foothill Yokuts, Plains Miwok, Saclan Miwok, Lake Miwok, Coast Miwok, and Patwin. The mission closest to the proposed project area was Santa Clara de Asís, built in 1777. The mission is no longer extant, but the area is still rich in archaeological manifestations from the mission period and before. (Levy 1978, page 486.)

Mission Santa Clara de Asís occupied two different sites prior to its establishment in its current location. The original mission location was where Norman Y. Mineta San Jose International Airport taxiways now exist. The second location was where Memorial Cross Park has been established at the northeast corner of De La Cruz Boulevard and Martin Avenue (Perzel et al. 2019, page 15). All three locations of the mission reflect the confluence of Native American and European American lives in the project area.

Historic Context

To inform an understanding of the potential significance of built environment resources near the proposed project, a review of the major historical timeline markers for the project

area provides context. This subsection offers a brief look at those events and trends in the history of the Santa Clara Valley region that provide that context for the project site:

- Spanish Mission Period
- Mexican Period
- American Period
    - Transportation and Railroads
    - Agriculture and Fruit Industry
    - Post-World War II (WWII) and Silicon Valley
    - Project Site History

Spanish/Mission Period (1769 to 1821)

The Spanish Period was characterized by several important developments, such as the establishment of Spanish Colonial military outposts (presidios), pueblos, and missions throughout Alta California. Nearest to the proposed project were the Santa Clara de Asís Mission (1777), El Pueblo de San Jose de Guadalupe (1777) and Mission (1797), and Santa Cruz Mission (1791). The Spanish government also awarded land grants to soldiers and others and thus began the tradition of large land grants used for agriculture and livestock. Little remains of the cultural landscape that existed during this time aside from some roads that follow the same early transportation routes. (Santa Clara 2012, pages 22–26.)

Mexican Period (1821 to 1848)

Following Mexican independence from Spain in 1821, Mexican Governor Pio Pico granted lands to Mexican settlers, including the former lands of the missions, whose connection to the government was lost in the Decree of Secularization in 1834. The Mexican governor granted 43 ranchos in the Santa Clara Valley between 1802 and 1845. Local planning agencies lack detailed information on the location and integrity of these early California sites (Santa Clara 2012, pages 30–32). The project site does not appear to be located within the boundaries of the historic Spanish-Mexican Ranchos. On maps drawn in 1876, to the south of the project site is the city grid of Santa Clara, to the east is El Potrero de Santa Clara, to the north is Rancho Ulistac, and to the west is Saratoga Creek and the Enright Tract (Rambo 1968). Santa Clara's historic context statement laments that most traces of original haciendas, adobes, and other rancho structures are not discernible in the landscape today and few records exist (Santa Clara 2012, page 32).

American Period (1848 to Present)

California became the thirty-first state in the union in 1850. In 1851, Santa Clara College, now Santa Clara University, was founded on the site of the Santa Clara de Asís Mission. The incorporation of the City of Santa Clara followed in 1852. In 1866, the city officially established a grid street system to accommodate anticipated growth. Today, this area is known as the Old Quad neighborhood. Early industries in the city included wheat

production and flour milling, seed and fruit packing, and manufacturing. Leather tanning and wood products were two key industries of the city well into the twentieth century. Similarly, seed growing and fruit farming and packing (especially pears, cherries, apricots, and prunes) were mainstays, contributing to the city's exports (City of Santa Clara 2010, page 3-2).

Transportation and Railroads

In 1869, the Western Pacific Railroad completed a rail line from San Jose to Niles, California, effectively connecting San Jose with the Transcontinental Railroad. This opened new markets for the agricultural and manufactured products of the entire Santa Clara Valley. In 1982, Western Pacific merged with Union Pacific Railroad (Santa Clara 2012, page 44).

Senator James Fair, a multi-millionaire, envisioned a route from the east side of San Francisco Bay, south to San Jose, then on to Los Gatos and through the mountains to Felton, ultimately connecting to Santa Cruz. Senator Fair incorporated the South Pacific Coast Railroad in 1876 and immediately began building the segment from Dumbarton in the East Bay to Los Gatos, by way of Santa Clara and San Jose. Following that segment, the rail line passed through the Santa Cruz Mountains to connect with the narrow-gauge railroad at Felton. The Southern Pacific acquired these rail lines in 1887 and eventually converted the narrow-gauge lines to standard gauge (Lehmann 2000, pages 31–33).

The Santa Cruz Division of the Southern Pacific Railroad passed adjacent to the eastern edge of the downtown grid of Santa Clara and adjacent to the current project site (City of Santa Clara 2017; USGS 1899). A 1915 topographic map shows the route of the entire Santa Cruz division from San Jose through the Santa Cruz Mountains to Santa Cruz (USGS 1915).

The first San Jose Airport was completed in 1949. Attracted by the increasing job market, the population of the Santa Clara Valley experienced phenomenal growth after 1950 (Santa Clara 2012, page 46). A modern airport terminal, known as Terminal C, opened in 1965. Designed by a local architect, Hollis Logue Jr., it was described by the San Jose Mercury News as a "palace of glass, concrete and steel" (SJMN 1965). It was certainly a design of its time, with Googie-inspired (a mid-century roadside architecture style) design elements at the cornice line, concrete columns, and glass walls. The San Jose Airport Terminal C was demolished and replaced by the current Norman Y. Mineta San Jose International Airport in 2010, known as Terminal B.

Santa Clara Valley Agriculture and Fruit Industry

Fruit orchards and vegetable farms dominated the Santa Clara Valley from the 1890s to the 1940s. Wheat and flour milling were the first major agricultural activities. In support of the fruit and vegetable industry, canning operations flourished in the northeastern portion of the county. Fruit packing companies were common in Santa Clara Valley in the first third of the twentieth century. Nearly half of the world's supply of fresh, dried, and

canned fruit through the end of WWII originated and shipped from the valley. The agricultural base economy and its support operations were gradually displaced by expanding suburban development, light industrial and high-tech research-and-development operations by the 1970s (Fike 2016, page 2).

Post-WWII and Silicon Valley

Industrial growth expanded in Santa Clara significantly after WWII. The Owens Corning plant on Lafayette Street was one of the first new industrial businesses to settle in the Santa Clara Valley and represents the shift toward industrial uses in the valley after WWII. A 1948 aerial photograph shows the plant under construction along Lafayette Street with agricultural uses surrounding it (Santa Clara City Library 2019). The plant remains in that location today. Throughout the valley, post-war residential home developments slowly replaced the orchards and agricultural fields. Due to the increased pressure from housing, the City of Santa Clara grew from 6,500 residents in 1940 to 86,000 residents by 1970 (Fike 2016, page 2). Thus, the landscape was forever transformed.

From 1960 to 1980, much of the industrial growth was in the electronics research and manufacturing sectors. The City of Santa Clara is home to Intel, Applied Materials, Sun Microsystems, Nvidia, National Semiconductor, and other high technology companies (City of Santa Clara 2010, pages 3-3 through 3-6). More recently, Santa Clara has become home to numerous data centers supporting the operations of the high technology companies of the Silicon Valley. At least a dozen existing or proposed data centers are within one mile of the proposed Lafayette Data Center. This represents yet another contextual shift in the history of the Santa Clara/Silicon Valley.

Project Site 2805, 2825 and 2845 Lafayette Street

The vicinity of the project site consists of commercial and industrial uses dating from the late 1940s to the 1950s and has continued more recently with the development of data centers. The surrounding commercial and industrial operations are indicative of the shift that took place after WWII from agricultural-based businesses to light industrial and ultimately high-tech research and development facilities. The project site currently consists of three office/light-industrial buildings occupied by Hitachi Data Systems (2825 and 2845 Lafayette Street) and Digital Realty (2805 Lafayette Street).

A lot line adjustment is part of the proposed project. The lot line adjustments and resulting acreage changes do not impact the cultural resources analysis of the project. The overall project site is somewhat trapezoidal in shape. The proposed new substation would be located at 2805 Lafayette Street, adjacent to 2705 Lafayette Street on the southern boundary. After the lot line adjustment, the two parcels will be 15.45 acres (2825 and 2845 Lafayette Street) and 7.31 acres (2805 Lafayette Street), for a total of 22.76 acres.

The three existing buildings were constructed in the mid-1980s by the Sobrato Development Company. The buildings have been occupied by Hitachi Data Systems since

at least the early 1990s (DayZen 2020c, page 31). The project proposes to demolish two of the existing buildings, 2825 and 2845 Lafayette Street.

Methods

Project Area of Analysis

The project area of analysis (PAA) defines the geographic area in which the proposed project has the potential to affect cultural or tribal cultural resources. Effects may be immediate, further removed in time, or cumulative. They may be physical, visual, audible, or olfactory in character. A PAA may or may not be one uninterrupted expanse. It could include the project site, the routes of requisite transmission lines and water and natural gas pipelines, and other offsite ancillary facilities, in addition to one or several discontiguous areas where the project could arguably affect cultural or tribal cultural resources.

The PAA for the proposed project comprises the proposed project site and all appurtenant, proposed improvements. The PAA has archaeological, ethnographic, and historic built environment components, as described in the following paragraphs.

The archaeological component of the PAA consists of all areas where the applicant proposes ground disturbance to construct, operate, and decommission the proposed project. This includes the proposed building sites, demolition of various facilities, areas slated for concrete and hardscape removal, removal and replacement of 375 trees from the project site, landscaping, surface parking, areas to be graded, on-site staging and laydown areas, storm water controls, and a new electrical distribution subsystem. The applicant proposes demolition and excavation to variable depths. Excavation across the PAA would remove roughly 4,000 cubic yards of soil with excavation proposed to a maximum depth of 6.75 feet below current grade for underground drainage. Installation of electrical transmission line poles and pier foundations for certain project components would involve excavation between 8 and 25 feet deep. The applicant proposes to import 34,000 cubic yards of fill to the project site. (DayZen 2020a, pages 16–17; DayZen 2020f, pages 39–41).

For tribal cultural resources, the PAA takes into account sacred sites, ethnographic resources, traditional cultural properties (places), and larger areas such as ethnographic landscapes that can be vast and encompassing, including view sheds that contribute to the historical significance of such resources. The Native American Heritage Commission (NAHC) assists project-specific cultural resources consultants and agencies in identifying these resources, and consultation with Native Americans and other ethnic or community groups may contribute to defining the PAA. In the case of the proposed project, the immediate environs consist largely of office parks, industrial structures, and the San Jose International Airport. California Energy Commission (CEC) staff therefore treats the ethnographic component of the PAA as coterminous with the archaeological component.

The proposed project site consists primarily of a warehouse complex, pavement, and modest landscape elements, much of which dates to the recent historic period. The historic built environment PAA for this project includes properties within a one-parcel buffer from the project site.

Literature Review

The literature review for this analysis consisted of records searches at the California Historical Resources Information System (CHRIS), review of the application for small power plant exemption (SPPE), and examination of pertinent literature concerning cultural resources in the northern Santa Clara Valley. The applicant's consultant conducted records searches at the Northwest Information Center (NWIC) of the CHRIS on July 23 and November 6, 2019. The records searches covered the project site and a 0.25-mile buffer surrounding it for archaeological resources, and the project site and a 165-foot buffer surrounding it for other types and cultural resources and previous cultural resource studies. In addition, the consultant reviewed federal, state, and local cultural resources inventories: the California Inventory of Historic Resources, Directory of Properties in the Historic Property Data File for Santa Clara County, Listed California Historic Resources, National Register Properties for San Jose, and Heritage Resource Inventory for Santa Clara County. (Psota 2019, pages 1, 2, 5.)

In addition to reviewing the information in the SPPE application, CEC staff consulted the City of Santa Clara Historic Properties listing (City of Santa Clara 2018a), the City of Santa Clara Municipal Code (City of Santa Clara 2018b), the City of Santa Clara General Plan (City of Santa Clara 2010), County of Santa Clara Historic Context Statement (Santa Clara 2012), and the County of Santa Clara Heritage Resource Inventory (Santa Clara 2015). CEC staff also consulted the National Register of Historic Places (NRHP), CRHR, Historic American Building Survey, Historic American Engineering Record, Historic American Landscape Survey, and internal CEC files. Finally, CEC staff and the applicant's consultant reviewed historic maps and aerial photographs of the project vicinity dating to 1851–1866, 1876, 1899, 1939, 1942, 1947, 1948, 1950, 1951, 1953, 1956, 1960, 1963, 1968, and 1974 (DayZen 2020d; DayZen 2020e; GLO 1866; Psota 2019, page 3; USGS 1980).

Tribal Consultation

David J. Powers & Associates, Inc., on behalf of the applicant, contacted the six following California Native American tribes on November 8, 2019, based on the recommendation of the NAHC (DayZen 2020b, Appendix C):

1. Amah Mutsun Tribal Band
2. Amah Mutsun Tribal Band of Mission San Juan Bautista
3. North Valley Yokuts Tribe
4. Muwekma Ohlone Indian Tribe
5. The Ohlone Indian Tribe

6. Indian Canyon Mutsun Band of Costanoan

CEC Consultation

CEQA requires lead agencies to consult with all California Native American tribes that have traditional and cultural affiliation with the geographic area of a project, and that have previously requested consultation. To invoke an agency's requirement to consult under CEQA, a tribe must first send the lead agency a written request for formal notification of any projects within the geographic area with which they are traditionally and culturally affiliated. (Pub. Resources Code, § 21080.3.1(b).) The CEC has not received any requests for formal notification from tribes that have traditional and cultural affiliation with the geographic area of the proposed project. Therefore, the CEC has no obligations under CEQA's formal tribal notification or consultation requirements.

However, consistent with the CEC's tribal consultation policy (CEC 2017), CEC staff contacted the NAHC to request a search of the Sacred Lands File and a list of California Native American tribes that might be interested in the proposed project. The NAHC responded on June 25, 2020, and provided a list of six California Native American tribes to contact; the listed tribes were the same six tribes listed above. CEC staff mailed initial consultation letters to these six tribes on July 2, 2020. Follow-up phone calls and emails were made on August 14, 2020. See the following subsection, "Results," for tribal responses and lead agency follow-up.

Archaeological Survey

No pedestrian archaeological survey occurred due to the developed nature of the proposed site (Psota 2019, page 3).

Historic Architectural Survey

The applicant did not conduct a historic architectural survey as part of the cultural resources investigation. CEC staff investigated the properties within one parcel of the project site for historical built environment resources. Staff consulted historical maps and aerial images, as well as the City's online building permit records for each parcel.

Results

Literature Review

The literature review indicates that 11 previous cultural resources have been conducted adjacent to the project area (Anastasio and Garaventa 1987; Basin 2000; Busby 1999; Busby et al. 1996; Cartier et al. 1992; Cartier et al. 1996; Flynn 1979; Garaventa et al. 1993; Kaijankoski et al. 2012; King and King 1973; Sikes et al. 2006). The applicant identified no prehistoric or tribal cultural resources within the proposed project site. A records search conducted at the NWIC in July 2019 identified two Native American cultural resources within 0.5 mile of the project site (DayZen 2020a, page 84). CA-SCL-000702/P-43-001080 is located north of the proposed project area and contained 10 flexed burials with associated grave goods, i.e., two grinding slabs, one handstone, and

pieces of Franciscan and Monterey chert. The deposit was in the upper portion of alluvial deposits, ranging from 160 to 185 centimeters (63 to 73 inches) below the preconstruction ground surface. CA-SCL-000430/P-43-000433 is located within 0.5 mile of the proposed project site and consists of projectile points, fire cracked rocks, and possible groundstone. (Cartier 1980, page 1; Psota 2019, page 2.)

CEC staff identified 10 previously recorded built environment resources within 0.5 mile of the project site (see Cultural Resources **Table 4.5-1**).

CULTURAL RESOURCES TABLE 4.5-1: BUILT ENVIRONMENT RESOURCES 45 YEARS OR OLDER RECORDED WITHIN 0.5 MILE OF THE PROJECT

	Resource Name	Address	Eligibility
1.	P2	2979 Lafayette Street	Not Evaluated
2.	Santa Clara Public Works Building Maintenance Facility, P-43-3529	815 Comstock Street	Recommended Not Eligible
3.	651 Mathew Street	651 Mathew Street	Recommended Not Eligible
4.	725 Mathew Street	725 Mathew Street	Recommended Not Eligible
5.	P3	810 Comstock Street	Not Evaluated
6.	Lafayette Street	Lafayette Street	Not Evaluated
7.	Newark-Kifer 115kV Transmission Line	Not Applicable	Recommended Not Eligible
8.	P1-2975 Lafayette St., Unit 4 Foundation	2975 Lafayette Street (815 Comstock Avenue)	Not Evaluated
9.	Pistol Range	2975 Lafayette Street	Not Evaluated
10.	Paragon Building	2460 De La Cruz Boulevard	Recommended Not Eligible

Tribal Consultation

The June 25, 2020, search of the Sacred Lands File returned negative results, indicating that the NAHC did not have a record of the presence of Native American cultural resources in the search area. CEC staff made phone calls and sent emails to the six California Native American Tribes listed by the NAHC. One tribe expressed concern that the proposed project was in a sensitive area and requested worker environmental awareness training and the presence of Native American monitors. Two tribes requested an additional phone call once staff received the results of an archaeological literature search from the applicant. Staff left voicemails for those tribes.

Historic Architectural Survey

The built environment PAA used for this project includes properties within a one-parcel boundary of the project site. The study area was established to analyze the project's potential for impacts to built environment historical resources. CEC staff identified five properties with structures 45 years or older within this study area. These include three industrial, commercial or warehouse facilities, a multilane highway and the Union

Pacific/Southern Pacific Santa Cruz Division railroad tracks. These are identified in Cultural Resources **Table 4.5-2** and described below in the Architectural Survey Results.

CULTURAL RESOURCES TABLE 4.5-2: BUILT ENVIRONMENT RESOURCES 45 YEARS OR OLDER WITHIN ONE PARCEL OF THE PROJECT SITE

Address	APN	Description	Year
651 Walsh Ave (addresses 601, 621, 623, 625, 627, 631, 661, 691, 701, 705, 711)	224-04-059	Warehouse	1946
2705, 2707, 2709, 2715, 2717, 2725, and 2755 Lafayette Street	224-04-062	Office/Warehouse Office/Commercial Warehouse	1967 1957 1978
810 Comstock Street	224-36-02	Industrial building units/residential buildings	1948–1956
960 Central Expressway (Owens Corning)	224-07-99, 224-07-100	Industrial	1948–1949
Central Expressway (formerly Kifer Road)	N/A	Highway and Right-of-Way	1963–1968
Union Pacific/Southern Pacific Railroad-Santa Cruz Division	Not Applicable	Railroad tracks	1870s

The records search conducted at the NWIC indicates that neither the subject property nor the parcels within the one-parcel PAA have been previously recorded or evaluated, however, staff has an evaluation of a property within one parcel from a previous proposed data center project: 651 Walsh Avenue.

CEC staff investigated the six properties adjacent to and across Lafayette Street from the project site with extant structures that are 45 years or older. Methods employed included review of online permit information (City of Santa Clara 2021), topographic and aerial images (EDR 2018a; EDR 2018b), and literature and historical accounts. CEC staff describes the properties below and, based on this research, recommends that the five properties do not constitute historical resources under CEQA, individually or as contributors to a district, per the criteria of the CRHR. These buildings embody the common vernacular of post-war industrial and warehouse buildings that do not pertain to any significant regional or statewide historical movement or event (Criterion 1), are not associated with any person of significance regionally or statewide (Criterion 2), and are not the work of a master nor an example of a known and recognizable architectural style (Criterion 3). Additionally, the properties do not have the potential to yield important information related to prehistory or history unavailable in another form (Criterion 4).

CEC staff also evaluated the six properties for their potential eligibility for the City of Santa Clara's Historic Preservation and Resource Inventory using the Criterion for Historical or Cultural Significance, Criterion for Architectural Significance, and Criterion for Geographical Significance (see pages 5.5-18 to 5.5-20). The project site and the adjacent properties do not meet the criteria and staff recommends they are not eligible for local listing.

651 Walsh

651 Walsh Avenue (APN 224-04-059) is a 7.87-acre parcel with a 171,259-square foot warehouse complex and associated paved parking and loading areas. The parcel has 11 separate street addresses reflecting multiple tenant occupancies. Those addresses are 601, 621, 623, 627, 631, 651, 661, 691, 701, 705, and 711 Walsh Avenue (Rosso 2016, Figure 2). These multiple addresses also physically reflect the aggregation over time of multiple additions to the original warehouse structure.

651 Walsh is a largely rectangular shaped parcel with a curved northeast corner where a rail spur once defined the shape of the property. The 7.87-acre site contains a 171,259-square foot warehouse complex and associated paved parking and loading areas. The Keystone Steel & Wire Company constructed the original building on site in 1946. The existing complex consists of a mix of architectural styles and materials, including corrugated metal siding, wood, and stucco. There are several raised loading docks. The main entrance is located on the southern side facing Walsh Avenue. The property is bounded to the north by 2805 Lafayette Street, to the east by the Union Pacific Railroad line, and to the west by a pair of industrial buildings.

The original building was added onto many times over the years. It remained a wire manufacturing facility until 1974, when W. Leslie Pelio bought the property. The complex has since been subdivided into multiple tenant spaces and tenant improvements. Changes to the building's exterior have continued through at least 1997. The property is currently owned by 651 Walsh Partners, LLC, and is the subject of a potential development of a data center.

These buildings are broadly associated with the post-WWII industrial growth in Santa Clara; however, the association is not significant. Many other nearby industrial properties were developed during this same period and there is no specific significant association between these buildings and the regions' industrial growth. Therefore, these buildings are not significant under criterion 1 of the CRHR. These buildings do not appear to be associated with any significant individuals, or groups of people, therefore they are ineligible under criterion 2 of the CRHR. These buildings are ineligible for criterion 3 because they are not a significant example of their architectural style and do not display a significant design or represent the work of a master. These buildings do not appear to contain the potential to reveal new information that is not already recorded; therefore, these buildings are ineligible for criterion 4 of the CRHR.

2705, 2707, 2709, 2715, 2717, 2725, and 2755 Lafayette Street APN 224-04-062

This property is a 6.44 acre-parcel with a warehouse complex and structures, as well as associated paved parking and loading areas. The parcel has seven separate street addresses reflecting multiple tenant occupancies. Those addresses are 2705, 2707, 2709, 2715, 2717, 2725, and 2755 Lafayette Street. These multiple addresses also physically reflect the aggregation over time of multiple additions to the parcel.

City of Santa Clara permit records indicate that the buildings at 2705–2755 Lafayette date from 1957 to 1978; however, according to historical aerial imagery, two warehouse buildings and an associated parking structure date between 1939 and 1948 (City of Santa Clara 2020; EDR 2018a). While the property does not appear in city directories in its early years because of its distance from major development in the city of Santa Clara, the earliest descriptions of the property indicate that the buildings were used for industrial purposes, including warehouses, a paint spray booth, and associated offices (City of Santa Clara 2020; R.L. Polk 1949-1950).

The property is a largely rectangular parcel with a concave southeast corner created by the boundary of another parcel, and a rounded southwest corner where the rounded street corner and curb define the property boundary. The existing complex consists of a mix of architectural styles and materials, including wood siding and stucco. There are multiple loading docks. There are several entrances on both the east and south side of the property.

These buildings are broadly associated with the post-WWII industrial growth in Santa Clara; however, the association is not significant. Many other nearby industrial properties were developed during this same period and there is no specific significant association between these buildings and the regions' industrial growth. Therefore, these buildings are not significant under criterion 1 of the CRHR. These buildings do not appear to be associated with any significant individuals, or groups of people, therefore they are ineligible under criterion 2 of the CRHR. These building are ineligible for criterion 3 because they are not a significant example of their architectural style and do not display a significant design or represent the work of a master. These buildings do not appear to contain the potential to reveal new information that is not already recorded; therefore, these buildings are ineligible for criterion 4 of the CRHR. Additionally, the buildings and the parcel have undergone extensive modifications throughout the property's history, including within the last 45 years, such as a major roof modification to the original warehouse building after 1982 (EDR 2018a).

810 Comstock Street, APN 224-36-002

This parcel contains one industrial warehouse building and four small industrial building units, most likely used as worker housing. The industrial warehouse building was constructed in the last 45 years; however, the industrial building units were constructed between 1948 and 1956 (EDR 2018a) These buildings are simple Craftsman-style single-story bungalows with exposed beam rafters as the major stylistic element.

These buildings are broadly associated with the post-WWII industrial growth in Santa Clara; however, the association is not significant. Many other nearby industrial properties were developed during this same period and there is no specific significant association between these buildings and the regions' industrial growth. Therefore, these building are not significant under criterion 1 of the CRHR. These buildings do not appear to be associated with any significant individuals, or groups of people, therefore it is ineligible under criterion 2 of the CRHR. These buildings are ineligible for criterion 3 because they

are not a significant example of their architectural style and do not display a significant design or represent the work of a master. These buildings do not appear to contain the potential to reveal new information that is not already recorded; therefore, these buildings are ineligible for criterion 4 of the CRHR.

960 Central Expressway (Owens Corning)

Owens Corning has manufactured fiberglass insulation at this location since the late 1940s (PR&A 2007, page 10). One source describes it as the first insulation manufacturing plant in the United States (US DOE 2009). In March 2009, Owens Corning invested $10 million in the Santa Clara plant to produce its new EcoTouch, insulation that's "green from concept to installation" (Schuk 2011).

The plant was at one time served by the same Southern Pacific Railroad spur that served 651 Walsh Avenue. By 1980, some of the internal rail lines had been removed. Removal of the Owens Corning spur occurred sometime after 1980 (EDR 2018b, page 138). The plant includes a small substation on a separate parcel connecting it to Silicon Valley Power.

The plant's office building appears to be in the Art Moderne style of architecture. Street view images reveal the following characteristics: rounded and fluted entry columns, horizontal ribbon windows, glass-block windows, curved wall and canopy, and a horizontal presentation. These are all characteristic of the Art Moderne style. The main entrance features a landscaped approach, including a walkway featuring a circular path with a flagpole in the center. The balance of the manufacturing plant buildings is vernacular industrial in style and appropriate to their function.

As the first insulation manufacturing plant in the United States, the Owens Corning Manufacturing plant at 960 Central Expressway has a significant association with broad patterns of industrial history in Santa Clara (Criterion 1 of the CRHR). Despite recent alterations in the plant's design, the primary function, the manufacturing of fiberglass insulation, has remained. The plant's period of significance dates from the building's construction in 1948, the period of its construction and early use because it is significantly associated with the industrial growth in Santa Clara.

The Owens Corning plant is not significantly associated with any significant individuals or groups, and it does not present new information that is not recorded elsewhere. Therefore, it is not eligible under criteria 2 and 4 of the CRHR.

The location of the plant has remained the same. The setting of the plant has significantly changed. When the plant was built the surrounding area was predominantly rural, whereas now the entire area is completely developed with campuses and industrial buildings. While many of the materials remain, much of the property has been renovated and altered, changing and removing many of the original material elements. Similarly, with alterations to the buildings and property many of the original workmanship elements have been removed or altered as well. The feeling and association largely remain intact.

The area of integrity with the largest damage is that of design. Major components of the original design of the Owens Corning Plant have been significantly altered, including the removal of the railroad spur, major warehouse expansions, the addition and alteration of several structures and parking lots. The removal of railroad spurs within the last 45 years especially degrades the historical integrity of the resource and its potential eligibility (under CRHR criterion 3) because it was integral to the original design and historical usage of property as a manufacturing plant. The railroad spur connected to the Owens Corning plant and significantly shaped the both the original design and historical modifications to the property, however, with the removal of the spur, the design of the plant has drastically changed. Therefore, the Owens Corning Plant is ineligible under criteria 1 and 3 of the CRHR.

Central Expressway (formerly Kifer Road)

Based upon historic aerial images and topographic maps, Kifer Road appears to have been built between 1889 and 1939. However, the portion of Kifer Road in the project area appears to have yielded to the multi-lane Central Expressway sometime between 1963 and 1968. Kifer Road formerly extended to where the Norman Y. Mineta San Jose International Airport is now (EDR 2018a, 2018b). The expressway does not appear to be significantly associated with patterns with the significant patterns of history described in the "Historic Context," it does not appear to be associated with significant individuals or groups, it does not present new information that is not recorded elsewhere, and it does not represent a significant design or the work of a master. Therefore, it does not meet criterion 1, 2, 3, or 4 of the CRHR.

Southern Pacific Railroad-Santa Cruz Division/Union Pacific Railroad Tracks

The railroad predates the manufacturing and office operations on the project site. A railroad spur serving 651 Walsh Avenue and the Owens Corning plant across Lafayette Street has been removed. The removal of the railroad spur degrades the historical integrity of the resource and its potential eligibility. Integrity has several aspects: design, setting, materials, workmanship, feeling, association, and location. While the location of the railroad has not changed, several spurs have been removed within one mile of the project site (Google Maps 2021). Most railroads undergo maintenance and upgrades of facilities that generally change the design, materials, and workmanship over time. The railroad does not appear to retain sufficient integrity to its setting and association during the period of significance. The railroad changed from its initial use as a connector to the local railroad lines that eventually reached the transcontinental railway system, servicing the agricultural industry of the Santa Clara Valley in the late 1800s to 1950s and for passenger and freight service to Santa Cruz until the line through the mountains was abandoned in 1940. The lack of integrity to the period of significance makes it ineligible for listing under the CRHR or City of Santa Clara's significance criteria.

Archaeological Sensitivity

Staff's literature review indicates that the potential for buried archaeological resources to occur in the project vicinity mirrors the high frequency of buried archaeological deposits

throughout the Santa Clara Valley (see Byrd et al. 2017, page 4-2; Hylkema 1998, page 20). CEC staff's literature review identified seven archaeological resources within 1 mile of the archaeological PAA (Cultural Resources **Table 4.5-3**). Of these, three are Native American sites buried 5.2–12.5 feet below the modern ground surface, two are surface sites (one Native American, one historic-period), and two potentially buried but unrecorded, historic-period cultural resources (historic road and railroad) (Cultural Resources **Table 4.5-3**). The historic road and railroad, if still present, are located adjacent to or within the archaeological PAA, respectively. The potential for the project site to contain as-yet-undiscovered, buried cultural resources appears to be high.

TABLE 4.5-3 ARCHAEOLOGICAL RESOURCES WITHIN 1 MILE OF THE ARCHAEOLOGICAL PAA

Resource	Type	Age	Discovery Context	Size (feet)	Depth (feet)	Source
P-43-000433	Stone projectile points, flaked stone tools, FAR, and ground-stone tools	Prehistoric/ early historic	Surface	944 x 656	Surface	Cartier 1980
P-43-000649	Shell midden	Prehistoric	Buried	246 x 328	About 10	Kaijankow-ski et al. 2012
P-43-001080	Cemetery	Prehistoric	Buried	69 x 50	5.2–6.1	Leventhal et al. 1990
P-43-001163	Shell, FAR, antler	Prehistoric	Buried	44 x 84	7.9–12.5	White and Thomas 1999
Lafayette Street	Road	Historic	Unknown, possibly buried	Unknown	Unknown	Blosser and Hotchkiss 2002
PI-2975 Lafayette Street	Building foundation	Historic	Surface	20 x 20	Surface	Farrell 2002
No designation	Unrecorded Railroad Spur	Historic	Unknown, potentially buried	Unknown	Unknown	DayZen 2020d; DayZen 2020e

Abbreviations and Notes: FAR = fire-affected rock; P = Primary Number, California Historical Resources Information System; SCL = Santa Clara County

Regulatory Background

Federal

No federal regulations related to cultural and tribal cultural resources apply to the project.

State

California Environmental Quality Act. Various laws apply to the evaluation and treatment of cultural and tribal cultural resources. CEQA requires the lead agency to evaluate cultural and tribal cultural resources by determining whether they meet several sets of specified criteria that make such resources eligible to the CRHR. Those cultural or tribal cultural resources eligible to the CRHR are historical resources. The evaluation then influences the analysis of potential impacts to such historical resources and the mitigation(s) that may be required to ameliorate any such impacts.

CEQA and the CEQA Guidelines define significant cultural resources under two regulatory definitions: historical resources and unique archaeological resources. A historical resource is defined as a "resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR", or "a resource listed in a local register of historical resources or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the Public Resources Code," or "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the agency's determination is supported by substantial evidence in light of the whole record." (Cal. Code Regs., tit. 14, 15064.5(a)). Historical resources that are automatically listed in the CRHR include California historical resources listed in or formally determined eligible for the NRHP and California Registered Historical Landmarks from No. 770 onward (Pub. Resources Code, § 5024.1(d)).

CEQA generally considers a resource historically significant if it meets the criteria for listing in the CRHR. In addition to being at least 50 years old, a resource must meet one or more of the following four criteria (Pub. Resources Code, § 5024.1):

- Criterion 1, is associated with events that have made a significant contribution to the broad patterns of our history;
- Criterion 2, is associated with the lives of persons significant in our past;
- Criterion 3, embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- Criterion 4, has yielded, or may be likely to yield, information important to history or prehistory.

In addition, historical resources must also possess integrity of location, design, setting, materials, workmanship, feeling, and association (Cal. Code Regs., tit. 14, § 4852(c)).

Even if a resource is not listed or determined to be eligible for listing in the CRHR, CEQA requires the Lead Agency to make a determination as to whether the resource is a historical resource as defined in Public Resources Code, sections 5020.1(j) or 5024.1.

In addition to historical resources, archaeological artifacts, objects, or sites can meet CEQA's definition of a unique archaeological resource, even if the resource does not qualify as a historical resource (Cal. Code Regs., tit. 14, § 15064.5(c)(3)). Archaeological artifacts, objects, or sites can qualify as unique archaeological resources if it is clearly demonstrable that, without merely adding to the current body of knowledge, there is a high probability that the resource meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person." (Pub. Resources Code, § 21083.2(g)).

To determine whether a proposed project may have a significant effect on the environment (CEQA defines historical resources to be a part of the environment), staff analyzes the project's potential to cause a substantial adverse change in the significance of historical or unique archaeological resources. The magnitude of an impact depends on:

- the historical resource(s) affected;
- the specific historic significances of any potentially impacted historical resource(s);
- how the historical resource(s) significance is manifested physically and perceptually;
- appraisals of those aspects of any historical resource's integrity that figure importantly in the manifestation of the resource's historical significance; and
- how much the impact will change historical resource integrity appraisals.

Title 14, California Code of Regulations, section 15064.5(b), the State CEQA Guidelines, define a substantial adverse change as "physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired."

California Native American Tribes, Lead Agency Tribal Consultation Responsibilities, and Tribal Cultural Resources: CEQA provides definitions for California Native American tribes, lead agency responsibilities to consult with California Native American tribes, and tribal cultural resources. A "California Native American tribe" is a "Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission (NAHC) for the purposes of Chapter 905 of the Statutes of 2004" (Pub. Resources Code, § 21073). Lead agencies implementing CEQA are responsible for consultation with California Native American tribes about tribal cultural resources within specific timeframes, observant of tribal confidentiality, and—if tribal cultural resources could be impacted by a CEQA project—are to exhaust the consultation to points of agreement or termination.

Tribal cultural resources are either of the following:

1. Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
   a. Included or determined to be eligible for inclusion in the CRHR
   b. Included in a local register of historical resources as defined in the Public Resources Code, section 5020.1(k).
2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in the Public Resources Code, section 5024.1(c). In applying these criteria, the lead agency shall consider the significance of the resource to a California Native American tribe. (Pub. Resources Code, § 21074(a)).

A cultural landscape that meets the criteria of Public Resources Code, section 21074(a), is a tribal cultural resource to the extent that the landscape is geographically defined in terms of its size and scope (Pub. Resources Code, § 21074(b)). Historical resources, unique archaeological resources, and non-unique archaeological resources, as defined at Public Resources Code, sections 21084.1, 21083.2(g), and 21083.2(h), may also be tribal cultural resources if they conform to the criteria of Public Resources Code, section 21074(a).

CEQA also states that a project with an impact that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code, § 21084.2).

Local

City of Santa Clara General Plan: Section 5.6.3 of the City of Santa Clara's General Plan outlines the goals and policies related to archaeological and cultural resources. The applicable goals in this section of the General Plan encourage the protection and preservation of cultural resources, including archaeological and paleontological sites, and encourage appropriate mitigation in the event of discovery during construction.

Relevant policies require protecting historic resources through avoidance or reduction of potential impacts, using the Secretary of the Interior's Standards for the Treatment of Historic Properties, and using the city's established historic preservation program for ensuring resource evaluation, protection, and integrity (City of Santa Clara 2010).

Appendix 8.9 of the General Plan, the Historic Preservation and Resource Inventory, established criteria for local significance and included a list of recorded historic properties (City of Santa Clara 2010). In addition, the city has embedded in its Municipal Code a section on Historic Preservation (Title 18 Zoning, Chapter 18.106, Historic Preservation). The purpose of Chapter 18.106 is "to promote the identification, protection, enhancement and perpetuation of buildings, structures and properties within the City that reflect special elements of the City's social, economical, historical, architectural, engineering,

archaeological, cultural, natural, or aesthetic heritage" (City of Santa Clara 2018a). The chapter requires maintenance of a Historic Resource Inventory.

Appendix 8.9 of the General Plan also identifies significance criteria for local listings. The City of Santa Clara's City Council adopted the Criteria for Local Significance on April 20, 2004 and incorporated the criteria into the General Plan Appendix 8.9. Any building, site, or property in the city that is 50 years old or older and meets certain criteria of architectural, cultural, historical, geographical, or archaeological significance is potentially eligible. The Criteria for Local Significance established in General Plan Appendix 8.9 (City of Santa Clara 2010) are as follows:

Criterion for Historic or Cultural Significance - To be historically or culturally significant, a property must meet at least one of the following criteria:

1. The site, building or property has character, interest, integrity and reflects the heritage and cultural development of the city, region, state, or nation.
2. The property is associated with a historical event.
3. The property is associated with an important individual or group who contributed in a significant way to the political, social and/or cultural life of the community.
4. The property is associated with a significant industrial, institutional, commercial, agricultural, or transportation activity.
5. A building's direct association with broad patterns of local area history, including development and settlement patterns, early or important transportation routes or social, political, or economic trends and activities. Included is the recognition of urban street pattern and infrastructure.
6. A notable historical relationship between a site, building, or property's site and its immediate environment, including original native trees, topographical features, outbuildings or agricultural setting.

Criterion for Architectural Significance - To be architecturally significant, a property must meet at least one of the following criteria:

1. The property characterizes an architectural style associated with a particular era and/or ethnic group.
2. The property is identified with a particular architect, master builder, or craftsman.
3. The property is architecturally unique or innovative.
4. The property has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance.
5. The property has a visual symbolic meaning or appeal for the community.
6. A building's unique or uncommon building materials or its historically early or innovative method of construction or assembly.

7. A building's notable or special attributes of an aesthetic or functional nature. These may include massing, proportion, materials, details, fenestration, ornamentation, artwork, or functional layout.

Criterion for Geographical Significance - To be geographically significant, a property must meet at least one of the following criteria:

1. A neighborhood, group, or unique area directly associated with broad patterns of local area history.
2. A building's continuity and compatibility with adjacent buildings and/or visual contribution to a group of similar buildings.
3. An intact, historical landscape or landscape features associated with an existing building.
4. A notable use of landscaping design in conjunction with an existing building.

Criterion for Archaeological Significance - For the purposes of CEQA, an "important archaeological resource" is one which:

1. Is associated with an event or person of
   a. Recognized significance in California or American history, or
   b. Recognized scientific importance in prehistory.
2. Can provide information, which is both of demonstrable public interest, and useful in addressing scientifically consequential and reasonable or archaeological research questions;
3. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;
4. Is at least 100 years old and possesses substantial stratigraphic integrity; or
5. Involves important research questions that historical research has shown can be answered only with archaeological methods.

4.5.2 Environmental Impacts

Cultural Resources CEQA Checklist Questions

a. Would the project cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?

Construction

Less Than Significant Impact with Mitigation Incorporated. A records search and literature review identified seven cultural resources within 1 mile of the project site, two of which might be located in or adjacent to the project site; the majority (five out of seven) are buried or expected to be found below the current grade (see Cultural Resources **Table**

4.5-3). The applicant proposed measures to survey the exposed ground surface for archaeological resources once demolition of existing structures is complete. The applicant also proposed measures to avoid inadvertent discoveries of buried archaeological resources that could occur during construction by requiring cultural resources monitoring by a qualified archaeologist and Native American. Staff concluded these measures would ensure that project construction would not cause a substantial adverse change in the significance of historical resources as defined in § 15064.5. This impact, therefore, is less than significant with mitigation incorporated.

Operation

No Impact. Operation and maintenance of the proposed project would not require excavation or other ground-disturbance. Therefore, there would be no impact to historical resources as defined in § 15064.5.

b. Would the project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to § 15064.5?

Construction

Less Than Significant Impact with Mitigation Incorporated. A records search and literature review did not identify archaeological resources that could qualify as unique archaeological resources under CEQA in the proposed project area. The applicant proposed measures to survey the exposed ground surface for archaeological resources once demolition of existing structures is complete. The applicant also proposed measures to avoid inadvertent discoveries of buried archaeological resources that could occur during construction by requiring cultural resources monitoring by a qualified archaeologist and Native American. (Mitigation Measures **CUL-1** and **CUL-2**.) These measures would ensure that project construction would not cause a substantial adverse change in the significance of archaeological resources that could qualify as unique archaeological resources under CEQA. This impact, therefore, is less than significant with incorporation of mitigation measures.

Operation

No Impact. Operation and maintenance of the proposed project would not require excavation or other ground-disturbance. Therefore, there would be no impact to archaeological resources that could qualify as unique archaeological resources under CEQA.

c. Would the project disturb any human remains, including those interred outside of formal cemeteries?

Construction

Less Than Significant Impact with Mitigation Incorporated. Mitigation Measure CUL-2 defines actions that the applicant would take in event of encountering human remains. If human remains are discovered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped. The Santa Clara County Coroner shall be notified and shall determine whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. All actions taken under this project design measure shall comply with Health and Human Safety Code, section 7050.5(b). Therefore, any disturbance to human remains during construction would be less than significant with the incorporation of Mitigation Measure CUL-2.

Operation

No Impact. Operation and maintenance of the proposed project would not require excavation or other ground-disturbance. Therefore, there would be no impact to human remains.

Tribal Cultural Resources CEQA Checklist Questions

d. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, *and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?*

Construction and Operation

No Impact. A records search and literature review did not identify listed or eligible tribal cultural resources in the proposed project area. Therefore, there would be no impact to listed or eligible tribal cultural resources.

e. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, *and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be*

significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. **In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?**

Construction

Less Than Significant Impact with Mitigation Incorporated. A records search and literature review did not identify tribal cultural resources in the proposed project area. The applicant proposed measures to survey the exposed ground surface for tribal cultural resources once demolition of existing structures is complete. The applicant also proposed measures to avoid inadvertent discoveries of buried tribal cultural resources that could occur during construction by requiring cultural resources monitoring by a qualified archaeologist and Native American. (Mitigation Measures **CUL-1** and **CUL-2**.) These measures as proposed by the applicant as part of the project would ensure that project construction would not cause a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code, section 21074. This impact, therefore, is less than significant with the incorporation of mitigation measures.

Operation

No Impact. Operation and maintenance of the proposed project would not require excavation or other ground-disturbance. Therefore, there would be no impact to tribal cultural resources.

4.5.3 Mitigation Measures

CUL-1: The project proposes to implement the following measures to ensure the project's impacts to archaeological resources are less than significant:

- A Secretary of the Interior-qualified archaeologist and a Native American cultural resources monitor shall be on site to monitor grading of native soil once all pavement is removed from the project site. The project applicant shall submit the name and qualifications of the selected archaeologist and Native American Monitor to the Director of Planning and Inspection prior to the issuance of a grading permit. Preference in selecting Native American monitors shall be given to Native Americans with:
  - Traditional ties to the area being monitored.
  - Knowledge of local historic and prehistoric Native American village sites.
  - Knowledge and understanding of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.
  - Ability to effectively communicate the requirements of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq.

  - Ability to work with law enforcement officials and the Native American Heritage Commission to ensure the return of all associated grave goods taken from a Native American grave during excavation.
  - Ability to travel to project sites within traditional tribal territory.
  - Knowledge and understanding of Title 14, California Code of Regulations, Section 15064.5.
  - Ability to advocate for the preservation in place of Native American cultural features through knowledge and understanding CEQA mitigation provisions.
  - Ability to read a topographical map and be able to locate site and reburial locations for future inclusions in the Native American Heritage Commission's Sacred Lands Inventory.
  - Knowledge and understanding of archaeological practices, including the phases of archaeological investigation.
- After removal of pavement and prior to grading, the archaeologist shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. The archaeologist will monitor full-time all grading and ground disturbing activities in native soils associated with construction of the proposed project. If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, then a letter report detailing the rationale for making such a reduction and summarizing the monitoring results shall be provided to the Director of Planning and Inspection. Department of Recreation 523 forms shall be submitted along with the report for any cultural resources encountered over 50 years old.
- In the event that prehistoric or historic resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Planning and Inspection shall be notified, and a Secretary of the Interior-qualified archaeologist shall examine the find and record the site, including field notes, measurements, and photography for a Department of Parks and Recreation 523 Primary Record form. The archaeologist shall make a recommendation regarding eligibility for the California Register of Historical Resources, data recovery, curation, or other appropriate mitigation. Ground disturbance within the 50-foot radius can resume once these steps are taken and the Director of Planning and Inspection has concurred with the recommendations. Within 30 days of the completion of construction or cultural resources monitoring, whichever comes first, a report of findings documenting any cultural resource finds, recommendations, data recovery efforts, and other pertinent information gleaned during cultural resources monitoring shall then be submitted to the Director of Planning and Inspection. Once finalized, this report shall be submitted to the Northwest Information Center at Sonoma State University.
- Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program training to all existing and any new

employees. This training should include: a discussion of applicable laws and penalties under the laws; samples or visual aids of artifacts that could be encountered in the project vicinity, including what those artifacts may look like partially buried, or wholly buried and freshly exposed; and instructions to halt work in the vicinity of any potential cultural resources discovery, and notify the city-approved archaeologist and Native American cultural resources monitor.

CUL-2: The project proposes to implement the following measure to ensure the project's impacts to human remains are less than significant:

- In the event that human remains are discovered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped. The Santa Clara County Coroner shall be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. All actions taken under this mitigation measure shall comply with Health and Human Safety Code, section 7050.5(b).

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4.6 Energy and Energy Resources

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project specific to energy and energy resources[1].

ENERGY Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.6.1 Environmental Setting

The project would consist of a three-story building, utility substation, generator equipment yard, surface parking and landscaping, recycled water pipeline and a total of 45 diesel-fired emergency backup generators (gensets). Forty-four 3.0-megawatt (MW) gensets (of which eleven gensets would be redundant) would be used to provide backup power to support an uninterruptible power supply exclusively for the project (DayZen 2020a, Section 2.2.5). Also, there would be one, 800-kilowatt (kW) genset that would support house functions primarily for critical cooling equipment, other general building (administration), and life safety services. The gensets would serve the data center only during emergency outages when electric service provided by Silicon Valley Power (SVP), via Pacific Gas & Electric Company (PG&E) transmission lines, is interrupted. The backup generators would be electrically isolated from the PG&E electrical transmission grid with no means to deliver electricity offsite.

The 44 gensets would each be a Cummins Model C3000 D6e (Tier 4 compliant) with a peak rated output capacity of 3.0 MW and a continuous, steady-state output capacity of 2.25 MW, and fuel consumption rate of 207 gallons per hour (gal/hr) at full load (DayZen 2020a, Section 2.2.6). The 800-kW life safety emergency generator would be a Cummins Model DQFAD (Tier 4 compliant) with fuel consumption rate of 72 gal/hr at full load. Staff has verified the output capacity and rate of fuel consumption of these gensets from their product sheets (DayZen 2020a, Appendix AQ-2 Table 4.3-14). The maximum electrical load requirement of the data center would be 99.8 MW, which includes the electrical power load of the Information Technology (IT) servers, the cooling load of the data center buildings, as well as the facility's ancillary loads (including life safety genset). See **Section**

1 This section includes staff's analysis of the project's potential impact on Energy Resources, as required by Public Resources Code section 25541 when considering a Small Power Plant Exemption

3.0 Project Description for further information. For the purposes of testing and maintenance, only one genset would operate at any given time.

Regulatory Background

Federal

Energy Star and Fuel Efficiency. At the federal level, energy standards set by the United States Environmental Protection Agency (EPA) apply to numerous consumer products and appliances. The EPA also sets fuel efficiency standards for automobiles and other modes of transportation.

State

California 2019 Energy Efficiency Standards for Residential and Nonresidential Buildings—Green Building Standards Code, California Code of Regulations, Title 24. The California Green Building Standards Code (California Code of Regulations, Title 24, Part 11) applies to the planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires the installation of energy- and water-efficient indoor infrastructure.

Senate Bill 100—The 100 Percent Clean Energy Act of 2018. Senate Bill (SB) 100 (Chapter 312, Statutes of 2018) requires that retail sellers of electricity and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. This requirement applies to Silicon Valley Power (SVP) program, which would be the primary source of energy supply for the project. The bill also requires the Public Utilities Commission, California Energy Commission, and State Air Resources Board to utilize programs authorized under existing statutes to meet the state policy goal of 100 percent of total retail sales of electricity in California provided by eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Local

City of Santa Clara Climate Action Plan. The city's Climate Action Plan (CAP) was adopted on December 3, 2013, and it specifies strategies and measures to be taken for several focus areas, one of which is energy efficiency. To achieve the goals set in the CAP, the city adopted some policies in the City of Santa Clara 2010-2035 General Plan (General Plan) as discussed below.

City of Santa Clara General Plan 2010-2035. The General Plan was adopted by the Santa Clara City Council in November 2010. Applicable General Plan Policies and Actions regarding energy are detailed in Chapter 5.10.3 – Energy Goals and Policies and are summarized below:

- Policy 5.10.3-P1: Promote the use of renewable enery resources, conservation and recycling programs.
- Policy 5.10.3-P4: Encourage new development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities.
- Policy 5.10.3-P5: Reduce energy consumption through sustainable construction practices, materials and recycling.
- Policy 5.10.3-P6: Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.
- Policy 5.10.3-P8: Provide incentives for LEED certified, or equivalent development.

The project would be required to comply with the applicable provisions in the city's General Plan and zoning ordinance, as verified by the city's design review process.

4.6.2 Environmental Impacts

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Construction

Less Than Significant Impact. Construction activities would consume nonrenewable energy resources, primarily fossil fuels (oil, gasoline, and diesel), for construction equipment and vehicles. It is anticipated that these nonrenewable energy resources would be used efficiently during construction activities and would not result in the long-term significant depletion of these energy resources or permanently increase the project's reliance on them.

Under **AQ-1**, the project would implement measures to minimize the idling of construction equipment and would require all such equipment to be maintained and properly tuned (see **Section 4.3 Air Quality**). This would ensure that fuel consumed during construction would not be wasted through unnecessary idling or the operation of poorly maintained equipment, and not add to unnecessary air emissions. Additionally, the project would participate in the city's Construction & Demolition Debris Recycling Program by recycling or diverting at least 65 percent of materials generated for discards by the project to reduce the amount of demolition and construction waste going to the landfill (DayZen 2020a, Section 4.6.2). Diversion saves energy by reusing and recycling materials for other uses (instead of landfilling materials and using additional non-renewable resources).

Therefore, the construction phase of the project would create a less-than-significant impact on local and regional energy supplies and a less-than-significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources.

Operation

Less Than Significant Impact. The total number of hours of operation for reliability purposes (i.e., readiness testing and maintenance) for the gensets would be limited by the data center to no more than 50 hours per genset annually (DayZen 2020a, Section 4.6.2). The primary fuel proposed for these gensets would be renewable diesel fuel, with ultra-low sulfur diesel (ULSD or conventional) used as secondary backup fuel in the event renewable diesel is unavailable. At this rate, the total quantities of renewable diesel fuel used for all the gensets operating at full load would be approximately 10,929 barrels per year (bbl/yr).[2] California has a renewable diesel and ULSD fuel supply of approximately 6,300,000 bbl/yr[3] and 310,000,000 bbl/yr[4], respectively. The project's use of fuel would constitute a small fraction of the renewable diesel and ULSD's available resources (less than 0.17 and 0.003 percent, respectively)—the supply from the combination of these two resources is more than sufficient to meet the project's necessary demand. Moreover, the current supply of renewable diesel does not account for more refineries that are coming online and any import supply—future and import supply would bolster renewable diesel's available resource.

Since the project would use renewable diesel, with ULSD as backup supply, the project's use of fuel on energy resources would be less than significant.

It is important to note that maintenance and readiness testing of the gensets are crucial to the project's viability. The most important data center criterion is reliability. Crucial public services, such as the 911, Offices of Emergency Management, and utilities infrastructure, are increasingly using data centers for their operation. The reliability and data security requirements of a data center would be compromised by limiting or reducing fuel consumption for maintenance and readiness testing. This includes both the primary and redundant gensets. Even though the redundant gensets are purposed to provide backup service to the primary gensets, their operational reliability is equally important, and they are designed to start up at the same time as the primary gensets during emergency operations, with each genset running at 75 percent capacity (DayZen 2020a, Section 2.2.4.1). If any of the primary gensets fails to operate, a redundant one must be immediately ready to run to take up the lost load. So, it is crucial that the redundant gensets be regularly tested and maintained according to the same testing and maintenance requirements as the primary ones and as prescribed by the manufacturer's warranty conditions. The use of diesel fuel for the gensets for readiness testing and maintenance would not be wasteful, inefficient, or unnecessary.

2 Calculated as: (207 gal/hr x 50 hours per year x 44 generators) + (72 gal/hr x 50 hours per year x 1 generator) = 459,010 gallons per year = 10,929 bbl/yr.

3 This is the annual production of 265,000,000 gallons obtained from the U.S. Energy Information Administration's U.S. Renewable Diesel Fuel and Other Biofuels Plant Production Capacity

4 This is the sum of the annual production of 108,657,000 bbl and available stocks of 202,075,000 bbl obtained from the Energy Commission's Weekly Fuels Watch Report for 2022 (latest annual report available).

The gensets would use diesel and lubricating oils. However, the use of the standby gensets for emergency purposes would be limited to times when there is an interruption of SVP's delivery of electric service or other rare emergency that would require the facility to switch to genset use. Under emergency conditions, defined as the loss of electrical power to the data center, which are infrequent and short-duration events, the gensets could operate and use diesel fuel, as necessary, to maintain data center operations. Data centers, such as LDC, could voluntarily participate in CPUC's Emergency Load Reduction Program, in which case, they would disconnect from the grid and use their on-site generators to supply their own electricity in the event of an energy shortage emergency. However, such events have not impacted SVP customers directly and staff expects their effects to decrease over time; see **Appendix B** for more discussion.

The Cummins generator models selected for this project have an efficiency rating comparable to other Tier 4 commercially available diesel-fueled generators of similar generating capacity.

Power Usage Effectiveness (PUE) is a metric used to compare the energy efficiency of facilities that house computer servers. It is a common metric for determining how effectively a data center's infrastructure systems can deliver power to the computer systems it houses. PUE was published in 2016 as a global standard under the International Organization for Standardization, the International Electrotechnical Commission, as well as the European Standards (ISO 20160, European Standards 2016). It is defined as the ratio of total facility energy draw (including the facility's mechanical and electrical loads) to IT server electrical power draw (PUE = total facility source energy [including the IT source energy]/IT source energy). This approach to calculating a data center's energy efficiency is similar to the American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE) Energy Standard for Data Centers (ASHRAE 90.4). However, there is a notable difference: ASHRAE 90.4, which intends to tackle and regulate poorer performers, calculates energy efficiency by providing an alternative path that allows tradeoffs between mechanical and electrical loads particularly within existing, older data centers while the PUE is a more appropriate path to determining a new data center's energy efficiency.

A PUE of 2 means that the data center must draw two watts of electricity for each watt of power consumed by the IT server equipment. While the PUE is always greater than 1, the closer it is to 1 the greater the portion of the power drawn by the facility that goes to the IT server equipment.

The PUE has been used as a guideline for assessing and comparing energy and power efficiencies associated with data centers since 2007 (ASHRAE 2016). It must be noted that the PUE metric was designed to compare facilities of similar size and within similar climatic conditions. PUE factors started around 2.0, but values have since been migrating down to 1.25 or lower, demonstrating a significant improvement in efficient energy usage over the years. A facility with a PUE of 1.5-2.0 is considered "efficient" while one with a PUE of 1.2-1.5 is considered "very efficient." The peak PUE for the project would be 1.5, and its annual average PUE would be 1.3 (DayZen 2020a, Section 2.2.3.2). The project's

peak operation PUE estimate is based on design assumptions and represents worst case; that is, the hottest day with all server bays occupied and all servers operating at 100 percent capacity.

Additionally, rack power rating is an indicator of the server rack's power density. The lower the value the higher the power density and the more information it processes per unit of electricity consumed, resulting in a more efficient use of energy.

Measure 2.3 of the city's CAP encourages the completion of a feasibility study of energy efficient practices for new data center projects with an average rack power rating[5] of 15 kilowatts or more to achieve a PUE of 1.2 or lower. The project would have an average rack power rating of four kW, which is below the city's CAP suggestion that a feasibility study be performed (DayZen 2020a, Section 4.8.2). The project's low rack power rating shows that it would use energy efficiently.

The project would be constructed in accordance with the 2019 California Green Building Standards Code and would include green building measures to reduce energy consumption (DayZen 2020a, Section 4.6.2). Examples of these measures include:

- Utilizing lighting control to reduce energy usage;
- Air economization[6] integrated into the central air handling system for building cooling; and
- LEED Silver certification (next tier above basic LEED certification).

The project's consumption of energy resources during operation would not be wasteful, inefficient, or unnecessary. Project operation would have a less-than-significant adverse effect on local or regional energy supplies and energy resources.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Construction and Operation

No Impact. During operation, the project would use energy resources in SVP's portfolio of resources. SVP's 2018 Integrated Resource Plan identifies that it expects to exceed 50 percent eligible renewable resources by 2030 (SVP 2018). SVP's 2020 non-residential power mix was composed of approximately 31.7 percent eligible renewable, 12.2 percent large hydroelectric, 18.4 percent nonrenewable, and 37.6 percent unspecified sources of power (SVP 2022). In addition, SVP offers large customers, such as LDC, renewable

5 Average rack power rating is a measure of the power available for use on a rack used to store computer servers. The higher the value of kilowatts, the more energy use per square foot of building area in a data center.

6 An air economizer is a ducting arrangement, including dampers, linkages, and an automatic control system that allows a cooling supply fan system to supply outside air to reduce or eliminate the need for mechanical cooling.

energy as part of their Large Customer Renewable Energy (LCRE) program. The program offers customers 100 percent carbon-free renewable electricity (CEC 2022b).

Under **GHG-2,** the applicant would be required to participate in SVP's LCRE program for 100 percent carbon-free electricity or purchase carbon removal offsets that accomplish the same goals of 100 percent carbon-free electricity (see **Section 4.8 Greenhouse Gas Emissions**). The project would receive electricity from SVP sources either through the LCRE program or through a standard electricity product supplemented by the project's purchase of carbon removal offsets. SVP Chief Operating Officer, Kevin Kolnowski has testified in recent data center proceedings that SVP is taking multiple actions to meet the requirements of SB 100 and that the additional load from data centers is anticipated and accounted for in SVP demand analysis and integrated resource planning process. SVP currently has adequate resources to meet expected demand through 2030. Mr. Kolnowski has testified that SVP already has over 400 MW of renewable power coming online in the next several years, an additional 100 MW of renewable power being investigated as SVP continues to procure renewable energy supply. (CEC Mission College (Docket No. 19-SPPE-05) Evidentiary Hearing Transcript, pp. 22-23, 26-28 (TN 233540), CEC Walsh (Docket No. 19-SPPE-02) Evidentiary Hearing Transcript, pp. 22, 24-26 (TN 233287.)

SVP is currently in compliance with SB 100 and can accommodate the electricity demand from this project while continuing compliance with the SB 100 requirements (CEC 2021). Therefore, the project will not obstruct SVP's compliance with a state plan for renewable energy.

The project's gensets would operate only during routine testing and maintenance, which is limited to 50 hours per genset annually and in the case of emergencies, and the generated electricity would only serve the project and not the wider electric grid. Thus, the project's possible use of ULSD fuel would not obstruct or inhibit the state from achieving its energy-related goals. Additionally, the use of renewable diesel fuel would reduce the project's reliance on conventional diesel and is a cleaner burning fuel. See **Sections 4.3 Air Quality** and **4.8 Greenhouse Gas** for more discussion.

The project, through energy-efficient design, use of renewable diesel fuel, and increased renewable electricity use from SVP, its primary electricity source, would neither conflict with nor obstruct state or local plans for renewable energy or energy efficiency, and, therefore, would have no impact on those plans.

4.6.3 Mitigation Measures

None.

4.6.4 References

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CEC Walsh Transcript-Walsh Evidentiary Hearing, May 27, 2020, Docket # 19-SPPE-02, TN# 233287, https://efiling.energy.ca.gov/GetDocument.aspx?tn=233287&DocumentContentId=65774

European Standards 2016 – European Standards. CSN EN 50600-4-2 Information technology – Data centre facilities and infrastructures – Part 4-1: Power Usage Effectiveness. Released 2016. Available online at: https://www.en-standard.eu/csn-en-50600-4-2-information-technology-data-centre-facilities-and-infrastructures-part-4-2-power-usage-effectiveness/

ISO 2016 – ISO. ISO/IEC 30134-2:2016, Information technology – Data centres – key performance indicators – Part 2: Power usage effectiveness (PUE). Published April 2016. Available online at: https://www.iso.org/standard/63451.html

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SVP 2018 – Silicon Valley Power (SVP). 2018 Integrated Resource Plan for Silicon Valley Power. November 12, 2018. Available online at: https://www.siliconvalleypower.com/home/showdocument?id=62481

SVP 2022 – Silicon Valley Power (SVP). 2020 Power Content Label. Available online at: https://www.siliconvalleypower.com/svp-and-community/about-svp/power-content-label

4.7 Geology and Soils

This section describes the environmental and regulatory setting and discusses impacts associated with the demolition, construction, and operation of the project with respect to geology and soils.

GEOLOGY AND SOILS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2022), creating substantial direct or indirect risks to life or property?*	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

*Geology and Soils question (d) reflects the current 2022 California Building Code (CBC), effective January 1, 2023, which is based on the International Building Code (since 2007).
https://www.dgs.ca.gov/BSC/Codes
Environmental checklist established by CEQA Guidelines, Appendix G.

4.7.1 Environmental Setting

Analysis of existing data included reviews of publicly available literature, maps, air photos, and documents presented with the application. An online database search was performed to identify previously reported paleontological resources near the project site. The geologic map review of the project area included maps published by the U.S. Geological Survey (Helley and Wesling 1989; Wesling and Helley 1989, and Helley et al. 1994). The literature reviewed included published and unpublished scientific papers. A paleontological record search of the University of California Museum of Paleontology, Berkeley online paleontological database was conducted for the disturbed project areas, including a 10-mile buffer zone surrounding the proposed data center (UCMP 2020).

Paleontological Sensitivity

Paleontological resources are the fossilized remains of organisms from prehistoric environments found in geologic strata. They range from mammoth and dinosaur bones to impressions of ancient animals and plants, trace remains, and microfossils. These are valued for the information they yield about the history of the earth and its past ecological settings. The potential for paleontological resources to occur in the project area was evaluated using the federal Potential Fossil Yield Classification (PFYC) system developed by the Bureau of Land Management (BLM 2016). Because of its demonstrated usefulness as a resource management tool, the PFYC has been utilized for many years for projects across the country, regardless of land ownership. It is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential) or Unknown. This system is intended to aid in predicting, assessing, and mitigating impacts to paleontological resources. The PFYC ranking system is summarized in **Table 4.7-1**.

TABLE 4.7-1: POTENTIAL FOSSIL YIELD CLASSIFICATION

BLM PFYC Designation	Assignment Criteria Guidelines and Management Summary
1 Very Low Potential	Geologic units are not likely to contain recognizable paleontological resources.
	Units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
	Units are Precambrian in age.
	Management concern is usually negligible, and impact mitigation is unnecessary except in rare or isolated circumstances.
2 Low	Geologic units are not likely to contain paleontological resources.
	Field surveys have verified that significant paleontological resources are not present or are very rare.
	Units are generally younger than 10,000 years before present.
	Recent aeolian deposits.
	Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely
	Management concern is generally low, and impact mitigation is usually unnecessary except in occasional or isolated circumstances.
3 Moderate Potential	Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence.
	Marine in origin with sporadic known occurrences of paleontological resources.

TABLE 4.7-1: POTENTIAL FOSSIL YIELD CLASSIFICATION	
BLM PFYC Designation	**Assignment Criteria Guidelines and Management Summary**
	Paleontological resources may occur intermittently, but these occurrences are widely scattered.
	The potential for authorized land use to impact a significant paleontological resource is known to be low-to-moderate.
	Management concerns are moderate. Management options could include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Opportunities may exist for hobby collecting. Surface-disturbing activities may require sufficient assessment to determine whether significant paleontological resources occur in a proposed action and whether the action could affect the paleontological resources.
4 High Potential	Geologic units that are known to contain a high occurrence of paleontological resources.
	Significant paleontological resources have been documented but may vary in occurrence and predictability.
	Surface-disturbing activities may adversely affect paleontological resources.
	Rare or uncommon fossils, including invertebrate (such as soft body preservation) or unusual plant fossils, may be present.
	Illegal collecting activities may impact some areas.
	Management concern is moderate to high depending on the proposed action. A field survey by a qualified paleontologist is often needed to assess local conditions. On-site monitoring or spot- checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.
5 Very High Potential	Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources.
	Significant paleontological resources have been documented and occur consistently.
	Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
	Unit is frequently the focus of illegal collecting activities.
	Management concern is high to very high. A field survey by a qualified paleontologist is almost always needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.
U Unknown	Geologic units that cannot receive an informed PFYC assignment.
	Geological units may exhibit features or preservation conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known.
	Geologic units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.
	Scientific literature does not exist or does not reveal the nature of paleontological resources.
	Reports of paleontological resources are anecdotal or have not been verified.
	Area or geologic unit is poorly or under-studied.
	BLM staff has not yet been able to assess the nature of the geologic unit.
	Until a provisional assignment is made, geologic units with unknown potential have medium to high management concerns. Field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

Source: Summarized and modified from BLM 2016

Regional Geologic Setting

The proposed project site is situated in the Southern Coastal Ranges geomorphic province. The division between the Northern and Southern Coastal Ranges is one of convenience. Both provinces contain many elongate ranges and narrow valleys that are approximately parallel to the coast, although the coast trends slightly northward more than the ridges and valleys, except at San Francisco Bay where a pronounced gap separated the two provinces (Norris and Webb 1990). The differences between the two provinces occur because the northern ranges lie east of the San Andreas Fault zone, whereas the southern ranges predominantly lie to the west (Norris and Webb 1990). The two Ranges have dissimilar basement rocks. The Northern Range and portions of the Southern Range east of the San Andreas Fault zone are underlain by strongly deformed Franciscan subduction complex rocks, and the areas west of the San Andreas Fault zone, in both the Northern and Southern Range, are underlain by a strongly deformed granitic-metamorphic complex known as the Salinian block. The basement rock beneath the project site, which lies east of the San Andreas Fault zone consists of Franciscan Complex rocks (Norris and Webb 1990).

Local Geology

The project site is in the Santa Clara Valley, a relatively broad and level alluvial basin, bounded by the San Francisco Bay to the north, the Santa Cruz Mountains to the west and southwest, and the Diablo Mountain Range to the east and southeast. The Santa Clara Valley basin contains alluvial deposits derived from the Diablo Range and the Santa Cruz Mountains. Alluvial deposits are interbedded with bay and lacustrine (lake) deposits in the north-central region. The valley sediments were deposited as a series of coalescing alluvial fans by streams that drain the adjacent mountains. These alluvial sediments make up the groundwater aquifers of the area.

The project site is underlain by Holocene age (less than 11,000 years old) basin deposits (Qhb). The basin deposits consist primarily of estuarine deposits of the Alameda Formation and younger alluvial fans. It is mostly underlain extensively by the Mud Member that contains a high clay content and forms an extensive east-west aquitard across the area. This unit averages 25 to 50 feet thick with gravel and sand layers commonly encountered in the middle of the unit. Typically, the site conditions consist of 15 to 20 feet of silty clay overlying a 2.5- to 5-foot layer of clayey or gravelly sand. The Mud Member has been identified as an ideal case for less aggressive groundwater remediation as it serves to retard vertical groundwater migration. Deeper geological units beneath the site consist of a sequence of alluvial fan deposits interbedded between older muds (DayZen 2020a and 2020b).

In addition, these sediments have low potential to yield fossil resources or to contain significant nonrenewable paleontological resources. However, these recent sediments overlie older, Pleistocene age sediments that have a high potential to contain paleontological resources. These older sediments, often found at depths of ten feet or more below the ground surface, have yielded the fossil remains of plants and extinct

terrestrial Pleistocene vertebrates. The city of Santa Clara General Plan (Santa Clara 2010), Integrated Final Environmental Impact Report, dated January 2011, suggests that ground disturbing activities of ten feet or more have the potential to impact undiscovered paleontological resources in older Pleistocene sediments (Santa Clara 2010).

There are no unique geologic features on or adjacent to the project site. The topography of the project site is relatively flat with a slight downward slope to the north-northeast. The site is at an approximate elevation of 40 feet (DayZen 2020b). Erosion hazards are limited and there are no landslide hazards (DayZen 2020a).

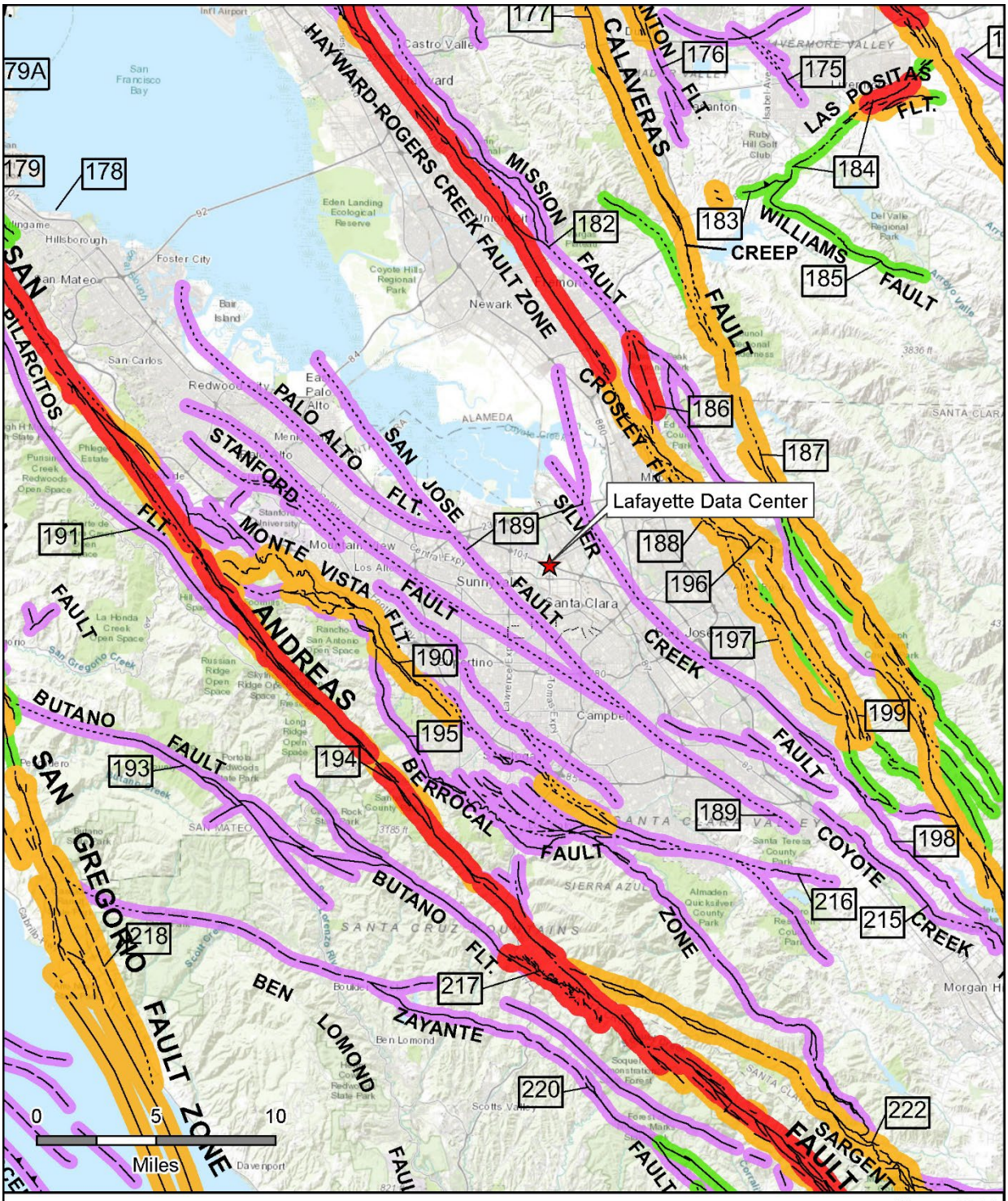
Groundwater

Ground water was encountered at depths ranging from approximately 16 to 24 feet below the current grade. Fluctuations in groundwater levels are common due to seasonal weather patterns, underground drainage patterns, regional fluctuations, and other factors (DayZen 2020a).

Seismicity and Seismic Hazards

The San Francisco Bay Area is one of the most seismically active areas in the United States (DayZen 2020a). The significant earthquakes that occur in the Bay Area are generally associated with crustal movement along well-defined active fault zones of the San Andreas Fault system, which regionally trend in a northwesterly direction (**Figure 4.7-1**). Three of the major earthquake faults (the San Andreas Fault, the Hayward-Rogers Creek Fault, and the Calaveras Fault) that comprise the San Andreas Fault system extend through the Bay Area (USGS 2023).

Figure 4.7-1 identifies the regional earthquake faults in the project vicinity. While seismologists cannot predict earthquake events, the U.S. Geological Survey's Working Group on California Earthquake Probabilities estimates there is a 72 percent chance of at least one magnitude 6.7 earthquake occurring in the Bay Area region between 2002 and 2032. Higher levels of shaking and damage would be expected for earthquakes occurring at closer distances. The faults considered capable of generating significant earthquakes in the area are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The three major faults in the region are the Calaveras Fault (approximately 9.4 miles east of the site), the San Andreas Fault (approximately 11.3 miles west of the site), and the Hayward-Rogers Creek Fault (approximately 6.1 miles east of the site) (CGS 2023). The project site is not located within the limits of an Alquist-Priolo Earthquake Fault Zone and there are no known active faults within the city limits of Santa Clara. (DayZen 2020a). Structural design of facilities in California are required to incorporate design features to ensure public safety if a seismic event generates sufficient ground motion to impact the structural integrity of the facility in accordance with California Building Code (CBC 2019).



Fault Classification
- Historic
- Holocene
- Late Quaternary
- Quaternary

Figure 4.7.1
Regional Fault Map

Sources: California Department of Conservation 2010, ESRI, Jacobs 2019a

Loose unsaturated sandy soils can settle during strong seismic shaking. However, the soils encountered below the design groundwater level at the site are predominantly clays, with some sand and gravel layers (DayZen 2020a). Therefore, the potential for significant differential seismic settlement affecting the proposed project is presumed low.

Soils

Soil types in the area include clay in the low-lying central areas, loam and gravelly loam in the upper portions of the valley and eroded rocky clay loam in the foothills. The soil at the site is classified as Urban Land by the U.S. Department of Agriculture (NRCS 2019). The average grade of the valley floor ranges from nearly horizontal to about two percent generally down to the northwest. Grades are steeper on the surrounding hillsides (Santa Clara 2011). The stratigraphy of the site-specific soil conditions is discussed above in the section titled Local Geology.

Construction of the Lafayette Data Center would require excavation to depths of up to 13 feet. Foundations would be augured piles (DayZen 2020a). Although the Lafayette Data Center site would be graded and any excavation for deep foundations would be completed prior to installation of any of the backup generating facilities, these facilities would require trenching to install the underground cabling for the electrical interconnection between each generator yard and the data center building it serves. This trenching would most likely occur in previously disturbed soils shallower than 10 feet (DayZen 2020a).

Expansive soil can undergo volume changes with changes in moisture content. Specifically, when wetted during the rainy season expansive soil tends to swell, and when dried during the summer months the material shrinks. However, expansive soil can be mitigated through removal or mixing with non-expansive soil. The project site is located on expansive soil as defined in Section 1803.5.3 of the CBC. Soil expansion potential would be characterized in greater detail for this site as part of the design-level geotechnical investigation required by the CBC (DayZen 2020a).

Liquefaction

During strong ground shaking, loose, saturated, cohesionless soils can experience a temporary loss of shear strength and act as a fluid. This phenomenon is known as liquefaction. Liquefaction depends on the depth to water, grain size distribution, relative soil density, degree of saturation, and intensity and duration of the earthquake (Youd et al. 2001). Soils most susceptible to liquefaction are loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface (DayZen 2020a).

The potential hazard associated with liquefaction is seismically induced settlement. The site is mapped within a State of California Seismic Hazard Zone for liquefaction. Areas mapped for this hazard have been impacted historically by liquefaction or display geologic or groundwater conditions conducive to liquefaction. Ground water was encountered at depths ranging from approximately 16 to 24 feet below the current grade (DayZen

2020a). Proposed structures would be designed and constructed to account for liquefiable soils in accordance with the California Building Code (CBC 2022).

Lateral Spreading

Lateral spreading typically occurs as a form of horizontal displacement of relatively flat-lying alluvial material toward an open or "free" face such as an open body of water, channel, or excavation. In soils, this movement is generally due to failure along a weak plane and may often be associated with liquefaction. As cracks develop within the weakened material, blocks of soil displace laterally towards the open face. Cracking and lateral movement may gradually propagate away from the face as blocks continue to break free. Generally, failure in this mode is analytically unpredictable because it is difficult to evaluate where the first tension crack would occur. However, there are no stream channels on or adjacent to the site, therefore the project site would not be subject to lateral spreading (DayZen 2020a).

Regulatory Background

The project would be required to obtain building permits that would be issued by the city of Santa Clara. The issuance of the building permits and oversight provided by the city of Santa Clara would ensure that the project complies with the applicable building codes.

Federal

There are no federal regulations related to geology and soils and paleontological resources that apply to this project.

State

Alquist-Priolo Earthquake Fault Zoning Act. The Alquist-Priolo Earthquake Fault Zoning Act was passed following the 1971 San Fernando earthquake. The act regulates development in California near known active faults due to hazards associated with surface fault ruptures. Alquist-Priolo maps are distributed to affected cities, counties, and state agencies for their use in planning and controlling new construction. Areas within an Alquist-Priolo Earthquake Fault Zone require special studies to evaluate the potential for surface rupture to ensure that no structures intended for human occupancy are constructed across an active fault.

Seismic Hazards Mapping Act. The Seismic Hazards Mapping Act (SHMA) was passed in 1990 following the 1989 Loma Prieta earthquake. The SHMA directs the California Geological Survey (CGS) to identify and map areas prone to liquefaction, earthquake-induced landslides, and amplified ground shaking. CGS has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, landslides, and ground shaking, including the central San Francisco Bay Area. The SHMA requires that agencies only approve projects in seismic hazard zones following site-specific geotechnical investigations to determine if the seismic hazard is present and identify measures to reduce earthquake-related hazards.

California Building Standards Code. The California Building Standards Code (CBC) prescribes standards for constructing safer buildings. The CBC contains provisions for earthquake safety based on factors including occupancy type, soil and rock profile, ground strength, and distance to seismic sources. The CBC requires that a site-specific geotechnical investigation report be prepared for most development projects to evaluate seismic and geologic conditions, such as surface fault ruptures, ground shaking, liquefaction, differential settlement, lateral spreading, expansive soils, and slope stability. The CBC is updated every three years; the current version is the 2022 CBC.

California Division of Occupational Safety and Health Regulations. Excavation, shoring, and trenching activities during construction are subject to occupational safety standards for stabilization by the California Division of Occupational Safety and Health (Cal/OSHA) under Title 8 of the California Code of Regulations and Excavation Rules. These regulations minimize the potential for instability and collapse that could injure construction workers on the site.

State Paleontological Laws, Ordinances, Regulations, and Standards. Paleontological resources are the fossilized remains of organisms from prehistoric environments found in geologic strata. They range from mammoth and dinosaur bones to impressions of ancient animals and plants, trace remains, and microfossils. These are valued for the information they yield about the history of the earth and its past ecological settings. The California Public Resources Code (Section 5097.5) specifies that unauthorized removal of a paleontological resource is a misdemeanor.

The California Environmental Quality Act (CEQA) encourages the protection of all aspects of the environment by requiring state and local agencies to prepare multidisciplinary analyses of the environmental impacts of a project and to make decisions based on the findings of those analyses. CEQA includes, in its definition of historical resources, any object or site that "has yielded, or may be likely to yield, information important in prehistory" (California Code Regulations, title 14, § 15064.5(a)(3)(D)), which is typically interpreted by professional scientists as including fossil materials and other paleontological resources. More specifically, destruction of a "unique paleontological resource or site or unique geologic feature" may be a significant impact under CEQA (CEQA Guidelines Appendix G.VII. (f)).

Local

Santa Clara General Plan. Staff reviewed the city of Santa Clara General Plan (Santa Clara 2010)) for provisions relevant to geologic and paleontological resources. Section 5.6.3 of the general plan identifies protection of paleontological resources as a goal of the city and policies 5.6.3-P1 through P6 outline how the protection of paleontological resources would be achieved. Section 5.10.5 of the general plan identifies facility design and construction with respect to geologic conditions.

- 5.6.3-G1: Protection and preservation of cultural resources, as well as archaeological and paleontological sites.

- 5.6.3-G2: Appropriate mitigation if human remains, archaeological resources or paleontological resources are discovered during construction activities.
- 5.6.3-P1: Require that new development avoid or reduce potential impacts to archaeological, paleontological, and cultural resources.
- 5.6.3-P2: Encourage salvage and preservation of scientifically valuable paleontological or archaeological materials.
- 5.6.3-P3: Consult with California Native American tribes prior to considering amendments to the city's General Plan.
- 5.6.3-P4: Require that a qualified paleontologist/archaeologist monitor all grading and/or excavation if there is a potential to affect archeological or paleontological resources, including sites within 500 feet of natural water courses and in the Old Quad neighborhood.
- 5.6.3-P5: In the event that archaeological/paleontological resources are discovered, require that work be suspended until the significance of the find and recommended actions are determined by a qualified archaeologist/paleontologist.
- 5.6.3-P6: In the event that human remains are discovered, work with the appropriate Native American representative and follow the procedures set forth in State law.
- 5.10.5-P5: Regulate development, including remodeling or structural rehabilitation, to ensure adequate mitigation of safety hazards, including flooding, seismic, erosion, liquefaction, and subsidence dangers.
- 5.10.5-P6: Require that new development be designed to meet current safety standards and implement appropriate building codes to reduce risks associated with geologic conditions.
- 5.10.5-P7: Implement all recommendations and design solutions identified in project soils reports to reduce potential adverse effects associated with unstable soils or seismic hazards.

Santa Clara City Code. Staff reviewed Title 15 of the Santa Clara city code that includes the city's adopted Building and Construction Code (Santa Clara 2019). These regulations are based on the CBC and include requirements for building foundations, walls, and seismic resistant design. Requirements for grading and excavation permits and erosion control are included in Chapter 15.15 Building Code. Requirements for building safety and earthquake reduction hazard are addressed in Chapter 15.55 Seismic Hazard Identification.

4.7.2 Environmental Impacts

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Construction and Operation

Less Than Significant Impact. The probability that demolition followed by construction of the proposed project would have an impact on the risk of loss, injury, or death involving rupture of an earthquake fault during demolition or construction is remote. The project site is located within the seismically active San Francisco Bay region, and the nearest historically active fault, the Hayward-Rogers Creek Fault, is approximately 6.1 miles from the project site (**Figure 4.7-1**). However, there are no active or potentially active faults known to cross the site. The site is not located within an Earthquake Fault Zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. The project site is not located within a fault rupture zone (DayZen 2020a). Several potentially active faults have been mapped outside of the general project area, the closest being the Silver Creek fault, which is mapped approximately 1.9 miles southwest of the proposed project (**Figure 4.7-1**).

Due to the distance of faults from the site and the absence of known faults within or near the site, development of the project would not expose people or buildings to known risks of fault rupture. The probability that operation or maintenance of the proposed project would have an impact on the risk of loss, injury, or death involving rupture of an earthquake fault during operation is remote. As described above, the zone of damage is limited to a relatively narrow area along either side of the fault. Additionally, the project is not expected to exacerbate rupture of known earthquake faults. Therefore, impacts related to fault rupture would be less than significant.

ii. Strong seismic ground shaking?

Construction and Operation

Less Than Significant Impact. Earthquakes along several nearby active faults in the region could cause moderate to strong ground shaking at the site (DayZen 2020a). The intensity of ground motion and the damage done by ground shaking would depend on the characteristics of the generating fault, distance to the fault and rupture zone, earthquake magnitude, earthquake duration, and site-specific geologic conditions. The design of the project, including the building foundations, would assess potential impacts of strong seismic ground shaking. Seismic hazards would be minimized by conformance to the seismic design criteria of the 2022 California Building Code. Furthermore, a project-

specific geotechnical engineering report would be provided to the City Building Official for review and approval prior to issuance of a building permit. With implementation of the seismic design guidelines per the California Building Code (CBC 2022), as well as the anticipated project-specific recommendations in the final geotechnical engineering report, the project would not expose people or property, directly or indirectly, to significant impacts associated with geologic or seismic ground shaking, and the LDC and LBGF shall meet the design requirements of the current CBC. Therefore, risks to people or structures from strong seismic ground-shaking would continue to be less than significant and the project would not exacerbate the effects of seismic ground shaking. During operation and maintenance of the proposed project, the project facility would be subject to moderate to strong seismic ground shaking (DayZen 2020a). However, with implementation of the seismic design guidelines per the California Building Code (CBC 2022), as well as the anticipated project-specific recommendations in the final geotechnical engineering report, the project would not expose people or property, directly or indirectly, to significant impacts associated with geologic or seismic ground shaking. Therefore, risks to people or structures from strong seismic ground-shaking would continue to be less than significant.

iii. Seismic-related ground failure, including liquefaction?

Construction and Operation

Less Than Significant Impact. The site is located within a state-designated Liquefaction Hazard Zone. Soil tests to determine site-specific liquefaction potential would be conducted as part of the design-level geotechnical investigation required by the CBC. The likely consequence of potential liquefaction at the site would be settlement. As previously mentioned, the project would be constructed in compliance with the 2022 CBC, including all applicable seismic standards for structures. Compliance with the 2022 CBC reduces potential risks associated with settlement from seismically induced liquefaction. Therefore, risks to people or structures from strong seismic ground-shaking would continue to be less than significant. During operation and maintenance of the proposed project the project facility would be subject to moderate to strong seismic ground shaking (DayZen 2020a). However, with implementation of seismic design guidelines per the California Building Code (CBC 2022), as well as the anticipated project-specific recommendations in the design-level geotechnical investigation, the project would not expose people or property, directly or indirectly, to significant impacts associated with geologic or seismic ground shaking, including ground failure, liquefaction, or seismically induced subsidence. Therefore, risks to people or structures, or exacerbating ground failure, during strong seismic ground-shaking would continue to be less than significant.

iv. Landslides*?*

Construction and Operation

No Impact. There would be no impact from landslides. The proposed project is located on very mildly sloping terrain and is not located in any of the areas subject to landslides as identified in the city of Santa Clara General Plan (Santa Clara 2011). Grading of the

substation expansion would not create steep slopes and construction of the proposed project would not cause a landslide. Operation and maintenance activities would not materially change from existing activities and would not include construction or grading of new slopes. Therefore, risks to people or structures from strong seismic ground-shaking would be less than significant and the project would not exacerbate the effects of seismic ground shaking or a resultant landslide.

b. Would the project result in substantial soil erosion or the loss of topsoil?

Construction and Operation

Less Than Significant Impact. Any demolition of remaining structures, foundations, and underground utilities would need to take place prior to construction, as necessary. Construction activities associated with the project would temporarily increase sedimentation and erosion by exposing soils to wind and runoff until construction is complete and new vegetation is established (DayZen 2020a). As discussed in **Section 4.10, Hydrology and Water Quality**, the project is subject to construction-related storm water permit requirements. Prior to ground-disturbing construction activity, the project must comply with the Construction General Permit, which includes filing a Notice of Intent with the State Water Resources Control Board. The project would be subject to the requirements of Provision C.3 of Santa Clara's National Pollutant Discharge Elimination System (NPDES) permit and would be required to comply with Santa Clara's BMPs for erosion and sedimentation control during the construction period, as outlined in the NPDES permit (DayZen 2020a). Implementation of these permit requirements would result in a less than significant soil erosion impact.

With respect to the generating facility components, construction would involve limited ground disturbance as the site grading for the Lafayette Data Center would be completed prior to installation of the generating facility components. The only ground disturbance directly attributable to the generating facility would be the minor trenching for electrical interconnection to the Lafayette Data Center (DayZen 2020a).

The project would be subject to a post-construction NPDES Permit and Provision C.3 requirements of Santa Clara's NPDES permit. BMP's for erosion and sedimentation control taken to comply with the NPDES permit would ensure the site would not include areas of exposed topsoil subject to erosion. Surface water runoff from the facility would not be expected to impact soil erosion or cause the loss of topsoil during project operation. Occasional minor surface disturbance may continue to be required during maintenance activities, but such disturbance would be temporary and likely small. Continuous operation and maintenance work would not result in increased erosion or topsoil loss. Therefore, a less than significant impact would be associated with erosion or loss of topsoil.

c. Would the project be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Construction and Operation

Less Than Significant Impact. Lateral spreading is a type of ground failure related to liquefaction. It consists of the horizontal displacement of flat-lying alluvial material toward an open face, such as the steep bank of a stream channel or slopes. The project site is in a mapped liquefaction hazard zone. The site is not located within a landslide hazard zone, and geomorphology of the site is such that the site would not be subject to lateral spreading. There are no stream channels or other open faces on or adjacent to the site that would be subject to lateral spreading.

The project would be designed and constructed in accordance with standard engineering safety techniques and in conformance with the requirements of applicable, current California Building Code (CBC 2022). The project would not change or exacerbate the geologic conditions of the project area and the project would not expose people or property, directly or indirectly, to unstable geologic or soil units. Therefore, impacts associated with construction on geologic units or soil that is or would become unstable would have a less than significant impact.

Operation and maintenance activities would not materially change the surface runoff or geotechnical characteristics of the material beneath the project facilities. Thus, operation and maintenance activities would not introduce new soil stability hazards. Occasional minor surface disturbance may continue to be required during maintenance activities, but such disturbance would be temporary and likely small. The project would not expose people or property, directly or indirectly, to unstable geologic or soil units.

d. Would the project be located on expansive soil, as defined in Section 1803.5.3 of the California Building Code (2022), creating substantial direct or indirect risks to life or property?

Construction and Operation

Less Than Significant Impact. As discussed above in subsection "4.7.1 Setting", expansive soil behavior is a condition where clay soils react to changes in moisture content by expanding or contracting. Poorly drained soils have greater shrink-swell potential.

The project site is located on expansive soil as defined in Section 1803.5.3 of the CBC (DayZen 2020a). The policies of the city of Santa Clara General Plan (Santa Clara 2010) have been adopted for the purpose of avoiding or mitigating environmental effects resulting from planned development within the city. To avoid risks associated with expansive soils, foundation designs would be reviewed and approved by city engineers for compliance with the 2022 CBC general foundation design standards. Santa Clara

General Plan Policy 5.10.5-P6 requires that new development be designed to meet current safety standards and implement appropriate building codes to reduce risk associated with geologic conditions. The project would be required to adhere to the SHMA and CBC, which would reduce impacts related to expansive soils to a less than significant level.

Operation and maintenance activities would not change materially the surface runoff or geotechnical characteristics of the material beneath the project facilities. Thus, operation and maintenance activities would not introduce new soil stability hazards. Occasional minor surface disturbance may continue to be required during maintenance activities, but such disturbance would be temporary and likely small. The project would not expose people or property, directly or indirectly, to unstable geologic or soil units. After construction there would be no impact related to expansive soils.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Construction and Operation

No Impact. The project would connect to an existing city-provided sanitary sewer connection, so the project site would not need to support septic tanks or alternative wastewater disposal systems (DayZen 2020a). Therefore, there would be no impact to soils because of sanitary waste disposal from the project during construction.

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Construction and Operation

Less Than Significant with Mitigation Incorporated. The project site is in the Santa Clara Valley, an area known to have scientifically significant but widespread or intermittent fossil discoveries. Surficial sediment has been mapped as Holocene (11,700 years before present) and paleontological evidence indicates that Pleistocene (2.6 million to 11,700 years before present) sediments may also be present at or near the surface. Five fossil sites have been found at or near the ground surface within two miles of the project site, especially along stream beds. However, the general area has been extensively developed over the last 50 years as part of the technology research and development area known as Silicon Valley.

The potential to disturb paleontological resources would occur during the construction activities requiring earth moving, such as grading, trenching for utilities, excavation for foundations, and installation of support structures where native soil would be disturbed. The Lafayette Data Center would require excavation to depths of up to 13 feet. Foundations would be augured piles (DayZen 2020a).

Although unlikely, paleontological resources could be encountered during construction). Ground disturbing activities of ten feet or more have the potential to impact undiscovered paleontological resources (Santa Clara 2010). The applicant has proposed a measure to reduce impacts to a unique paleontological resource. The measure includes protocols for training, identification of paleontological resources and salvage plan, including treatment and reporting. Staff evaluated this measure in the context of impacts to paleontological resources and considers the measure sufficient to reduce impacts. Staff proposes **GEO-1** to address the potential for discovery of paleontological resources during excavation in native materials. There is no potential to disturb paleontological resources during operations because there would be no earth-moving activities required for operations. Occasional minor surface disturbance may continue to be required during maintenance activities, but such disturbance would be temporary, small, and most likely limited to disturbance of fill.

With implementation of **GEO-1**, impacts to paleontological resources would be reduced to a less than significant level. There are no unique geologic features within the site footprint.

4.7.3 Mitigation Measures

GEO-1: The project proposes to implement the following measures to ensure impacts to paleontological resources are reduced to less than significant.

- Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology, who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and shall follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance.
- If a fossil is found and determined by the qualified paleontologist to be significant and avoidance is not feasible, the paleontologist shall develop and implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in these areas shall be halted or diverted to allow preparation of the plan and recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report that outlines the results of the mitigation program shall be prepared and submitted to the Director of Planning and Inspection. The Director, or Director's Designee, shall be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.

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4.8 Greenhouse Gas Emissions

This section describes the environmental and regulatory setting and discusses greenhouse gas (GHG) emissions impacts associated with the demolition/construction, direct "stationary source" emissions from emergency backup generators (gensets), and indirect and "non-stationary source" emissions from the operation of the Lafayette Data Center (LDC) and the associated Lafayette Backup Generating Facility (LBGF), collectively called "the project" in the analysis that follows.

GREENHOUSE GAS EMISSIONS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☐

Environmental checklist established CEQA Guidelines, Appendix G.

4.8.1 Environmental Summary

In this analysis, CEC staff (staff) concludes that, with the implementation of mitigation measures **GHG-1** and **GHG-2**, the project's potential GHG emissions impacts would be less than significant.

This section includes both quantitative and qualitative analyses of the project's three categories of GHG emissions: (1) emissions related to the construction/demolition phase of the project; (2) direct "stationary source" emissions from the operation of the gensets; and (3) indirect and "non-stationary source" emissions from the operation of the project, the vast majority of which are indirect emissions from the electricity consumed by the project.

For each category of GHG emissions, this section describes and calculates the emissions, identifies the threshold of significance that applies to the project's emissions source, and applies the applicable methodology or threshold of significance to determine if the project's GHG emissions impacts are less than significant.

Significance Criteria

CEQA Guidelines for GHG Emissions. With the enactment of Senate Bill 97 (Chapter 185, Statutes of 2007), the Governor's Office of Planning and Research was required by July 1, 2009, to prepare, develop, and transmit to the Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. Those amendments to the CEQA guidelines became effective March 18, 2010, and were

subsequently updated in December 2018 to further address the analysis of GHG emissions, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects. (See CEQA Guidelines, § 15064.4, subd. (a))
- The focus of the lead agency's analysis should be on the project's effect on climate change, rather than simply focusing on the quantity of emissions and how that quantity of emissions compares to statewide or global emissions. (See CEQA Guidelines, § 15064.4, subd. (b))
- The impacts analysis of GHG emissions is global in nature and thus should be considered in a broader context. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national, or global emissions. (See CEQA Guidelines, § 15064.4, subd. (b))
- Lead agencies should consider a timeframe for the analysis that is appropriate for the project. (See CEQA Guidelines, § 15064.4, subd. (b))
- A lead agency's analysis must reasonably reflect evolving scientific knowledge and state regulatory schemes. (See CEQA Guidelines, § 15064.4, subd. (b))
- Lead agencies may rely on an adopted statewide, regional, or local plan in evaluating a project's GHG emissions. (See CEQA Guidelines, § 15064.4, subd. (b)(3)) Lead agencies may analyze and mitigate the significant impact of GHG emissions as part of a larger plan for the reduction of greenhouse gases. (See CEQA Guidelines, §15183.5, sub. (a)) A project's incremental contribution to a cumulative GHG emissions effect may be determined not to be significant and the effects of the project to not be cumulatively considerable if the project complies with the requirements of the GHG emissions reduction strategy. (See CEQA Guidelines, §§ 15064, sub. (h)(3); 15130, sub. (d); 15183, sub. (b))
- In determining the significance of a project's impacts, the lead agency may consider a project's consistency with the state's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is consistent with those plans, goals, or strategies. (See CEQA Guidelines, § 15064.4, subd. (b)(3))

The lead agency has discretion to select the model or methodology it considers most appropriate to enable decision makers to intelligently account for the project's incremental contribution to climate change. (See CEQA Guidelines, § 15064.4, subd. (c)).

The Bay Area Air Quality Management District (BAAQMD) California Environmental Quality Act (CEQA) Guidelines include recommended thresholds of significance for determining whether projects would have significant adverse environmental impacts.

Construction/Demolition Emissions. For construction-related GHG emissions, the BAAQMD CEQA Guidelines do not identify a numerical GHG emissions threshold of

significance, but instead recommend that those emissions should be quantified and disclosed. BAAQMD further recommends the incorporation of best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable.

Direct Stationary Sources Emissions. For stationary sources, BAAQMD adopted in the BAAQMD CEQA Guidelines a numeric threshold of significance of 10,000 metric tons of carbon dioxide equivalent per year ($MTCO_2e/yr$) for projects that require permits from BAAQMD (BAAQMD 2017b). However, the threshold of 10,000 $MTCO_2e/yr$ was based on the state's 2020 GHG target, codified in Health and Safety Code, section 38550, which is now superseded by the 2030 GHG target, codified in Health and Safety Code, section 38566, as enacted in SB 32, and a 2045 target set forth in former Governor Brown's Executive Order B-55-18. In November 2021, BAAQMD staff was in the process of preparing and presenting to the BAAQMD board for approval an update to the CEQA GHG threshold of significance for stationary sources to 2,000 $MTCO_2e/yr$ or compliance with the State Air Resources Board's (CARB) cap-and-trade program, codified in Health and Safety Code, section 38562 (BAAQMD 2021b). However, the BAAQMD staff has paused work on the stationary source thresholds to focus on updating thresholds for land use projects and plans[1]. The BAAQMD website states that after the project and plan level thresholds are adopted, which occurred in April 2022, BAAQMD staff will turn their attention to the stationary source threshold of significance and further investigate appropriate approaches. In this analysis, in addition to the existing BAAQMD CEQA Guidelines threshold of significance of 10,000 $MTCO_2e/yr$, staff also evaluates the GHG impacts of the gensets with the consideration of the pending update to the BAAQMD CEQA GHG threshold of significance. Staff identifies mitigation that would reduce the level of GHG emissions from the gensets to below the applicable significance threshold.

Indirect and Non-Stationary Source Emissions. Other project-related emissions from mobile sources, area sources, energy use, and water use would not be included for comparison to the stationary source threshold of significance, based on guidance in the BAAQMD CEQA Guidelines (BAAQMD 2017b). Instead, in April 2022, the BAAQMD adopted updated thresholds of significance with the publication of *Justification Report: CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans* (BAAQMD 2022) to assist lead agencies when evaluating the indirect and "non-stationary" source emissions of land use development projects. Under the BAAQMD's 2022 CEQA thresholds of significance for land use projects, a CEQA lead agency can conclude that a project will not make a cumulatively considerable contribution to global climate change if the project is designed and built to be consistent with the applicable local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b) (as "option B" on p.2 of BAAQMD's 2022 Justification Report [BAAQMD 2022]). Instead, GHG impacts from all other project-related emissions sources would be considered to have a less-than-significant impact if the project is consistent with the city of Santa Clara Climate Action Plan (CAP). Other applicable

1 BAAQMD CEQA Thresholds and Guidelines Update website: https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines. Accessed November 2022.

regulatory programs and policies adopted by CARB or other California agencies, described under Regulatory Background, also contribute to staff's analysis of impacts.

The city of Santa Clara CAP and accompanying environmental documentation are consistent with the guidelines set forth by BAAQMD for a Qualified GHG Reduction Strategy, which parallel and elaborate upon criteria established in the CEQA Guidelines, California Code of Regulations, Title 14, section 15183.5(b)(1) (Santa Clara 2013). As a result, a lead agency may conclude that a project's incremental contribution to a cumulative effect is not cumulatively considerable if it complies with the requirements of the Santa Clara CAP. However, an environmental document that relies on it "must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project."[2]

Specifically, the 2022 Santa Clara CAP meets the following criteria for a Qualified Climate Action Plan (with Chapter references referring to the 2022 CAP):

- Quantify emissions, both existing and projected over a specified period, resulting from activities within a defined geographic area (see Chapter 2).
- Establish a level, based on substantial evidence, below which the contribution of emissions from activities covered by the plan would not be cumulatively considerable (see Chapter 2).
- Identify and analyze the emissions resulting from specific actions or categories of actions anticipated within the geographic area (see Chapter 3 and Chapter 4).
- Specify measures or a group of measures, including performance standards that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level (see Chapter 4).
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specific levels (see Chapter 5).
- Adopt the GHG Reduction Strategy in a public process following environmental review. (Santa Clara 2013, p. 8.)

The city of Santa Clara adopted the CAP on June 7, 2022 (Santa Clara 2021). The city of Santa Clara's CAP would function as a Qualified GHG Reduction Strategy; therefore, this analysis discusses the new requirements of the proposed updates where applicable. The 2022 update to CARB's scoping plan, a statewide planning document that coordinates the main strategies the state has been published on November 16, 2022 and would help the state reduce GHG emissions, and incorporate the Executive Order's 2045 target.

2 CEQA Guidelines, § 15183.5(b)(2).

1) Construction/Demolition Emissions

As discussed in more detail under environmental checklist criterion "a," the applicant estimated that the construction sources would generate a total of approximately 762 $MTCO_2e$ during the estimated 24 months of construction and demolition (DayZen 2020a). Therefore, the project's short-term construction-related GHG emissions have been quantified and disclosed. In addition, the project would implement BMPs, as specified in mitigation measure **AQ-1**, that would reduce construction-related GHG emissions. The project would also participate in the city's Construction & Demolition Debris Recycling Program to further reduce GHG emissions. The city could also make the use of alternative fuels a condition of approval for new developments during pre-construction review meetings. Staff concludes that the project's construction-related GHG emissions impacts would be less than significant.

2) Direct Stationary Source Emissions (Emergency Backup Generators Gensets)

The project's gensets are stationary sources of direct GHG emissions from project operation. The gensets would emit GHG emissions mostly during readiness testing and maintenance and infrequently during short durations of emergency operation. The GHG emissions from the gensets are subject to the BAAQMD CEQA Guidelines GHG threshold of significance for stationary sources. As discussed above, the BAAQMD CEQA Guidelines' current GHG threshold for stationary sources is 10,000 $MTCO_2e$/yr and BAAQMD staff is in the process of preparing and presenting to the BAAQMD board for approval an update to lower the threshold of significance to 2,000 $MTCO_2e$/yr or compliance with CARB's cap-and-trade program. However, the BAAQMD staff has paused work on the stationary source thresholds to focus on updating thresholds for land use projects and plans. After the project and plan level thresholds are adopted, which occurred in April 2022, BAAQMD staff will turn their attention to the stationary source threshold of significance and further investigate appropriate approaches.

As discussed in more detail under environmental checklist criterion "a," the applicant docketed a Revised Project Description on February 7, 2023 (DayZen 2023a) and has proposed to use renewable diesel as primary fuel or ultra-low sulfur diesel as secondary fuel for the gensets. Staff proposes mitigation measure **GHG-1** to ensure the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel.

BAAQMD CEQA Guidelines indicates that biogenic CO_2 emissions would not be included in the quantification of GHG emissions for characterizing the CEQA impact significance for a project (BAAQMD2017b, page 4-5). Accordingly, with the use of 100 percent renewable diesel, the project's GHG emissions from readiness testing and maintenance of the gensets would be exempt from the stationary source threshold per BAAQMD CEQA Guidelines. Therefore, staff expects that the GHG emissions from the gensets for routine readiness testing and maintenance would be less than significant.

Despite the exemption from the stationary source threshold, staff performed a quantitative estimation of the GHG emissions from readiness testing and maintenance of the gensets. With the assumption of 50 hours of readiness testing and maintenance per year per engine and the use of renewable diesel, staff estimates that the fuel-cycle GHG emissions from the gensets would be 1,504 $MTCO_2e$/yr, which is lower than the BAAQMD CEQA Guidelines' existing GHG threshold of significance of 10,000 $MTCO_2e$/yr. The fuel-cycle GHG emissions from the gensets would also be lower than BAAQMD's proposed 2,000 $MTCO_2e$/yr, threshold. As well, GHG emissions from the project would not exceed CARB's regulatory threshold level for required inclusion in and compliance with the cap-and-trade program, which is 25,000 $MTCO_2e$/yr.

The project's likelihood of operating the gensets for unplanned circumstances or emergency purposes is low and, if such operation did occur, it would be infrequent and of short duration (See **Appendix B**). Staff concludes that an estimate of 50 hours of emergency backup generator operation per year adequately accounts for both readiness testing and maintenance, and emergency operation, for any given year, even if ultra-low sulfur diesel is used during short emergency operation durations in the event of supply challenges or disruption in obtaining renewable diesel.

Staff concludes that with the implementation of mitigation measure **GHG-1**, the GHG emissions from the project's stationary sources would be less than significant. In addition, with the implementation of **GHG-1**, the project's stationary sources would not conflict with plans, policies, or regulations adopted to achieve long-term GHG emissions reduction goals.

3) Indirect and Non-Stationary Source Emissions

The operation of the project would generate GHG emissions beyond those from the operation of the gensets, including offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, including architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. The GHG emissions from indirect and non-stationary sources are shown in **Table 4.8-4** under environmental checklist criterion "a."

The GHG impacts from the indirect and non-stationary sources would be considered to have a less-than-significant impact if the project is consistent with the CAP and applicable regulatory programs and policies adopted by CARB or other California agencies. Under environmental checklist criterion "b," staff identifies the requirements specified in the CAP and regulatory programs and policies that apply to the project.

Indirect Emissions from Electricity Use. Staff conservatively assumes the project could consume up to 874,248 megawatt hours (MWh) of electricity per year after full build- out, but actual electricity demand would be lower. With the carbon intensity of 222 lbs CO_2/MWh for 2023 based on Silicon Valley Power's (SVP) prediction and CalEEMod default methane (CH_4) and nitrous oxide (N_2O) intensity factors, the worst-case GHG

emissions due to electricity use during full build-out operation would be 88,035 $MTCO_2e/yr$.

Electricity to the project would be provided by SVP, a utility that is on track to meet their 2030 GHG emissions reductions target. SVP is subject to CARB's cap-and-trade program requirements and the Renewables Portfolio Standard (RPS) requirements.

Actual GHG emissions associated with electricity use at the project will be much less than 88,035 $MTCO_2e/yr$ since actual electricity use will be less than the maximum and the SVP annual average emission factor will be tracking downward towards "zero net" with the implementation of state and local measures to reduce GHG emissions associated with electricity production and California's fuels.

In addition, the city of Santa Clara updated the CAP and was officially adopted on June 7, 2022. The 2022 CAP Update includes Action B-1-7, "Carbon neutral data centers: requiring all new data centers to operate on 100 percent carbon neutral energy, with offsets as needed." Staff expects the project would be subject to Action B-1-7. Staff concludes that without this requirement the project could result in a significant, adverse impact as a result of its indirect GHG emissions. Therefore, staff proposes mitigation measure **GHG-2** to require the applicant to participate in SVP's Large Customer Renewable Energy (LCRE) program for 100 percent carbon-free electricity or purchase carbon offsets or similar instruments that accomplish the same goals of 100 percent carbon-free electricity.

As discussed in detail under environmental checklist criterion "b," the project would implement a variety of energy efficiency measures. The project would comply with all applicable city and state green building standards code measures. The project would comply with Energy and Climate Measure (ECM)-1 – Energy Efficiency in BAAQMD's 2017 Bay Area Clean Air Plan. Therefore, for these and the reasons discussed above, and with implementation of **GHG-2**, the project would not conflict with plans, policies, or regulations adopted to achieve long-term GHG emissions reduction goals.

Other Indirect and Non-Stationary Source Emissions. The project's other indirect and non-stationary sources include mobile sources, landscaping, water use, waste, and refrigerant use as shown in **Table 4.8-4**. The project's compliance with the CAP and applicable regulatory programs and policies adopted by CARB and other California agencies would ensure the project's GHG emissions from these sources would not have a significant impact. For example, staff analyzed the project's compliance and consistency with policies related to transportation (5.8.5-P1 in the City of Santa Clara 2010-2035 General Plan [General Plan], Measure 6.1 and Measure 6.3 in the 2022 CAP, Action T-3-1 and Action T-1-5 in the draft 2022 CAP Update), water (5.10.3-P6, 5.10.4-P6, 5.10.4-P7 in the General Plan, Measure 3.1 in the 2013 CAP, Action N-3-4 and Action N-3-6 in the draft 2022 CAP Update), and waste (Measure 4.2 in the 2022 CAP, Action M-3-1 in the draft 2022 CAP Update). Therefore, staff concludes that these indirect and non-stationary sources would comply with local and regional plans and strategies adopted to

reduce GHG emissions and the project's GHG impacts from these sources would be less than significant.

In summary, staff concludes that with the implementation of mitigation measures **GHG-2**, GHG emissions related to the project from indirect and non-stationary sources would be consistent with the applicable plans and policies adopted to reduce GHG emissions and would comply with all regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The potential for the project to conflict with an applicable plan, policy, or regulation for GHG reductions would be less than significant.

4.8.2 Environmental Setting

Unlike emissions of criteria and toxic air pollutants, which have local or regional impacts, emissions of GHGs have a much broader, global impact. Global warming associated with the "greenhouse effect" is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the Earth's atmosphere. The principal GHGs that contribute to global warming and climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), black carbon, and fluorinated gases (F-gases) (hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors.

Each GHG has its own potency and effect upon the Earth's energy balance, expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1. Specifically, the GWP is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given time relative to the emissions of 1 ton of CO_2. The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time. The time usually used for GWPs is 100 years.

For example, CH_4 has a GWP of 28 over 100 years from the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC 2013), which means that it has a global warming effect 28 times greater than CO_2 on an equal-mass basis. The F-gases are sometimes called high-GWP gases because, for a given amount of mass, they trap substantially more heat than CO_2. The GWPs for these gases can be in the thousands or tens of thousands. The carbon dioxide equivalent (CO_2e) for a source is obtained by multiplying each quantity of GHG by its GWP and then adding the results together to obtain a single, combined emission rate representing all GHGs in terms of CO_2e.

Regulatory Background

Federal

The project would not be subject to any federal requirements for GHGs.

State

Early State Actions

California Global Warming Solutions Act of 2006. In 2006, the state Legislature passed the California Global Warming Solutions Act of 2006 Health and Safety Code, section 38500 et. seq), or Assembly Bill (AB) 32, which provided the initial framework for regulating GHG emissions in California. This law required CARB to design and implement GHG emissions limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. AB 32 also required CARB to implement a mandatory GHG emissions reporting program for major sources, which includes electricity generators, industrial facilities, fuel suppliers, and electricity importers.

CARB Scoping Plan. Part of the Legislature's direction to CARB under AB 32 was to develop a scoping plan that serves as a statewide planning document to coordinate the main strategies California will use to reduce GHG emissions that cause climate change. CARB approved the AB 32 Climate Change Scoping Plan (scoping plan) in 2008 and released updates in 2014 and 2017 with the next update planned for 2022. The scoping plan includes a range of GHG emissions reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based compliance mechanisms, such as the cap-and-trade program. In December 2007, CARB set the statewide 2020 emissions limit, defined as reducing emissions to 1990 levels, at 427 million metric tons of CO_2e ($MMTCO_2e$). The 2014 scoping plan adjusted the 1990 emissions estimate and the statewide 2020 emissions limit goal to 431 $MMTCO_2e$ (CARB 2014). The 2017 scoping plan (CARB 2017a) demonstrates the approach necessary to achieve California's 2030 target, which is to reduce GHG emissions 40 percent below 1990 levels to 260 $MMTCO_2e$. On November 16, 2022, CARB published the 2022 Scoping Plan for Achieving Carbon Neutrality (CARB 2022b), which lays out a path to achieve targets for carbon neutrality by 2045.

Mandatory Reporting of Greenhouse Gas Emissions. AB 32 also required CARB to adopt regulations to require the reporting and verification of statewide greenhouse gas emissions (Health and Safety Code, section 38530). CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR §§95100 to 95163), which took effect January 2009, requires annual GHG emissions reporting from electric power entities, fuel suppliers, CO_2 suppliers, petroleum and natural gas system operators, and industrial facilities that emit at least 10,000 $MTCO_2e$/yr from stationary combustion and/or process sources. The project would not be impacted by this regulation because stationary source testing and maintenance combustion GHG emissions are expected to be below the reporting threshold of 10,000 $MTCO_2e$/yr, as shown in **Table 4.8-3**.

Cap-and-Trade Program. CARB's cap-and-trade program (Health and Safety Code, section 38562; 17 CCR §§95801 to 96022) took effect January 1, 2012. The cap-and-trade program establishes a declining limit on major sources of GHG emissions by sector throughout California, and it creates economic incentives for sources to invest in cleaner,

more efficient technologies. The current version of the regulation, effective April 2019, established the increasingly stringent compliance obligations for years 2021 to 2030. The cap-and-trade program applies to covered entities that fall within certain source categories, including first deliverers of electricity (such as fossil fuel power plants) and electrical distribution utilities; in this case, the project would obtain electrical service from SVP. Covered entities in the cap-and-trade program, including SVP, must hold compliance instruments sufficient to cover their actual GHG emissions, as set and verified through the CARB's Mandatory Reporting regulation. For the electricity supplied to the project from the grid, SVP bears the GHG emissions compliance obligation under the cap-and-trade program for delivering electricity to the grid from its power plants and for making deliveries to end-users, such as the project, unless the project is otherwise a covered entity in the cap-and-trade program.

Executive Order B-30-15. On April 29, 2015, former Governor Brown issued Executive Order B-30-15, directing state agencies to implement measures to reduce GHG emissions 40 percent below their 1990 levels by 2030 and to make it possible to achieve the previously stated goal of an 80 percent GHG emissions reduction below 1990 GHG emissions by 2050 (CARB 2017a).

Statewide 2030 GHG Emissions Limit. On September 8, 2016, SB 32, codified as Health and Safety Code, section 38566, extended California's commitment to reduce GHG emissions by requiring the state to reduce statewide GHG emissions by 40 percent below 1990 levels by 2030 (CARB 2017a).

Other Key Programmatic Milestones

Renewable Energy Programs. In 2002, California initially established the RPS with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal, and former Governor Schwarzenegger's Executive Order S-14-08 (November 2008) required California utilities to reach the 33 percent renewable electricity goal by 2020, consistent with the CARB's 2008 scoping plan. In April 2011, Senate Bill (SB) X1-2 of the First Extraordinary Session (SB X1-2) was signed into law. SB X1-2 expressly applied the 33 percent RPS by December 31, 2020, to all retail sellers of electricity and established renewable energy standards for interim years prior to 2020.

- **Senate Bill 350:** Beginning in 2016, SB 350 took effect as the Clean Energy and Pollution Reduction Act of 2015, declaring it the intent of the Legislature to acknowledge Governor Brown's clean energy, clean air and greenhouse gas emissions reduction goals for 2030 and beyond. SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030.
- **Senate Bill 100:** Beginning in 2019, the RPS deadlines advanced to 50 percent renewable resources by December 31, 2026, and 60 percent by December 31, 2030. In addition, SB 100 establishes policy that renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity by December 31, 2045.

Short-Lived Climate Pollutant Strategy. To best support the reduction of GHG emissions consistent with AB 32, CARB released the Short-Lived Climate Pollutant (SLCP) Strategy, under Health and Safety Code, section 39730, in March 2017. Health and Safety Code, section 39730, defined SLCPs as having lifetimes in the atmosphere ranging from "a few days to a few decades." Then beginning in 2017 under Health and Safety Code, section 39730.5, CARB was directed to set targets to reduce SLCP emissions 40 percent below 2013 levels by 2030 for methane and hydrofluorocarbons and 50 percent below 2013 levels by 2030 for anthropogenic black carbon (CARB 2017b). The SLCP Strategy was integrated into the 2017 update to CARB's scoping plan. To help meet the HFC reduction goal, California adopted HFC prohibitions and consolidated the California HFC prohibition regulation (previously Cal. Code Regs., tit. 17, §§ 95371-95377) and the statute (SB 1013, Health and Saf. Code § 39734) into one place. California Code of Regulations title, 17, section 95375(c)(1) states that no person shall sell, lease, rent, install, use, or otherwise enter into commerce in the State of California any end-use equipment or product manufactured after the effective date that does not comply with Table 3 (which includes chillers) of section 95374(c) of the sub-article, with exceptions stated under California Code of Regulations, title, 17, section 95375(c)(2). In addition, on September 30, 2022, the Governor approved SB 1206, which would prohibit a person from offering for sale or distribution, or otherwise entering into commerce in the state, bulk HFCs or bulk blends containing HFCs that exceed a specified GWP limit beginning January 1, 2025, and lower GWP limits beginning January 1, 2030, and January 1, 2033. The bill does not restrict the authority of CARB to establish regulations lowering the maximum allowable GWP limits below the limits established by the bill.

Executive Order B-55-18. On September 10, 2018, the same day he signed SB 100 into law, former Governor Brown issued Executive Order B-55-18 to achieve carbon neutrality, stating the governor's intention "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing greenhouse gas emissions." From the 2020 GHG limit of 431 $MMTCO_2e$, California will need to reduce statewide emissions another 170 million tons to meet its 2030 statutory target of 260 million tons per year (40 percent below 1990 levels). The state will need to cut annual emissions by a further 175 million tons to meet its 2050 goal (set by executive order) of 85 million tons per year (80 percent below 1990 levels).

Reducing SF_6 Emissions from Gas Insulated Switchgear. In early 2011, CARB adopted a regulation (17 CCR §§95350 to 95359) to reduce SF_6 emissions in gas insulated switchgear (GIS) used in the electricity sector's transmission and distribution system as an early action measure pursuant to AB 32. SF_6 is an extremely powerful and long-lived GHG. The 100-year GWP of SF_6 is 22,800, making it the most potent of the six main GHGs, according to the U.S. EPA. Because of its extremely high GWP, small reductions in SF_6 emissions can have a large impact on reducing GHG emissions, which are the main drivers of climate change. The regulation requires GIS owners to report SF_6 emissions annually and requires reductions of SF_6 emissions from GIS over time, setting an annual emission rate limit for each GIS owner. The maximum allowable emission rate started at

10 percent in 2011 and has decreased one percent per year since then. The limit would reach one percent in 2020 and remained at that level going forward. However, data show that statewide SF_6 capacity is growing by one to five percent per year, which will increase the expected SF_6 emissions. However, data show that statewide SF_6 capacity is growing by one to five percent per year, which will increase the expected SF_6 emissions. In response to emerging technologies using lower or zero GWP insulators, CARB amended the regulation (Cal. Code Regs., tit. 17, §§ 95350-95359.1) in 2021 to further reduce GHG emissions from gas-insulated equipment (GIE [changed from GIS to include more devices beyond switchgear]). Key provisions of the amended regulation include a phase-out schedule in stages between 2025 and 2033 for new SF_6 GIE, coverage of other GHG beyond SF_6 used in GIE, and other changes that enhance accuracy of emissions accounting and reporting.

Assembly Bill 1279. Assembly Bill 1279 establishes the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO_2 removal solutions and carbon capture, utilization, and storage (CCUS) technologies. The CARB 2022 Scoping Plan for Achieving Carbon Neutrality (CARB 2022b) plans for the 2045 target set forth by Assembly Bill 1279 and Executive Order B-55-18.

Regional

2017 Bay Area Clean Air Plan. BAAQMD adopted the 2017 Bay Area Clean Air Plan on April 19, 2017 (BAAQMD 2017a). It provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue its progress toward attaining all state and federal ambient air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG emissions reduction targets for 2030 and 2050 and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieving those GHG emissions reduction targets.

BAAQMD CEQA Guidelines. The purpose of the BAAQMD CEQA Guidelines is to assist lead agencies in evaluating a project's impacts on air quality (BAAQMD 2017b). This document describes the criteria that BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds of significance for determining whether a project would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts. The BAAQMD CEQA Guidelines include methodologies for estimating GHG emissions. In a comment letter on the Notice of Preparation for this EIR, BAAQMD indicated that the current recommended GHG thresholds in the BAAQMD 2017 CEQA Guidelines are based on the statewide 2020

GHG targets, which are now superseded by the statewide 2030 GHG targets established in Health and Safety Code, section 38566. BAAQMD recommended that the GHG analysis should evaluate the consistency of the project with California's 2030, 2045 and 2050 climate goals (BAAQMD 2021b). Also, BAAQMD staff is in the process of preparing and presenting to the BAAQMD board for approval an update to the CEQA GHG threshold for stationary sources from the current value of 10,000 $MTCO_2e/yr$ to 2,000 $MTCO_2e/yr$ or compliance with CARB's cap-and-trade program. However, the BAAQMD staff has paused work on the stationary source thresholds to focus on updating thresholds for land use projects and plans. After the project and plan level thresholds are adopted, which occurred in April 2022, BAAQMD staff will turn their attention to the stationary source threshold of significance and further investigate appropriate approaches.

Diesel Free by '33. In 2018, BAAQMD established a program intended to reduce GHG and criteria pollutant emissions by eliminating petroleum use by the end of 2033. Local Bay Area agencies are encouraged to voluntarily adopt the Statement of Purpose of this initiative. Entities signing the Statement of Purpose pledge to develop their own individual strategies to achieve the goal of reaching zero diesel emissions in their communities. Signatories to this agreement express their intent to:

1. Collaborate and coordinate on ordinances, policies, and procurement practices that will reduce diesel emissions to zero within their jurisdictions, communities, or companies;
2. Share and promote effective financing mechanisms domestically and internationally to the extent feasible that allow for the purchase of zero emissions equipment;
3. Share information and assessments regarding zero emissions technology;
4. Build capacity for action and technology adaptation through technology transfer and sharing expertise;
5. Use policies and incentives that assist the private sector as it moves to diesel-free fleets and buildings; and
6. Periodic reporting to all signers of progress towards the zero- diesel emissions goal.

Plan Bay Area 2040. Under the requirements of Senate Bill 375 (Chapter 728, Statutes of 2008), all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting an SCS that integrates transportation, land use, and housing to meet GHG emissions reduction targets set by CARB. In July 2017, the MTC and ABAG approved Plan Bay Area 2040, which is a strategic update to the previous plan approved in July 2013. The Bay Area GHG emissions reduction targets established by CARB in September 2010 include a seven percent reduction in GHG emissions per capita from passenger vehicles by 2020 compared to 2005 emissions. Similarly, Plan Bay Area 2040 includes a target to reduce GHG emissions per capita from passenger vehicles 15 percent by 2035 compared to 2005 emissions (MTC & ABAG 2017).

Local

City of Santa Clara 2010-2035 General Plan. The City of Santa Clara 2010-2035 General Plan (General Plan) includes policies that address the reduction of GHG emissions during the planning horizon of the General Plan. Goals and policies that address sustainability (see Appendix 8.13: Sustainability Goals and Policies Matrix in the General Plan are aimed at reducing the city's contribution to GHG emissions. As described below, the development of a comprehensive GHG emissions reduction strategy for the city is also included in the General Plan.

City of Santa Clara Climate Action Plan. The city has a comprehensive GHG emissions reduction strategy, referred to as the city's Climate Action Plan (CAP, Santa Clara 2022). The 2022 CAP identified the city's approach to achieve its share of statewide emissions reductions for the near-term (2023-2026), mid-term (2027-2030), and long-term (after 2030) phase timeframes established by Health and Safety Code, section 38550. The original CAP, adopted on December 3, 2013, specified the strategies and measures to be taken for a number of focus areas city-wide to achieve the overall emissions reduction target. The 2022 CAP also includes oversight and accountability, including a creation of a City Sustainability & Climate Action Team to coordinate implementation and regular public updates and reporting on CAP progress through a Community Dashboard. This update also includes monitoring and evaluations, including annual progress reports and frequent updates of the City's GHG emissions inventory.

A key reduction measure undertaken by the city under the CAP is in the Coal-Free and Large Renewables focus area. SVP, the city's municipal electricity utility, provides electricity for the city, including the project site. Since nearly half (48 percent) of the city's GHG emissions are from electricity use, reducing GHG-intensive electricity generation (such as coal) is a major focus area in the CAP (Santa Clara 2022). SVP reduced coal generation in 2017 by divesting its interest in San Juan Generating Station located in New Mexico effective January 1, 2018 (Santa Clara 2018).

The CAP also includes measures to improve energy efficiency. Measure 2.3 in this focus area calls for 10 percent of new data centers to incorporate energy efficient practices. All new data centers since 2013 have utilized energy efficient cooling practices, exceeding this goal (Santa Clara 2018).

In 2016 the city produced its first Annual Report on the CAP. It reviewed its 2013 CAP again in the summer of 2018 (Santa Clara 2018), stating that the 2013 CAP "meets the criteria for a Qualified GHG Reduction Strategy" as established by the CEQA guidelines. As such, the CAP can be used to streamline the environmental review process for new development. However, to remain a Qualified GHG Reduction Strategy, the city must monitor and update the CAP. In the updated 2018 Annual Report, the city stated that it has been successful in achieving a 4.5 percent reduction in GHG emissions relative to their 2008 baseline, which is equivalent to the city's 1990 emissions. The 2018 Annual Report indicated the city was on track to reduce the city's emissions to 15 percent below their baseline amount by 2020. It also stated that the CAP includes three "reach

measures" to reduce GHG emissions 55 percent below the city's 1990 GHG emissions by the year 2035, to meet post-2020 GHG reduction goals. These reach goals call for a more aggressive implementation of CAP strategies for the 2020 period (Santa Clara 2013).

In 2016, SVP was the largest source of GHG emissions in the city's GHG emissions inventory, with 97 percent of all GHG sources attributed to the city.

The city of Santa Clara has prepared a draft CAP Update and was adopted on June 7, 2022 (Santa Clara 2021). The 2022 CAP Update reflects the 2030 GHG emissions limit requirements and progress toward meeting the long-term targets of Executive Order B-55-18. In addition to these targets, the city aspires to reduce emissions more aggressively in the near-term: achieve an 80 percent reduction in per-service population emissions by 2035. The 2022 CAP Update identifies strategies and actions in these main areas: building and energy, transportation and land use, materials and consumption, natural systems and water resources, and community resilience and well-being. To achieve the interim target of an 80 percent reduction in per-service population emissions by 2035, the city will take additional actions including achieve 100 percent carbon neutral electricity by 2035 and require all new construction to be all-electric (with minor exemptions). Actions specifically related to data centers for achieving GHG emissions reductions include:

- B-1-7, Carbon neutral data centers:
  Require all new data centers to operate on 100% carbon neutral energy, with offsets as needed.
- B-3-6, Alternative fuel backup generators:
  Provide information and technical assistance to data centers and other large commercial users to transition from diesel to lower-carbon backup generators (e.g., renewable diesel).
- B-3-7, Renewable electricity for new data centers:
  Support convening of a data center working group to identify and implement renewable electricity purchasing options for commercial customers.

The CEQA Guidelines allow a lead agency to use a Qualified GHG Reduction Strategy to determine the degree to which a proposed project would cause a significant adverse impact. Compliance with appropriate measures in the CAP would ensure an individual project is not cumulatively significant under CEQA.

Silicon Valley Power's Integrated Resource Plan and Other Programs. The city of Santa Clara adopted an Integrated Resource Plan (IRP) for SVP dated November 12, 2018 (SVP 2018). The IRP was developed as required by SB 350 and must be updated at least every five years. The IRPs provide a framework to evaluate how utilities have chosen to align with greenhouse gas emissions reduction targets as well as energy and other policy goals outlined in SB 350. The most challenging goals in the IRP call for the city to: (1) increase procurement of energy from renewable electricity sources to 60 percent by 2030, and (2) double energy efficiency savings in electricity and natural gas end uses by 2030.

CEC staff in the Supply Analysis Office of the Energy Assessments Division have reviewed SVP's 2018 IRP (CEC 2019) and found that, among other things, by the year 2030 SVP: (1) achieves a 40 percent GHG emissions reduction from 1990 levels, and (2) meets the RPS goals of SB 350 to use 50 percent renewables.

In addition to carrying out activities related to their IRP, SVP has also recently created a Large Customer Renewable Energy (LCRE) program to allow its large customers to sign up for 100 percent renewable energy. In November 2021, the city approved SVP's LCRE program, which became effective January 1, 2022 (SVP 2021). The program is a voluntary green program for large customers to purchase additional renewable energy above the amount of renewable energy already included in SVP's energy delivery portfolio to accelerate customers' higher corporate renewable and sustainability goals. Customers have two options to participate in the program: (1) SVP procures supplemental renewable energy for customers for a one-year term, and (2) customer provides their own supplemental renewable energy resource under a five-year or 10-year term customer agreement with SVP. The program is available for the project applicant to use.

SVP Chief Operating Officer, Kevin Kolnowski has testified in other data center proceedings that SVP is taking multiple actions to meet the renewable and GHG emission requirements of SB 100 and that the additional load from data centers is anticipated and accounted for in SVP demand analysis and integrated resource planning process. SVP currently has adequate resources to meet expected demand through 2030. Mr. Kolnowski has testified that SVP already has over 400 MW of renewable power coming online in the next several years, an additional 100 MW of renewable power being investigated as SVP continues to procure renewable energy supply. (CEC Mission College (Docket No. 19-SPPE-05) Evidentiary Hearing Transcript, pp. 22-23, 26-28 (CEC 2020b), CEC Walsh (Docket No. 19-SPPE-02) Evidentiary Hearing Transcript, pp. 22, 24-26 (CEC 2020c.)

Existing Conditions

California is a contributor to global GHG emissions. The total gross California GHG emissions in 2019 were 404.5 $MMTCO_2e$ (CARB 2022a). The largest category of GHG emissions in California is transportation, followed by industrial activities and electricity generation in state and out of state (CARB 2022a). In 2020, the total gross California GHG emissions were 369.2 $MMTCO_2e$ (CARB 2022a). In 2019, the total gross U.S. greenhouse gas emissions were 6,571.7 $MMTCO_2e$, or 5,841.2 $MMTCO_2e$ after accounting for sequestration from the land sector (U.S. EPA 2022). The total gross U.S. greenhouse gas emissions in 2020 were 5,981.4 $MMTCO_2e$, or 5,222.4 $MMTCO_2e$ after accounting for sequestration from the land sector (U.S. EPA 2022). The sharp decline of GHG emissions in 2020 compared to 2019 was largely due to the impacts of the coronavirus (COVID-19) pandemic on travel and economic activity (CARB 2022a, U.S. EPA 2022).

The city prepares an annual report to assess progress towards meeting the GHG emissions reduction targets established in the 2022 CAP and recommend next steps to help the city meet its targets. The city tracks changes in communitywide GHG emissions since 2008, which is the city's jurisdictional baseline year for the GHG emissions inventory.

The CAP 2018 Annual Report provides the city's GHG emissions inventory in 2016, which is the most recent GHG emissions inventory for the city. **Table 4.8-1** presents the city's 2016 GHG emissions inventory (Santa Clara 2018).

TABLE 4.8-1 CITY OF SANTA CLARA 2016 GHG EMISSIONS INVENTORY

Sector	Carbon dioxide equivalent emissions ($MTCO_2e$)
Commercial Energy	1,080,261
Residential Energy	132,912
Transportation & Mobile Sources	505,989
Solid Waste	25,724
Water & Wastewater	24,292
Total Emissions	1,769,178

Source: Santa Clara 2018.

As stated in their 2018 IRP (SVP 2018), SVP follows the state's preferred loading order in procuring new energy resources. First, the current load (customer) is encouraged to participate in energy efficiency programs to reduce their usage, thus freeing up existing resources (and any related emissions) for new load (electricity demand). In addition, both the city and SVP encourage the use of renewable resources and clean distributed generation, and the local area has seen a significant increase in the use of large and small rooftop photovoltaics. Demand displaced by customer-based renewable projects is also available to meet new loads.

SVP seeks to meet its RPS milestones through the addition of new renewable resources. In January 2018, SVP began providing 100 percent carbon-free power to all residential customers. This is reflected in the Power Content Label through separate products for the residential and non-residential mix (SVP 2023). A comparison of SVP's and the statewide power mix for 2021 is shown in **Table 4.8-2**. SVP is in various stages of clean energy procurement for the future, negotiating contracts for over 700 Megawatts of energy, totaling over 2,200,000 MWh annually. This is equivalent to powering 366,000 homes. These resources will be constructed and brought online over the next five years (SVP 2023). As with all load-serving entities in California, the carbon intensity factor will continue to change as the power mix gradually increases the use of renewable resources to achieve California's GHG and renewable energy goals.

TABLE 4.8-2 COMPARISON OF SVP AND STATEWIDE POWER MIX – 2021

Energy Resources	Santa Clara Residential Mix	Santa Clara Non-Residential Mix	Santa Clara Green Power Standard Mix	Santa Clara Green Power National Mix	2021 CA Power Mix
Eligible Renewable	**35.9%**	**27.0%**	**100%**	**27.0%**	**33.6%**
Biomass & Biowaste	0%	2.1%	0%	2.1%	2.3%
Geothermal	0%	7.1%	0%	7.1%	4.8%

TABLE 4.8-2 COMPARISON OF SVP AND STATEWIDE POWER MIX – 2021

Energy Resources	Santa Clara Residential Mix	Santa Clara Non-Residential Mix	Santa Clara Green Power Standard Mix	Santa Clara Green Power National Mix	2021 CA Power Mix
Eligible Hydroelectric	0%	5.9%	0%	5.9%	1.0%
Solar	14.7%	4.1%	100%	4.1%	14.2%
Wind	21.2%	7.8%	0%	7.8%	11.4%
Coal	**0%**	**0%**	**0%**	**0%**	**3.0%**
Large Hydroelectric	**64.1%**	**6.7%**	**0%**	**6.7%**	**9.2%**
Natural Gas	**0%**	**34.3%**	**0%**	**34.3%**	**37.9%**
Nuclear	**0%**	**0%**	**0%**	**0%**	**9.3%**
Other	**0%**	**0%**	**0%**	**0%**	**0.2%**
Unspecified sources of power	**0%**	**32.0%**	**0%**	**32.0%**	**6.8%**
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**

Source: SVP 2023

4.8.3 Environmental Impacts

Methodology

The applicant estimated GHG emissions for demolition/construction from the demolition/construction equipment, vendor and hauling truck trips, and worker vehicle trips.

GHG emissions from the project operation are a result of diesel fuel combustion from the readiness testing and maintenance of the gensets, offsite 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).

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction

Less Than Significant Impact. Construction of the project would result in GHG emissions generated by the on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. The applicant estimated that these sources would generate a total of approximately 762 $MTCO_2e$ during the estimated 24 months of construction and demolition (DayZen 2020b).

Because construction emissions would cease once construction is complete, these emissions are considered short term. The BAAQMD CEQA Guidelines do not identify a GHG emissions threshold for construction-related emissions. Instead, BAAQMD

recommends that GHG emissions from construction be quantified and disclosed. BAAQMD further recommends the incorporation of BMPs to reduce GHG emissions during construction, as feasible and applicable. BMPs may include the use of alternative-fueled (for example, renewable diesel or electric) construction vehicles and equipment for at least 15 percent of the fleet, use of at least 10 percent of local building materials, and recycling or reusing at least 50 percent of construction waste (BAAQMD 2017b). The project would implement mitigation measure **AQ-1**, which would require, among other things, that the construction equipment be tuned and maintained in accordance with manufacturer's specifications and that construction equipment idling time be limited to five minutes to reduce GHG emissions from fuel consumed from unnecessary idling or the operation of poorly maintained equipment. The project would also participate in the city's Construction & Demolition Debris Recycling Program by recycling or diverting at least 65 percent of materials generated for discards by the project to reduce the amount of demolition and construction waste going to the landfill. The quantity of construction-related GHG emissions would be limited to the construction phase, which would ensure GHG impacts are less than significant.

The CAP Measure 5.2 calls for construction vehicles to use alternative fuels, such as electricity, biodiesel, or compressed natural gas, when possible. The CAP notes that the city can make the use of alternative fuels a condition of approval for new developments during pre-construction review meetings (Santa Clara 2022).

Operation and Maintenance

Less Than Significant with Mitigation Incorporated. GHG emissions from project operation and maintenance would consist of direct "stationary source" emissions from routine readiness testing and maintenance of the gensets and indirect and "non-stationary source" emissions from offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, including architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use.

i. Direct Project Stationary Combustion Sources

The applicant has proposed to use renewable diesel as primary fuel or ultra-low sulfur diesel as secondary fuel for the gensets (DayZen 2023a). As discussed in more detail in **Section 4.6 Energy and Energy Resources**, the current supply for both renewable diesel and ultra-low sulfur diesel is more than sufficient to meet the project's necessary demand. The available resource of renewable diesel would increase with more refineries coming online and more import supply. The applicant expects that most likely the readiness testing and maintenance would be done with renewable diesel because such refueling can be scheduled. However, during emergency operations, the applicant might need to use ultra-low sulfur diesel in the event of supply challenges or disruption in obtaining renewable diesel (CEC 2022).

BAAQMD CEQA Guidelines indicates that biogenic CO_2 emissions would not be included in the quantification of GHG emissions for characterizing the CEQA impact significance for

a project (BAAQMD2017b, page 4-5). Accordingly, with the use of 100 percent renewable diesel, the project's GHG emissions from routine readiness testing and maintenance of the gensets would be exempt from the stationary source threshold. Therefore, staff expects that the GHG emissions from the gensets for routine readiness testing and maintenance would be less than significant.

Despite the exemption from the stationary source threshold, staff performed a quantitative estimation of the GHG emissions from readiness testing and maintenance of the gensets. Staff concludes that it is reasonable to expect that all the readiness testing and maintenance would be done with renewable diesel. Staff assumed 50 hours of annual testing and maintenance at 100 percent load for a conservative analysis.

CARB's 2021 testing report shows that renewable diesel used in place of ultra-low sulfur petroleum-based diesel can only reduce CO_2 tailpipe emissions approximately 3 to 4 percent (CARB 2021). However, renewable diesel is produced with a fuel-cycle that is a far lower carbon intensity (CI) than ultra-low sulfur petroleum-based diesel. **Table C-2** in **Appendix C** of this EIR shows that there are 61 to 83 percent reduction in CI values using renewable diesel from various feedstocks in place of ultra-low sulfur petroleum-based diesel. Since the impacts analysis of GHG emissions is global in nature, staff computed the fuel-cycle GHG emissions of the gensets. Based on average CI data for the last five years (3rd Quarter 2017 through 2nd Quarter 2022) and energy densities of renewable diesel and ultra-low sulfur petroleum-based diesel reported to CARB's Low-Carbon Fuel Standard program (CARB 2022b), staff calculated that the GHG emission factor (in terms of $MTCO_2e$/gallon) would reduce about 68 percent using renewable diesel compared to ultra-low sulfur petroleum-based diesel. With the assumption of additional 3 percent tailpipe CO_2 emissions reduction, the total fuel-cycle GHG reduction would be about 68 percent using renewable diesel compared to ultra-low sulfur petroleum-based diesel. The applicant estimated the GHG emissions of about 4,700 $MTCO_2e$/yr (DayZen 2021b) from the proposed engines if ultra-low sulfur petroleum-based diesel is used. With the 68 percent reduction in GHG emissions using 100 percent renewable diesel in place of ultra-low sulfur petroleum-based diesel, staff calculated the fuel-cycle GHG emissions of the proposed engines during readiness testing and maintenance to be 1,504 $MTCO_2e$/yr.

Table 4.8-3 shows the maximum annual-fuel-cycle GHG emission expected for the gensets routine readiness testing and maintenance with renewable diesel. The emissions are conservatively estimated based on 50 hours of annual testing and maintenance at 100 percent load per engine.

TABLE 4.8-3 GREENHOUSE GAS EMISSIONS FROM GENSETS TESTING AND MAINTENANCE

Source	Maximum Annual Emissions ($MTCO_2e$/yr)
Gensets – Testing and Maintenance	1,504 [a]
Proposed Future BAAQMD Threshold	2,000
Exceeds Threshold?	Yes

Source: CEC staff analysis

Note: [a] The applicant estimated the GHG emissions of about 4,700 MTCO2e/yr (DayZen 2021b) from the proposed engines if ultra-low sulfur petroleum-based diesel is used. As discussed in the text above, with the 68 percent reduction in GHG emissions using renewable diesel in place of ultra-low sulfur petroleum-based diesel, staff calculated the fuel-cycle GHG emissions of the proposed engines to be 1,504 $MTCO_2e$/yr.

Table 4.8-3 shows that the estimated annual fuel-cycle GHG emissions from the project's stationary sources, the gensets, for routine readiness testing and maintenance are well below the current BAAQMD CEQA Guidelines GHG emissions significance threshold of 10,000 $MTCO_2e$/yr for stationary sources and would not exceed the threshold level for inclusion in CARB's cap-and-trade program, which is 25,000 $MTCO_2e$/yr. In addition, as mentioned above, in November 2021, BAAQMD staff was in the process of preparing and presenting to the BAAQMD board for approval an update to the CEQA GHG threshold for stationary sources from 10,000 $MTCO_2e$/yr to 2,000 $MTCO_2e$/yr or compliance with CARB's cap-and-trade program. With the use of 100 percent renewable diesel, the fuel-cycle GHG emissions from the gensets for routine readiness testing and maintenance would also be lower than 2,000 $MTCO_2e$/yr.

The project's likelihood of operating the gensets for unplanned circumstances or emergency purposes is low and, if such operation did occur, it would be infrequent and of short duration. As discussed in more detail in **Appendix B**, the analysis of BAAQMD's review of diesel engine use shows that the overall number of hours of operation for the facilities in the review that did run (which was less than half of them) was 0.07 percent of the available time over the 13-month period, which included the rare heat storm events in 2020 and is the only period for which data are available to staff. The average runtime for each event in BAAQMD's review was approximately 5.0 hours. Staff concludes the GHG emissions of the gensets during unplanned circumstances or emergency purposes would not add significantly to the GHG emissions estimated for readiness testing and maintenance. Additionally, the GHG emissions during the routine operation of the gensets are overestimated with 50 hours of readiness testing and maintenance per year per engine. Project applicants previously stated that routine readiness testing and maintenance would rarely exceed 12 hours per year. The emergency operation of the gensets is expected to be infrequent and of short duration. It would be speculative to estimate that the project would engage in emergency operation averaging over 38 (= 50-12) hours per year. As discussed in more detail in **Appendix B**, the analysis of BAAQMD's review of diesel engine use shows that average engine ran no more than 36.5 hours over the 13-month period, which included the rare heat storm events in 2020. Staff expects diesel engine use during normal years would be much less than 36.5 hours. Thus, 50 hours of emergency backup generator operation per year is an appropriate estimate of operational time to accommodate both readiness testing and maintenance and emergency operation for any given year, even if ultra-low sulfur diesel is used during short emergency operation durations in the event of supply challenges or disruption in obtaining renewable diesel.

Staff recommends mitigation measure **GHG-1** to ensure the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-

low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara Community Development Department may grant temporary relief from the 100 percent renewable diesel requirement if the applicant can demonstrate a good faith effort to comply with the requirement and that compliance is not practicable. The project owner shall perform any source test of the gensets using renewable diesel if required by the BAAQMD.

With the implementation of **GHG-1**, the environmental impact of GHG emissions from the project's stationary sources would be less than significant. In addition, as discussed below, with the implementation of **GHG-1**, the project's stationary sources would not conflict with plans, policies, or regulations adopted to achieve long-term GHG emissions reduction goals.

ii. Indirect and Non-Stationary Sources Emissions

Maximum GHG emissions from indirect and non-stationary sources (i.e. energy use, mobile sources and building operation) are provided in **Table 4.8-4**.

Project Electricity Usage. Table 4.8-4 shows the indirect GHG emissions attributed to electricity use. The primary function of the project is to house computer servers, which require electricity and cooling 24 hours a day to operate. Annual GHG emissions associated with electricity usage are the product of the maximum estimated annual electricity usage and the utility-specific carbon intensity factor, which depends on the utility's portfolio of power generation sources. The projected maximum demand for the project is 99.8 MW but will be built in phases. After full build-out, staff estimates that the worst-case energy use from the project's activities would be up to 874,248 MWh/year (= 99.8 MW × 8,760 hours/year).

Electricity for the project would be provided by SVP. The applicant used carbon intensity factors identified by SVP and included in the record of the Sequoia Data Center Project proceeding (SVP 2019). For operation with full build-out, the applicant used a carbon intensity value of 222 (DayZen 2020a) lbs CO_2/MWh for 2025 from SVP's email. SVP's carbon intensity factor for electricity generation will continue to change as SVP's power mix continues to increase the percentage of electricity obtained from renewable resources. Since it is not clear whether the SVP carbon intensity values already include CH_4 or N_2O, the applicant conservatively used the CalEEMod default CH_4 and N_2O intensity factors of 0.029 and 0.006 lbs/MWh, respectively.

Table 4.8-4 shows the worst-case GHG emissions due to electricity use, which would be during full build-out operation. Even as SVP improves its fuel mix to meet 2030 and other GHG emissions reduction goals, the project would indirectly emit a significant amount of GHGs due to its energy needs. With SVP's carbon intensity value of 219 lbs CO_2/MWh for 2030, the worst-case GHG emissions due to electricity use would still be about 86,845 $MTCO_2e$/yr.

Project Mobile Emissions Sources. Table 4.8-4 shows the applicant's estimated annual GHG emissions from mobile emissions sources. The applicant relied on a project operational trip generation consistent with the transportation operation analysis memo. The transportation analysis states that the net project trip rate would be negative (-658 trips per day) based on an estimate of 1,125 trips per day from the existing land use and 467 trips per day from project operations. However, the applicant conservatively estimated the GHG emissions based on 467 trips per day for the project.

Project Water Consumption and Waste Generation. Table 4.8-4 shows the estimated annual GHG emissions from water consumption and waste generation. Water consumption results in indirect emissions from electricity usage for water conveyance and wastewater treatment. Daily operations at the project would also generate solid waste, which results in fugitive GHG emissions during waste decomposition at the landfill.

Refrigerant Use. The project would use refrigerants in air-cooled chillers with integral economization, variable flow refrigerant compression, and variable flow condenser fans located on the roof (DayZen 2020c). The refrigerant used in the air-cooled chillers proposed would be R-513a. The applicant estimates a 0.5 percent annual refrigerant loss a year. Each chiller unit is charged with 812 lbs of R-513a. The applicant estimated a total of 357 lbs of refrigerant would be lost in a year for all (88) of the chiller units for the whole project. Since R-513a has a GWP of 573, the project would create about 87 $MTCO_2e$ into the atmosphere due to refrigerant loss (CEC 2023).

Sulfur Hexafluoride Leakage. SF_6 would be used in the proposed breakers. Each breaker would contain approximately 25 lbs of SF_6, for a total of 50 lbs. With a conservative and reasonable leak rate of 0.5%. The applicant did not provide an estimate; however, staff has estimated the emissions of SF_6 with the use of two breakers as described in the project description under Section 2.3.8, for the project to be 0.25 lbs/yr, which would be equivalent to about 2.7 $MTCO_2e$/yr (DayZen 2020c).

TABLE 4.8-4. MAXIMUM GHG EMISSIONS FROM ENERGY USE, MOBILE SOURCES, AND BUILDING OPERATION DURING PROJECT OPERATION

Source	Annual Emissions ($MTCO_2e$/yr)
Energy Use [a]	88,035
Mobile Sources [b]	585
Area Sources [c]	816
Water Use [d]	53
Waste Generation	359
Cooling System R-513a Leakage	87
Sulfur Hexafluoride (SF_6) Leakage	2.7
Total	89,938

Sources: Data Responses Set 1 (DayZen 2020a), (DayZen 2020c), CEC staff analysis.
Notes:
[a] Based on SVP carbon intensity factor of 222 lbs of CO_2 per MWh provided by SVP for the online year of 2023.
[b] Based on ITE trip rates for Data Center (Land Use Code 160) applied to a 576,120 square foot data center.

[c] Based on CalEEMod default emission factors for General Light Industrial land uses applied to a 576,120 square foot data center. The total includes natural gas emissions, which are conservatively assumed to apply to all 576,120 square feet of the building, even though the data halls will not require natural gas.
[d] CalEEMod default emissions adjusted to reflect the maximum project water demand of 67 acre-feet per year.
[e] Based on CalEEMod default emission factors for General Light Industrial land uses applied to a 576,120 square foot data center.
[d] From a record of conversation, docketed by staff, the applicant estimated GHG emissions from refrigerant leakage based on the leakage rate of 0.5 percent per year (CEC 2023) and a GWP of 573 for R-513a.

Summary of Indirect and Non-stationary GHG Emissions. As shown in **Table 4.8-4**, operation of the project is estimated to generate 89,938 $MTCO_2e$/yr from maximum possible electricity use and other non-stationary sources. The emissions from the maximum possible rate of electricity use is estimated to be 89,938 $MTCO_2e$/yr; however, this does not include efficiency measures that would be pursued as part of the project, nor does it reflect implementation of state and local measures to reduce GHG emissions associated with electricity production and California's fuels. For example, programs to implement SB 350 and SB 100 would continue to promote renewable resources in the power mix and ensure the ongoing substantial reductions in GHG emissions from electricity generation. In addition, with the implementation of mitigation measure **GHG-2**, the project would use 100 percent carbon-free electricity either by participation in SVP's Large Customer Renewable Energy (LCRE) Program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity. Therefore, with the implementation of mitigation measure **GHG-2**, the GHG impacts from the project's electricity use would be less than significant.

Conclusion

Less Than Significant with Mitigation Incorporated. The mitigation elements contained in **GHG-1** and **GHG-2** ensure the total emission profile of the project remains less than significant.

With the use of 100 percent renewable diesel, the project's GHG emissions from readiness testing and maintenance of the gensets would be exempt from the stationary source threshold. Despite the exemption, staff estimated the project's fuel-cycle GHG emissions from the annual readiness testing and maintenance of the gensets using renewable diesel and concludes that these emissions would be estimated at 1,504 $MTCO_2e$/yr as shown in **Table 4.8-3**, which is below the existing BAAQMD CEQA Guidelines threshold of significance of 10,000 $MTCO_2e$/yr, which was based on 2020 GHG reduction goals. The fuel-cycle GHG emissions from the gensets would also be lower than 2,000 $MTCO_2e$/yr, which has been proposed by the BAAQMD staff as an updated GHG threshold of significance based on 2030 and 2045 GHG reduction goals. However, the BAAQMD has not finalized the proposed, updated GHG threshold of significance for stationary sources. Therefore, in this analysis, staff evaluates the GHG impacts of the gensets against both the existing threshold and the proposed threshold.

Staff proposes mitigation measure **GHG-1** which ensures the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara's Community Development Department (CDD) may grant temporary relief from the 100 percent renewable diesel requirement if the applicant can demonstrate a good faith effort to comply with the requirement and that compliance is not practical. With this measure, the project's direct GHG emissions from stationary sources would not have a significant direct or indirect impact on the environment. With **GHG-1**, the operation of the gensets would not hinder California's efforts to achieve the statewide 2045 GHG emissions reduction goal.

As discussed below, with the implementation of **GHG-2** and other proposed design measures, the GHG emissions from the project's energy usage, mobile sources, and building operation would occur in a manner consistent with the city's CAP and the policies reflected in Executive Order B-55-18, CARB's scoping plan, and later programs to implement SB 350 and SB 100 to achieve the statewide 2030 and other future GHG emissions reduction targets. These categories of GHG emissions would not result in a "cumulatively considerable" contribution under CEQA because they would conform with all applicable plans, policies, and regulations adopted for the purpose of GHG emissions reductions, as discussed further in "b" below. In addition, under the BAAQMD's 2022 CEQA thresholds of significance for land use projects "option B", GHG impacts from indirect and non-stationary emissions sources of the project would be considered to have a less-than-significant impact since the project is consistent with the city's CAP. Therefore, the maximum potential rate of GHG emissions from the project's energy usage, mobile sources, and building operation are determined to have less-than-significant GHG impacts.

The majority of the project's operational GHG emissions would occur from electricity use or during the readiness testing and maintenance of the gensets. The project's likelihood of operating for unplanned circumstances or emergency purposes is low and if such operation did occur it would be infrequent and of short duration. Staff concludes that 50 hours of emergency backup generator operation per year should be enough to accommodate both readiness testing and maintenance and emergency operation for any given year, even if ultra-low sulfur diesel is used during short emergency operation durations in the event of supply challenges or disruption in obtaining renewable diesel. Staff, therefore, concludes that GHG emissions during emergency operation would be less than significant.

b. Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Construction

Less Than Significant. The project's short-term demolition and construction GHG emissions would not interfere with the state's ability to achieve long-term GHG emissions reduction goals. As mentioned above, the project would implement BMPs, as specified in mitigation measure **AQ-1**, that would reduce construction-related GHG emissions. The project would also participate in the city's Construction & Demolition Debris Recycling Program to further reduce GHG emissions. The city could also make the use of alternative fuels a condition of approval for new developments during pre-construction review meetings. The project would conform to relevant programs and recommended actions detailed in CARB's scoping plan. Similarly, the project components would not conflict with regulations adopted to achieve the goals of CARB's scoping plan. The project would be consistent with General Plan Energy Policies 5.10.3-P1 (promote the use of renewable energy resources, conservation, and recycling programs) and 5.10.3-P5 (reduce energy consumption through sustainable construction practices, materials, and recycling). The project would also be consistent with Measure 4.2, Increased Waste Diversion, and Measure 5.2, Alternative Construction Fuels, in the 2022 CAP and Action M-3-1, Reuse of salvageable building materials, in the draft 2022 CAP Update.

Operation and Maintenance

Less Than Significant with Mitigation Incorporated. The project's GHG emissions related to operation and maintenance would be caused by the combustion of diesel fuel in the genset engines and other routine operational activities (including energy use, mobile sources, and building operation).

i. Direct Project Stationary Combustion Sources

The direct project stationary combustion sources are the genset engines.

State Plans, Policies, and Regulations

As discussed under Regulatory Background above, California has set ambitious 2030, 2045, and 2050 GHG emissions reduction goals. Because of these goals, staff concludes it is imperative that the identified methods of carbon reduction contained in **GHG-1** and **GHG-2** be employed to ensure the project's GHG emissions are less than significant.

SB 100 established a landmark policy requiring renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045. While the project is not directly required to comply with the SB 100 provisions, it is technically a generator of electricity and, therefore, it is reasonable to apply the GHG emissions reduction goal to the project. Staff recommends mitigation measure **GHG-1** to ensure the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of San Clara's CDD may grant temporary relief from the 100 percent renewable diesel requirement if the applicant can demonstrate a good faith effort to comply with the requirement and that compliance

is not practical. The mitigation would also require annually reporting the status of procuring and using renewable diesel. With **GHG-1**, the project's stationary sources would use renewable diesel to ensure that the operation of the gensets would not hinder California's efforts to achieve the statewide 2045 GHG emissions reduction goal.

Regional Plans, Policies, and Regulations

Bay Area 2017 Clean Air Plan. With **GHG-1**, the direct project stationary combustion sources (i.e. emergency backup generator engines) would also be consistent with BAAQMD's Bay Area 2017 Clean Air Plan measure to Decarbonize Electricity Generation (EN1).

Diesel Free by '33. In 2018, the Mayor of Santa Clara personally became a signatory to the BAAQMD's Diesel Free by '33 initiative. However, the CEC has concluded that Diesel Free by '33 is not an appliable GHG emissions reduction strategy, program, or law that facilities must comply with. Nevertheless, it is a regional goal to reduce petroleum-based diesel fuel emissions in communities.

Renewable diesel is currently used as a transportation fuel. There are both federal (CEC 2020) and state incentives that offset the increased cost of renewable diesel compared to petroleum-based diesel when used in transportation applications. However, staff is unaware of any incentives that would apply to stationary sources, including the project. Staff proposes mitigation measure **GHG-1** to require the applicant to use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel.

Local Plans, Policies, and Regulations

Applicable General Plan Policies. Air quality policy 5.10.2-P3 encourages the implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants. Staff proposes mitigation measure **GHG-1** to require the applicant to use an increasing mix of renewable diesel and phase out use of ultra-low sulfur petroleum-based diesel. To require the applicant to use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The project would be consistent with the Air Quality policy 5.10.2-P3 of the City General Plan.

ii. Indirect and Non-Stationary Sources Emissions

The project's indirect and non-stationary sources emissions include those from energy use, mobile sources and building operation.

State Plans, Policies, and Regulations

The project's GHG emissions are predominantly from electricity usage. Multiple measures contained in CARB's scoping plan address GHG emissions from energy use. For example,

CARB's cap-and-trade program, through the regulation of upstream electricity producers, will account for GHG emissions in the project's power mix and requires these emissions to be reduced by the amount needed to achieve the statewide 2030 GHG emissions reduction goal. Electricity sources and suppliers used by the project must comply with the RPS and cap-and-trade program requirements. This, however, is not to say that new large consumers of electricity should not also be responsible for the GHG emissions resulting from their electricity use.

While SVP itself is compliant with SB 100, staff concludes that because the project would present such a large, single potential increase in load (up to 99.8 MW at full build out), it is not sufficient to point to SVP's compliance to conclude the project's indirect emissions from electricity use are less than significant. The more electricity demand added to the grid, the harder it becomes to meet long-term GHG emissions reduction goals. Transmission resources are not infinite, and renewable imports are increasingly being taken as other states establish their own GHG emissions reduction goals. Adding renewable generation, while obviously preferable to fossil-fueled generation, is not without its own potential environmental impacts, and asking all customers of a load serving entity to share in the costs of greening additional demand brought on by large commercial customers raises equity concerns. Numerous data centers, many with just under 100 MW loads, are being proposed in SVP territory, with several already under construction or about to start. Without a requirement that these data center facilities bear responsibility for ensuring that their electricity use would not impede the attainment of the state's GHG emissions reduction goals, including SB 100, it is unclear how the state is going to make the increasingly steep reductions needed to avert the most catastrophic climate change scenarios. The applicant proposes to participate in SVP's LCRE program to purchase 100 percent renewable electricity. Staff proposes to incorporate this applicant proposed mitigation measure as **GHG-2**. With the implementation of mitigation measure **GHG-2**, the project would not impede the attainment of the state's GHG emissions reduction goals.

Other project activities, such as mobile sources and building operation, would be similar to those of other commercial or industrial projects subject to development review by the city of Santa Clara. The project would comply with all applicable city and state green building standards measures, including California Code of Regulations, Title 24, Part 6, baseline standard requirements for energy efficiency, based on the 2022 Energy Efficiency Standards requirements, and the 2022 California Green Building Standards Code, commonly referred to as CALGreen (California Code of Regulations, Title 24, Part 11).

With **GHG-2**, the operation of the project would not conflict with regulations adopted to achieve the goals of the scoping plan. Accordingly, the project's operational activities would not interfere with the state's ability to achieve long-term GHG emissions reduction goals.

Regional Plans, Policies, and Regulations

Bay Area 2017 Clean Air Plan. BAAQMD's Bay Area 2017 Clean Air Plan includes Energy and Climate Measure (ECM)-1 – Energy Efficiency, and due to the relatively high project electrical demand, energy efficiency measures are included in the design and operation of the onsite electrical and mechanical systems, consistent with this measure. Staff also recommends mitigation measure **GHG-2** to require the project applicant to participate in SVP's LCRE program for 100 percent carbon-free electricity or purchase carbon offsets or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. These features would be consistent with BAAQMD's Bay Area 2017 Clean Air Plan measure to Decarbonize Electricity Generation (EN1).

BAAQMD CEQA Thresholds of Significance. Under the BAAQMD's 2022 CEQA thresholds of significance for land use projects, a CEQA lead agency can conclude that a project will not make a cumulatively considerable contribution to global climate change if the project is designed and built to be consistent with the applicable local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b) (as "option B" on p.2 of BAAQMD's 2022 Justification Report [BAAQMD 2022]). As discussed below, the project would be consistent with the city of Santa Clara's CAP, which meets the criteria under State CEQA Guidelines Section 15183.5(b). Therefore, GHG impacts from indirect and non-stationary emissions sources of the project would be less than significant.

Plan Bay Area 2040/SB 375. MTC and ABAG developed an SCS with the adopted Plan Bay Area 2040 to achieve the Bay Area's regional GHG emissions reduction target. Plan Bay Area 2040 sets a 15 percent GHG emissions reduction per capita target from passenger vehicles by 2035 when compared to the project 2005 emissions. However, these emission reduction targets are intended for land use and transportation strategies only. The project has a low concentration of employment and would not contribute to a substantial increase in passenger vehicle travel within the region.

Local Plans, Policies, and Regulations

Applicable General Plan Policies. The city adopted the General Plan to accommodate planned housing and employment growth through 2035. As part of the city's General Plan Update in 2011, new policies were adopted that address the reduction of GHG emissions during the planning horizon of the General Plan. In addition to the reduction measures in the CAP, the General Plan includes goals and policies to address sustainability aimed at reducing the city's contribution to GHG emissions. For the project, the implementation of policies that increase energy efficiency or reduce energy use would effectively reduce indirect GHG emissions associated with energy consumption. The consistency of the project with the applicable land use, air quality, energy, and water policies in the General Plan is analyzed in **Table 4.8-5** below. As shown, the project would be consistent with the applicable sustainability policies in the General Plan.

TABLE 4.8-5 PROJECT CONSISTENCY WITH GENERAL PLAN SUSTAINABILITY POLICIES RELATED TO INDIRECT AND NON-STATIONARY SOURCES EMISSIONS

Emission Reduction Policies	Project Consistency
Air Quality Policies	
5.10.2-P4 Encourage measures to reduce greenhouse gas emissions to reach 30 percent below 1990 levels by 2020.	Water conservation and energy efficiency measures included in the project would reduce GHG emissions associated with the generation of electricity.
Energy Policies	
5.10.3-P1 Promote the use of renewable energy resources, conservation, and recycling programs.	The project would divert at least 50 percent of construction waste.
5.10.3-P4 Encourage new development to incorporate sustainable building design, site planning, and construction, including encouraging solar opportunities.	The project would utilize lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. Water efficient landscaping and ultra-low flow plumbing fixtures in the building would be installed to limit water consumption.
5.10.3-P5 Reduce energy consumption through sustainable construction practices, materials, and recycling.	
5.10.3-P6 Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.	Not applicable. With implementation of **GHG-2**, the project owner will participate in the SVP's LCRE program for 100 percent carbon-free electricity or purchase carbon offsets or similar instruments that accomplish the same goals of 100 percent carbon-free electricity associated with the project. Besides, with implementation of **GHG-1**, the applicant would use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. As a result, onsite renewable energy generation is not needed to offset the project's emissions.
5.10.3-P8 Provide incentives for LEED certified, or equivalent development.	
Water Use Policies	
5.10.4-P6 Maximize the use of recycled water for construction, maintenance, irrigation, and other appropriate applications.	The project would use recycled water for mechanical cooling and for landscaping.
5.10.4-P7 Require installation of native and low-water consumption plant species in new development and public spaces to reduce water usage.	The project would use water efficient landscaping with low-water usage plant material to minimize irrigation requirements.

City of Santa Clara Climate Action Plan. Discussion of the project's conformance with the applicable reduction measures for new development in 2022 CAP Update are provided below:

Energy Efficiency Measures. Measure 2.3, Data Centers, in the 2022 CAP calls for the completion of a feasibility study of energy efficient practices for new data center projects

with an average rack power rating[3] of 15 kilowatts (kW) or more to achieve a power usage effectiveness (PUE) of 1.2 or lower. The average rack power rating for the project is estimated at 8.3 kW, which is significantly below the threshold to trigger a formal feasibility study of energy efficient practices. The annual average PUE of the project would be 1.5 if the building was fully leased and every client utilized its full capacity. The applicant has found that clients do not utilize the full capacity of what they lease and, therefore, expects the actual PUE to be on the order of 1.3 or lower, which is slightly above Measure 2.3's goal of a PUE of 1.2 or lower. However, the project would have an average rack rating estimated to be 8.3 kW, which is lower than the threshold of 15 kW at which the city requires a feasibility study (DayZen 2020b). The 2022 CAP does not include this control measure, but includes more actions specifically related to data centers as described below.

The 2022 California Building Standards Code (Cal. Code Regs., Title 24) was published on July 1, 2022, with an effective date of January 1, 2023 (DGS 2022). The project would need to comply with all applicable city and state green building standards measures, including California Code of Regulations, Title 24, Part 6, baseline standard requirements for energy efficiency, based on the current Energy Efficiency Standards requirements, and the 2022 California Green Building Standards Code, commonly referred to as CALGreen (Title 24, Part 11 of the California Code of Regulations). This would be consistent with the purpose of Action B-2-3 Energy-efficient and electric-ready building code in the 2022 CAP Update.

Water Conservation Measures. Measure 3.1, Water Conservation, in the 2013 CAP calls for a reduction in per capita water use to meet urban water management targets by 2020. Development standards for water conservation would be applied to increase efficiency in indoor and outdoor water use areas. Water conservation measures include the use of the following:

- Recycled or non-potable graywater for landscape irrigation;
- Water efficient landscaping with low-water usage plant material to minimize irrigation requirements; and
- Ultra-low flow toilets and plumbing fixtures in the building.

These water conservation measures would be consistent with Action N-3-4, Water-efficient landscaping requirements, and Action N-3-6, Recycled water connection requirements, in the draft 2022 CAP.

Transportation and Land Use Measures. Measure 6.1, Transportation Demand Management, program in the 2022 CAP requires new development located in the city's transportation districts to implement a transportation demand management (TDM)

3 Average rack power rating is a measure of the power available for use on a rack used to store computer servers. The higher the value of kilowatts, the greater power density per rack and generally more energy use per square foot of building area in a data center.

program to reduce drive-alone trips. The project would be required to have a 25-percent reduction in vehicle miles traveled (VMT), with 10 percent coming from TDM measures. An exception to these reduction requirements is made for projects located on properties with a General Plan designation of Light Industrial, such as the project site. Nevertheless, the project would be required to comply with General Plan Policy 5.8.5-P1, which requires new development to implement TDM programs that can include site-design measures, including preferred carpool and vanpool parking, enhanced pedestrian access, bicycle storage, and recreational facilities. Action T-3-1 TDM plan requirements in the draft 2022 CAP Update would also require a 25 percent reduction in project based VMT through active TDM requirements for large employers over 500 employees, including aggressive regulations to reduce parking in new development.

Electric Vehicle Charging Spaces. Measure 6.3 of the 2022 CAP recommends five percent of all new parking spaces be designated for electric vehicle (EV) charging. The project would provide a total of 253 parking spaces on site. The applicant would provide 11 EV charging spaces and 15 Clean Air Vehicle spaces on site. (DayZen 2021a). The project would be consistent with Measure 6.3 of the 2022 CAP. Action T-1-5 Office EV chargers in the draft 2022 CAP would also require the city's Community Development Department, Building Division, to implement proposed Reach Code to require all new commercial office units to install Level 2 charging stations at 10 percent of parking spaces, Level 1 circuits at 10 percent of parking spaces, and 30 percent EV-capable.

Urban Cooling. Measure 7.2 of the 2022 CAP and Action C-2-3, High-albedo parking lots, in the draft 2022 CAP Update both require new parking lots be surfaced with more sustainable pavement materials to reduce heat gain. The project would meet the CAP as adopted in its City Code. New landscaping consisting of trees, large and medium shrubs, and groundcovers will be installed along the property boundaries, building perimeters, stormwater treatment facilities, and landscape beds distributed throughout the parking facilities. (DayZen 2021c).

Carbon Neutral Data Centers and Renewable Electricity for New Data Centers. The 2022 CAP Update includes Action B-1-7, Carbon neutral data centers, which would require all new data centers to operate on 100 percent carbon neutral energy, with offsets as needed. In addition, the 2022 CAP also includes Action B-3-7, Renewable electricity for new data centers, which requires the city/SVP to support convening of a data center working group to identify and implement renewable electricity purchasing options for commercial customers. SVP is on track to meet the state's GHG emissions reduction goals. As mentioned above, the applicant is measuring its GHG footprint and will be achieving its commitment to net zero carbon emissions by 2030. Staff concludes that the project must employ all feasible means available to reduce its GHG emissions to avoid a significant adverse environmental impact. Therefore, staff proposes mitigation measure **GHG-2** to require the applicant to participate in SVP's LCRE program for 100 percent carbon-free electricity or purchase carbon offsets or similar instruments that accomplish

the same goals of 100 percent carbon-free electricity. The applicant is working with SVP to see if an option for the provision of lower carbon electricity is available and feasible.

The applicant would incorporate measures from the CAP, as specified by the city during the design review process to ensure compliance with applicable laws, ordinances, regulations, and standards. Conformance with the applicable design codes and policies will be enforced during the city design review process.

Conclusion

Less Than Significant with Mitigation Incorporated. With the implementation of the efficiency measures to be incorporated into the project and mitigation measures **GHG-1** and **GHG-2**, GHG emissions related to the project would be consistent with the applicable plans and policies adopted to reduce GHG emissions and would comply with all regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The potential for the project to conflict with an applicable plan, policy, or regulation for GHG emissions reductions would be less than significant.

4.8.4 Mitigation Measures

GHG-1: The project owner shall use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel (ULSD) as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara Community Development Department (CDD) may grant temporary relief from the 100 percent renewable diesel requirement if the project owner can demonstrate a good faith effort to comply with the requirement and that compliance is not practicable. The project owner shall provide an annual report of the status of procuring and using renewable diesel to the director, or director's designee, of the City of Santa Clara CDD demonstrating compliance with the mitigation measure.

GHG-2: The project owner shall participate in SVP's Large Customer Renewable Energy (LCRE) Program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity, or (2) purchase renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity.

During Operation, the project owner shall provide documentation to the director, or director's designee, of the city of Santa Clara Electric Utility Department of initial enrollment and shall submit annual reporting to the director, or director's designee, of the city of Santa Clara Electric Utility Department documenting either continued participation in SVP's LCRE Program of documentation that alternative measures continue to provide 100 percent carbon-free electricity as verified by an independent third-party auditor specializing in greenhouse gas emissions.

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4.9 Hazards and Hazardous Materials

This section describes the environmental and regulatory setting and discusses impacts specific to hazards and hazardous materials associated with the construction and operation of the project.

HAZARDS AND HAZARDOUS MATERIALS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.9.1 Environmental Setting

Hazardous Waste and Substances Sites

The project owner hired ATC Group Services (ATC) to conduct a Phase 1 Environmental Site Assessment (ESA) and to determine the location of hazardous wastes and hazardous material release sites within 0.25 mile of the project. The analysis provided by ATC included within the Phase 1 Environmental Site Assessment a search through Environmental Data Resources, Inc (EDR) proprietary database related to generation, storage, handling, transportation, treatment of wastes, and the remediation of

contaminated soil and groundwater sites. ATC's search included searches of the State Water Resources Control Board's (SWRCB), GeoTracker database, and the California Department of Toxic Substance Control's (DTSC) EnviroStor database.

The site was used for agricultural purposes from 1939 to the 1956. An asbestos pipe manufacturing facility was constructed in 1956. The asbestos pipe manufacturing facility operated at the property and the south adjacent site (2805 Lafayette Street) from 1956 to 1982.

The asbestos pipe manufacturing facility had two waste streams which included asbestos dust collected in the plant vacuum system and slurry wastes from the pipe manufacturing process. The vacuum dust was collected and disposed from the site every six weeks. Between 1956 and 1977, the slurry waste ran through a ditch into a settling basin. The slurry waste dried before being loaded and hauled to a landfill (DayZen 2020c). In 1977, the asbestos pipe manufacturing facility began recycling the waste stream slurry and abandoned the settling basin.

Prior to closure of the facility, the property was investigated for asbestos and polychlorinated biphenyls (PCB)-related wastes in the soil. The California Department of Health Services (CDHS) required the property owner to clean up all asbestos waste located on site. The project owner was required to remove asbestos waste and soil down to approximately 6 feet below grade in the area of the run-off ditch and slurry settling basin (DayZen 2020d). In 1983, after the site cleanup effort was completed, four soil samples were analyzed and showed no detectable levels of asbestos and polychlorinated biphenyls (PCB) wastes and received closure from the CDHS.

Airports

The Norman Y. Mineta San Jose International Airport, a public airport, is located approximately 930 feet west of the proposed project and has two runways that exceed 3,200 feet in length (Air Nav 2019). The Santa Clara County Airport Land Use Commission's (ALUC) Comprehensive Land Use Plan (CLUP) for the airport shows that the project falls within the Traffic Pattern Zone (TPZ) and is partially located within the Inner Safety Zone (ISZ) and the Turning Safety Zone (TSZ) as well. The TPZ is defined as the portion of the airport area routinely overflown by aircraft operating in the airport traffic pattern. The ISZ represents the approach and departure corridors that have the second highest level of exposure to potential aircraft accidents. The TSZ represents the approach and departure areas that have the third highest level of exposure to potential aircraft accidents. The project's Federal Aviation Regulations (FAR) Part 77 (obstruction) surface extends from 112 above mean sea level (AMSL) to 212 feet AMSL, as identified in Figure 6 of the Comprehensive Land Use Plan for San Jose International Airport (SCCALUC 2016).

Schools

There are no schools within 0.25 mile of the project site. The closest school is the Scott Lane Elementary School, which is approximately 1.7 miles southwest of the project site.

Emergency Evacuation Routes

The Santa Clara Local Hazard Mitigation Plan (Santa Clara County 2017) and the San Jose Emergency Operations Base Plan identifies hazards and provides a risk assessment for the potential natural hazards, such as a flood, wildfire, or earthquake, that could impact the county. The plans do not identify any designated evacuation routes near the project site.

Wildfire Hazards

The California Department of Forestry and Fire Protection (Cal Fire) identifies and maps areas of significant fire hazards based on fuels, terrain, and other relevant factors. The maps identify this information as a series of Fire Hazard Severity Zones, which are progressively ranked in severity as un-zoned, moderate, high, and very high. State responsibility areas (SRAs) are locations where the State of California is responsible for wildland fire protection. Local responsibility areas (LRAs) are locations where the responding agency is the local county or city. The new Lafayette Data Center would be within Santa Clara County.

The Cal Fire maps for Santa Clara County (CalFire 2007) indicate that the project site is in an LRA. Within the LRA, the project site falls within an un-zoned Fire Hazard Severity Zone that indicates that the project site has a less than moderate susceptibility to wildland fires. For more information on wildfire hazards, see **Section 4.19 Wildfire**.

Regulatory Background

Federal

Resource Conservation and Recovery Act. The federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the United States Environmental Protection Agency (U.S. EPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act, which affirmed and extended the "cradle to grave" system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by the Hazardous and Solid Waste Act.

Comprehensive Environmental Response, Compensation, and Liability Act. Congress enacted the federal CERCLA, including the Superfund program, on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan. The National Contingency Plan provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances,

pollutants, and/or contaminants. The National Contingency Plan also established the National Priorities List. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

Department of Transportation. The United States Department of Transportation (DOT) is the primary federal agency responsible for regulating the proper handling and storage of hazardous materials during transportation (49 C.F.R. §§ 171-177 and 350-399).

Federal Aviation Administration. Title 14, Part 77.9 of the Code of Federal Regulations requires Federal Aviation Administration (FAA) notification for any construction or alteration of navigable airspace exceeding 200 feet above ground level (AGL). It also requires notification for construction or alterations within 20,000 feet of an airport with a runway more than 3,200 feet in length if the height of the construction or alteration exceeds a slope of 100 to 1 extending outward and upward from the nearest point of the nearest runway of the airport.

If a project's height exceeds 200 feet or exceeds the 100:1 surface, the project applicant must submit a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA.

State

California Environmental Protection Agency. The California Environmental Protection Agency (CalEPA), created in 1991, unified California's environmental authority in a single cabinet-level agency and brought the California Air Resources Board (CARB), State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), Integrated Waste Management Board, DTSC, Office of Environmental Health Hazard Assessment, and Department of Pesticide Regulation under one agency. These agencies under the CalEPA "umbrella" provide protection of human health and the environment and ensure the coordinated deployment of state resources. Their mission is to restore, protect and enhance the environment, to ensure public health, environmental quality, and economic vitality.

The California Hazardous Waste Control Law. CalEPA administers the California Hazardous Waste Control Law to regulate hazardous wastes. The Hazardous Waste Control Law lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Department of Toxic Substances Control. DTSC is a department within CalEPA and is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of RCRA and the California Health and Safety Code. Other laws that affect hazardous waste are specific

to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning.

California Occupational Safety and Health Administration. California Occupational Safety and Health Administration (Cal OSHA) is the primary agency responsible for worker safety related to the handling and use of chemicals in the workplace. Cal OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (Title 8, Cal. Code Regs., §§ 337 340). The regulations specify requirements for employee training, availability of safety equipment, accident-prevention programs, and hazardous substance exposure warnings.

Department of California Highway Patrol. Department of California Highway Patrol is the primary agency responsible for enforcing the regulations related to the transport of hazardous materials on California roads and highways (Title 13, Cal. Code Regs., §§ 1160-1167).

The Aboveground Petroleum Storage Act Program. The above-ground program requires tank facilities storing greater than 1,320 gallons of petroleum as per Spill, Prevention, Control, and Countermeasure (SPCC) Plan requirements (CFR 2023). A tank facility is any tank or tanks that are aboveground, including connected piping, that contain petroleum and are used by an owner or operator at a single location or site, is in secondary containment and is used to hold petroleum fuel. The Certified Unified Program Agency (CUPA) regulates businesses storing petroleum in aboveground containers or tanks. (California Health and Safety Code, Chapter 6.67, Sections 25270-25270.13).

Local

Santa Clara County Operational Area Hazard Mitigation Plan. The plan includes a risk assessment that identifies the natural hazards and risks that can impact a community based on historical experience, estimates the potential frequency and magnitude of disasters, and assesses potential losses to life and property. The plan also includes developed mitigation goals and objectives as part of a strategy for mitigating hazard-related losses.

4.9.2 Environmental Impacts

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction

Less Than Significant Impact. During the construction phase of the project, the only hazardous materials used would be paints, cleaners, solvents, gasoline, motor oil, welding gases, and lubricants. When not in use, any hazardous material would be stored in designated construction staging areas in compliance with local, state, and federal requirements. Any impacts resulting from spills or other accidental releases of these

materials would be limited to the site due to the small quantities involved and their infrequent use, hence reduced chances of release. Temporary containment berms would also be used to help contain any spills during the construction of the project.

During construction, all 44 3.0 MW diesel backup generators (gensets) and one 1.0 MW generator fuel tanks would have to be filled. The transportation of the diesel fuel to the site would take several tanker truck trips. Diesel fuel has a long history of being routinely transported and used as a common motor fuel. It is appropriate to rely upon the extensive regulatory framework that applies to the shipment of hazardous materials on California highways and roads to ensure safe handling in general transportation (see Federal Hazardous Materials Transportation Law 49 USC § 5101 et seq., DOT regulations 49 CFR subpart H, §§ 172–700, and California Department of Motor Vehicles (DMV) regulations on hazardous cargo). Thus, the transportation of diesel fuel would pose a less than significant risk to the surrounding public.

The routine transport, use or disposal of hazardous materials would have a less than significant impact to the public or the environment.

Operation

Less Than Significant Impact. Some oils and lubricants would be stored on-site for maintenance of mechanical equipment in the equipment yards. Minor amounts of hazardous materials could also be stored and used on-site for operation and maintenance of the data center and associated facilities. Diesel fuel would be used during emergency operation of the generators, and routine maintenance and testing. Each generator would initially be filled to only 95 percent capacity of its tank. Refills would occur only when the tank reaches 83 percent of tank capacity. Every generator would run once a month for 30 minutes with no load on the engine. These monthly runs would require each generator to be refilled every 3 to 5 months. Each generator would run for a total of 4 hours annually with 100 percent load on the engine. Upon completion of these tests, the gensets would be required to be refilled back to the 95 percent capacity of the tank (DayZen 2020e). However, air quality regulations would limit each engine to a maximum of 50 hours operation annually for testing and maintenance purposes.

The project would use standard practice for fuel quality and maintenance of stored diesel fuel. Standard practice includes that each engine would have a fuel filtration system that would filter the fuel contents daily. The project is implementing dual fuel filters on each diesel-fired back up generator. (DayZen 2020b) The fuel filters would be replaced as needed or annually which would reduce any effects of fuel degradation on engine components and operation. Commercial diesel fuels also contain biocides that prevent microbial growth and additives that help to stabilize the fuel for several months.

Although diesel fuel would be stored on-site, it would be stored in fuel tanks integrated into the stacked gensets. Each stacked pair of 3 MW gensets would have a storage capacity of 6,400 gallons of diesel fuel along with a container of diesel exhaust fluid (DEF). DEF is a non-hazardous solution of 67.5 percent water and 32.5 percent

automotive grade urea. The estimated shelf life of the DEF based on ambient temperatures for Santa Clara County is approximately 12-18 months. The generator's integrated fuel tanks would be of a double-walled high integrity design. The interstitial space between the inner and outer walls of each tank would be continuously monitored electronically for the presence of leaks through the inner wall. The monitoring system would be electronically linked to an alarm system in the security office that would alert personnel if a leak were detected in any of the inner tanks. The above design features would ensure that the gensets meet the secondary containment requirements of the California Health and Safety Code for the above ground petroleum storage tank program (DayZen 2020a).

Diesel fuel would be scheduled and delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of 8,500 gallons. Diesel fuel transport would comply with all appropriate regulations regarding transport of hazardous materials on California roads and highways. A spill catch basin would be located at each fill port for the gensets. The DEF tank could be filled in place from either other drums or totes. Warning signs and/or wheel chocks would be used in the loading and/or unloading areas to prevent fueling vehicles from departing before complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off would be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures would be posted at the loading and unloading areas.

Hazardous materials storage at the project site would be regulated under local, state, and federal regulations. The project would be subject to the Aboveground Petroleum Storage Act (APSA) due to the volume of fuel that would be stored in aboveground tanks. Tank facilities under the APSA must comply with all requirements and prepare and implement a SPCC plan. The spill prevention measures described above would be incorporated into the SPCC plan. Additionally, a Hazardous Materials Business Plan (HMBP) would be required and completed for the safe storage and use of chemicals and would incorporate all relevant regulations. Transport of diesel fuel would comply with regulations that apply to the shipment of hazardous materials on California highways and roads to ensure safe handling in general transportation. Conformance with relevant laws and regulations would minimize the likelihood of hazardous material releases from the project. The project would not create a hazard to the public and thus impacts would be less than significant.

With the above listed safety features, precautions, and conformance with relevant laws and regulations, the risk to the off-site public or environment through the routine transport, use or disposal of hazardous materials would have a less than significant impact.

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Construction

Less Than Significant Impact. As described under the discussion for impact criteria "a", project construction would require the limited use of hazardous materials, such as fuels, lubricants, and solvents. The storage and use of hazardous materials during construction could result in the accidental release of small quantities of hazardous materials typically associated with minor spills or leaks. However, as discussed in impact criteria "a", hazardous materials would be stored, handled, and used in accordance with applicable regulations. Personnel would be required to follow health and safety procedures outlined in **HAZ-1** in the event of a release of hazardous materials. All equipment and materials storage would be routinely inspected for leaks. Records would be maintained for documenting compliance with the storage and handling of hazardous materials. For the above reasons, the project impacts would be less than significant.

Operation

Less Than Significant Impact. As described above in criterion "a" the project would include the use and storage of diesel fuel for the operation and testing and maintenance of the gensets. Additionally, minor amounts of hazardous materials would be stored and used for maintenance of on-site equipment. Hazardous materials would be used and stored in accordance with required federal, state, and local regulations. A HMBP and a SPCC plan would be completed for the safe storage and use of hazardous materials. The SPCC would include the listed spill prevention measures outlined in criterion "a". The conformance with required laws and regulations would minimize the likelihood of an accidental hazardous material releases from the project. Therefore, the project would not create a significant hazard to the public or environment due to an accidental release of a hazardous material.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Construction and Operation

No Impact. There are no schools located or proposed within 0.25 mile of the project site. In addition, there are no hazardous materials that would be emitted from the site at rates capable of creating offsite impacts. Therefore, there would be no impact.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Construction

Less Than Significant Impact with Mitigation Incorporated. According to a review of the Envirostor and GeoTracker databases, the project site does not have any known, open

cases on the hazardous materials sites compiled pursuant to Government Code section 65962.5. ATC's limited subsurface investigation conducted during the Phase 1 Environmental Site Assessment found low levels of fuel-related VOCs and chlorinated solvents. However, all the detections were below the most stringent (i.e., residential land use) screening criteria published by the U.S. Environmental Protection Agency and the California Environmental Protection Agency for evaluation of vapor intrusion risks.

Ground disturbing activities associated with the demolition of existing buildings, the removal of underground utilities, and construction of the project would have the potential to encounter contaminated soil. The contaminated soil could contain residual pesticides and herbicides from agricultural use, fuel related VOC's and chlorinated solvents from industrial use. With the implementation of **HAZ-1**, if contaminated soils are found, the project would halt construction and the soil would be treated in place or removed to an appropriate disposal facility. Therefore, the construction of the project would create a less than significant impact to the public or the environment.

Operation

No Impact. Operation and maintenance activities would not involve excavation activities and would therefore have no impact.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Construction

Less Than Significant Impact. The project site is located approximately 930 feet west of the Norman Y. Mineta San Jose International Airport. The FAA establishes a maximum structure height that extends from 112 feet AMSL to 212 feet AMSL at the project site (SCCALUC 2016). The project's maximum structure height of 82 feet AGL would not exceed the FAA's obstruction surface of 140 AMSL.

The project site is still subject to Title 14, Part 77.9 of the Code of Federal Regulations, Construction or Alteration Requiring Notice. With a maximum project height of 82 feet AGL, the project would exceed the FAA notification 100:1 surface threshold of 9.5 feet at the project site. As a result, the project applicant would need to submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The project applicant has submitted a copy of Form 7460-1 to the FAA. On May 7, 2021, The FAA issued seven Determinations of No Hazard for project structures A through G (FAA 2021). Therefore, the project would not pose a safety hazard and would have a less than significant impact.

The project site also falls within the ISZ and TSZ zones. The CLUP's safety policy S-4 requires that the above ground storage of fuel or other hazardous materials shall be prohibited in the ISZ and the TSZ zones. Approximately twenty gensets would be located within the ISZ and TSZ zones and would be required to be redesigned to feature below

grade fuel tanks. On April 4, 2022, the applicant submitted a design modification that shows the 20 fuel tanks would be located below grade in a concrete pit (DayZen 2022a) to comply with safety policy S-4. The Santa Clara County ALUC is the responsible agency for evaluating if the project's proposed design modification would conform with the S-4 policy. The ALUC previously ruled on another project's design modification, the Sequoia Data Center, and determined that lowering the fuel tanks below grade would conform with the CLUP's safety policy S-4 (ALUC 2021). The project applicant is currently seeking a final consistency determination letter for the proposed design modification from the ALUC. Staff anticipates for the reasons listed above that the project would comply with the Santa Clara CLUP. Further discussion on the CLUP's consistency can be found in **Sections 4.11, Land Use** and **4.17 Transportation.**

Project construction would not result in excessive noise impacts for people residing or working in the project area, as described in a more detailed analysis in **Section 4.13 Noise.** Therefore, the project would not pose a safety hazard and would have a less than significant impact.

Operation

Less Than Significant Impact. Operation and maintenance activities for the project site would be similar to those for a similarly sized industrial building and would not have an impact on people working or residing in the area. In addition, the thermal plume generated by the project would not pose a safety hazard to any aircraft near the Norman Y. Mineta San Jose International Airport. Detailed analysis of potential thermal plume impacts is contained in **Section 4.17 Transportation.**

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Construction

No Impact. A review of the Santa Clara County Operational Area Hazard Mitigation Plan and the San Jose Emergency Operations Base Plan for the project revealed no specific mapping or delineation of emergency evacuation or access routes. The plans identified that the area police, fire department, and other emergency services would implement their emergency response or evacuation plans according to their communications protocols and hazard mitigation programs. The project site is not identified on any emergency evacuation or access routes. In addition, the construction would not require any road closures since the work would all be done onsite. During project construction, there would be no impact to an adopted response plan or emergency evacuation plan.

Operation

No Impact. After construction, no lane closures would be needed, and no impact to a response plan or emergency evacuation plan would occur.

g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Construction and Operation

No Impact. The project site is in Santa Clara County. It is located within an un-zoned Fire Hazard Severity Zone, within an LRA, indicating that the project site has a less than moderate susceptibility to wildland fires. The project site is not adjacent to wildlands. The project site is in an office park area and is surrounded by commercial office buildings to the west, north, and east. There are no developments south of the site. Although equipment and vehicles used during construction, as well as welding activities, have the potential to ignite dry vegetation, the project is within an urban area surrounded by industrial and commercial zones that have very limited dry vegetation. In addition, the project is within an un-zoned fire hazard area. Therefore, there would be no impact from wildland fires resulting from construction activities related to the project.

4.9.3 Mitigation Measures

HAZ-1: The project will implement the following measures to reduce potentially significant soil and or groundwater impacts to construction workers to a less than significant level.

- Prior to the issuance of grading permits, shallow soil samples shall be taken in areas where soil disturbance is anticipated to determine if contaminated soils with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division prior to initiation of work. Once the soil sampling analysis is complete, a report of the findings will be provided to the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division and other applicable city staff for review.
- Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable Environmental Screening Levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements.
- A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include:

  1) a detailed discussion of the site background,

  2) a summary of the analytical results,

  3) a Health and Safety Plan prepared by an industrial hygienist,

4) protocols for conducting earthwork activities in areas where impacted soil and/or groundwater are present or suspected,

5) a description of worker training requirements, health and safety measures and soil handing procedures,

6) protocols to characterize/profile soil suspected of being contaminated so that appropriate mitigation, disposal or reuse alternatives, if necessary, can be implemented,

7) a notification procedure if previously undiscovered significantly impacted soil or groundwater is encountered during construction,

8) a notification procedure if previously unidentified hazardous materials, hazardous waste, underground storage tanks are encountered during construction,

9) on-site soil reuse guidelines,

10) sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility,

11) soil stockpiling protocols; and,

12) protocols to manage groundwater that may be encountered during trenching and/or subsurface excavation activities.

Prior to issuance of grading permits, a copy of the SMP must be approved by the Santa Clara County Environmental Health Department, and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division.

- If contaminated soils are found in concentrations above risk-based thresholds pursuant to the terms of the SMP, remedial actions and/or mitigation measures will be taken to reduce concentrations of contaminants to levels deemed appropriate by the selected regulatory oversight agency for ongoing site uses. Any contaminated soils found in concentrations above thresholds shall be either 1) managed or treated in place, if deemed appropriate by the oversight agency or 2) removed and disposed of at an appropriate disposal facility according to California Hazardous Waste Regulations and applicable local, state, and federal laws.

4.9.4 References

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CalFire 2007 – California Department of Forestry and Fire Protection (CalFire). 2007 Santa Clara County – Very High Fire Hazard Severity Zones in State Responsibility Area. Department of Forestry and Fire Protection. Projection Albers, NAD 1927, Scale 1: 100,000 at 32" x 27"

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FAA 2021 – Federal Aviation Administration, Determination of No Hazard to Air Navigation. Aeronautical Study No. 2020-AWP-12505-OE, Mary 07, 2021 (TN238277). Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=238277&DocumentContentId=71570

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SWRCB 2018 – State Water Resources Control Board (SWRCB). GeoTracker Database. Accessed on: August 21, 2020. Available online at: http://geotracker.waterboards.ca.gov

4.10 Hydrology and Water Quality

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project with respect to hydrology and water quality.

HYDROLOGY AND WATER QUALITY Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☒	☐	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces in a manner which would:				
i. result in substantial erosion or siltation, on- or offsite;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G

4.10.1 Environmental Setting

Storm Drainage and Water Quality

The project would be constructed in the city of Santa Clara, within the Guadalupe watershed. The Guadalupe watershed drains to the San Francisco Bay, located a few miles northwest of the proposed project site. The site is located west of the Guadalupe River and east of San Tomas Aquino Creek. Storm water from the project site drains into the city of Santa Clara's storm water drain system, which discharges to the

Guadalupe River and ultimately the San Francisco Bay.

The water quality of San Tomas Aquino Creek and other creeks is influenced by pollutants contained in storm water runoff. Storm water runoff from urban areas typically contains pollutants such as sediment, metals, pesticides, herbicides, oil, grease, asbestos, lead, and animal wastes.

Since the site is currently developed with two, two-story office buildings and associated paved parking and loading dock areas, the site is generally impervious. The total area of the existing office buildings is approximately 326,000 square feet.

Groundwater

The Santa Clara Valley groundwater basin is divided into four interconnected subbasins that border the southern San Francisco Bay. The proposed project would in the Santa Clara Subbasin, which extends across the Santa Clara Valley in the region south of San Francisco Bay.

Fluctuations in rainfall, changing drainage patterns, and other hydrologic factors can influence groundwater levels. Based on the Seismic Hazard Zone Report 051 prepared by the Department of Conservation for the San Jose West 7.5-Minute Quadrangle, the historic shallowest observed depth to groundwater in the general site area was about 10 feet below ground surface (bgs) (CGS 2002). According to the SPPE application the depth to groundwater beneath the project site is typically encountered at 16 to 24 bgs (DayZen 2020a).

The project site's historic uses were agricultural and industrial. Site contamination by pesticides and herbicides is possible. No other significant contamination is known for the project site.

Flooding

The average elevation of the existing project site is approximately 40 feet above the 1988 North American Vertical Datum (NAVD88) (USGS 2018). According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) 06085C0227H, effective May 18, 2009, the project site is located within Zone AH. Zone AH is a special flood hazard area subject to inundation by the one percent annual chance of flood (100-year flood). Flood depths of one to three feet would be expected during the 100-year flood.

The project site is not within an area mapped as vulnerable to sea level rise in the National Oceanic and Atmospheric Administration's Digital Coast, Sea Level Rise Viewer (NOAA 2021).

Regulatory Background

Federal

Clean Water Act and California's Porter-Cologne Water Quality Control Act. The State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCB) are responsible for the regulation and enforcement of the water quality protection requirements of the federal Clean Water Act (CWA) and the state's Porter-Cologne Water Quality Control Act (Porter-Cologne). The National Pollutant Discharge Elimination System (NPDES) is the permitting program that allows point source dischargers to comply with the CWA and Porter-Cologne laws. This regulatory framework protects the beneficial uses of the state's surface and groundwater resources for public benefit and environmental protection. Protection of water quality could be achieved by ensuring the proposed project complies with applicable NPDES permits from the SWRCB or the San Francisco Bay RWQCB.

Under Section 303(d) of the CWA, states are required to identify impaired surface water bodies and develop total maximum daily loads (TMDLs) for contaminants of concern. The TMDL is the quantity of pollutant that can be assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the water body cannot support the beneficial uses; rather, the intent is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for future water quality degradation. The Guadalupe River is currently listed on the United States Environmental Protection Agency's Section 303(d) Listed Waters for California for diazinon, mercury, and trash.

The San Francisco Bay RWQCB issued a Municipal Regional Storm Water NPDES Permit (Permit Number CAS612008) that requires the city of Santa Clara to implement a storm water quality protection program. This regional permit applies to 77 Bay Area municipalities, including the city of Santa Clara. Under the provisions of the Municipal NPDES permit, redevelopment projects that disturb more than 10,000 square feet are required to design and construct storm water treatment controls to treat post-construction storm water runoff. The permit requires the post-construction runoff from qualifying projects to be treated by using Low Impact Development (LID) treatment controls, such as biotreatment facilities. The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) assists co-permittees, such as the city of Santa Clara, in the implementation of the provisions of the Municipal NPDES permit. In addition to water quality controls, the Municipal NPDES permit requires all new and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation, or other impacts to beneficial uses of local rivers, streams, and creeks. Projects may be deemed exempt from the permit requirements if they do not meet the size threshold, drain into tidally influenced areas or directly into the Bay, drain into hardened channels, or are infill projects in sub-watersheds or catchment areas that are at least 65 percent impervious (per the city of Santa Clara

Hydromodification Management Applicability Map). The project site is in a catchment area with imperviousness greater than 65 percent; thus, the project site is not subject to the SCVURPPP hydromodification requirements.

Federal Emergency Management Agency Flood Insurance Program. The magnitude of flood used nationwide as the standard for floodplain management is a flood having a probability of occurrence of one percent in any given year. This flood is also known as the 100-year flood, or base flood. The FIRM is the official map created and distributed by FEMA for the National Flood Insurance Program that shows areas subject to inundation by the base flood for participating communities. FIRMs contain flood risk information based on historic, meteorologic, hydrologic, and hydraulic data, as well as open-space conditions, flood control works, and development.

State

State Sustainable Groundwater Management Act. The 2014 Sustainable Groundwater Management Act (SGMA) requires local public agencies and Groundwater Sustainability Agencies (GSAs) in high- and medium-priority basins to develop and implement Groundwater Sustainability Plans (GSPs) or Alternatives to GSPs. GSPs are detailed road maps for how groundwater basins will reach long term sustainability.

The Santa Clara Valley Water District (SCVWD) is the exclusive GSA for the Santa Clara Valley groundwater Subbasin, which contains the proposed project. SCVWD developed a groundwater management plan for the Santa Clara and Llagas Subbasins that is intended to be functionally equivalent to a GSP.

Local

City of Santa Clara Code, Prevention of Flood Damage. Chapter 15.45 of the Santa Clara city code requires that buildings' lowest floor be constructed at least as high as the base flood elevation.

4.10.2 Environmental Impacts

a. Would the project violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Construction and Operation

Less Than Significant with Mitigation Incorporated. The proposed project would disturb about 15 acres of land and would be subject to construction-related storm water permit requirements of California's NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) administered by the SWRCB. Prior to any ground-disturbing construction activity, the applicant must comply with the Construction General Permit, which includes preparation of a Storm Water Pollution Prevention Plan (SWPPP). With implementation of the

construction SWPPP, redevelopment of the site would not cause a substantial degradation in the quality, or an increase in the rate or volume, of storm water runoff from the site during construction. In addition, the Municipal NPDES permit, as well as the SCVURPPP, requires that redevelopment not result in a substantial net increase in storm water flow exiting the project site during operation. As a result, runoff from the project site would not be expected to exceed the capacity of the local drainage system or to significantly contribute to the degradation of storm water runoff quality.

The project is expected to excavate soil at the existing site to a depth of about 13 feet below grade. It is therefore possible to encounter groundwater and thereby dewatering might be necessary. If dewatering is necessary, and the discharge is found to be contaminated, the project owner would likely be required to obtain coverage under the VOC and Fuel General Permit (San Francisco RWQCB *General Order No. R2-2017-0048 NPDES Permit No. CAG912002*). Discharge of uncontaminated water from the dewatering operation to waters of the US within the San Francisco RWQCB's jurisdiction is a permitted activity under the Construction General Permit.

The applicant proposed a mitigation measure to reduce potential impacts to water quality. Staff evaluated this mitigation measure in the context of the potential impacts and concludes that the mitigation measure is sufficient. Staff proposes mitigation measure **HYD-1** which outlines implementation of best management practices (BMPs) included in the SWPPP. With implementation of **HYD-1**, the project would not be expected to violate water quality standards or waste discharge requirements during construction and operation, and impacts would be less than significant.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Construction and Operation

Less Than Significant Impact. Since the project would be located in an area served with imported surface water from the San Francisco Public Utilities Commission (SFPUC), the water supply to the project would not be from a groundwater source. The city's UWMP for 2020 shows that the city has sufficient supply to meet the project's demand of 67 AFY in normal and single dry year scenarios. However, the UWMP shows that the city could have a deficit in a multiple dry year scenario that assumes supply from SFPUC would be interrupted. Under this scenario, the city's supply from SFPUC might be interrupted if certain conditions specified in the interruptible contract between the city and SFPUC are met (Santa Clara 2021). If supply from SFPUC is interrupted, the city would have to replace the demand using groundwater or water supplied by SCVWD.

According to the UWMP, the groundwater basin has been managed successfully to prevent overdraft conditions. In case of a water supply shortage, the city has adopted

water conservation policies to reduce demand such that available supplies are sufficient to meet demand (Santa Clara 2021). As discussed in **Section 4.18, Utilities and Service Systems**, the project does not meet the definition of a "project" for the purposes of preparing a Water Supply Assessment (WSA) by the water supplier. The project's impact on groundwater supplies or recharge during construction and operation would therefore be less than significant.

Additionally, the project site is not in a groundwater recharge basin and therefore, it would not interfere with groundwater basin recharge activities.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces in a manner which would:

i. Result in substantial erosion or siltation on- or off-site;

Construction and Operation

Less Than Significant Impact. The existing site is nearly covered with impervious surfaces and includes storm water collection and disposal facilities throughout the parcel. The proposed project would result in a reduction in impervious areas (by replacing some of the existing impervious areas with pervious ones for landscaping) and would also include a new storm water collection system that would incorporate source control and treatment best management practices (BMPs). These BMPs would reduce the overall runoff into the city's collection system, and also reduce erosion and sedimentation impacts. This post-construction design would therefore not be expected to result in increased runoff (rate or volume) from the site. The storm water design will have to comply with the SCVURPPP as well. Therefore, impacts would be less than significant.

ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Construction and Operation

Less Than Significant Impact. Surface runoff would be controlled as described in section (c)(i) above. Therefore, impacts would be less than significant.

iii. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff; or

Construction and Operation

Less Than Significant Impact. The proposed project would result in a reduction in impervious areas and would also include a new storm water collection system that includes drainage swales to reduce the overall runoff into the city's collection system. The

discharge of polluted runoff would be expected to be similarly reduced. Therefore, impacts would be less than significant.

iv. Impede or redirect flood flows?

Construction and Operation

Less Than Significant Impact. Though the site is located near the Guadalupe River and San Tomas Aquino Creek, these waterways do not pose a likely flood risk. According to FIRM 06085C0227H, effective May 18, 2009, the project site is located within Zone AH. Zone AH is a special flood hazard area subject to inundation by the 100-year flood. Flood depths of one to three feet would be expected during the 100-year flood.

The project site is not within an area mapped as vulnerable to sea level rise in the National Oceanic and Atmospheric Administration's Digital Coast, Sea Level Rise Viewer (NOAA 2021).

The proposed project also would not be expected to add significantly to the existing potential of the site to impede flood flows. The proposed project would have significant structures, like the existing site did, that would similarly impede or redirect flood flows. Therefore, no net change in obstruction is expected from the proposed project and the impacts would be less than significant.

d. Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Construction and Operation

Less Than Significant Impact. The project site is located within FEMA flood Zone AH and subject to inundation by the 100-year flood. Flood depths of one to three feet would be expected during the 100-year flood.

The project site is not within an area mapped as vulnerable to sea level rise in the National Oceanic and Atmospheric Administration's Digital Coast, Sea Level Rise Viewer (NOAA 2021).

The project site is not located near a large body of water, the ocean, or steep slopes. Due to the location of the proposed project site, it would not be subject to inundation by seiche, tsunami, or mudflow (CEMA 2009).

The project site is within the inundation zones of two upstream reservoirs. Lexington Reservoir and James J. Lenihan Dam are located on Los Gatos Creek approximately 15 miles upstream. The Lenihan Dam Flood Inundation Map shows that dam failure would result in flooding at the project site.

In the unlikely event of a flood, release of on-site pollutants would be prevented by the SWPPP, Worker Environmental Training, a Spill Prevention, Control, and Countermeasure

Plan, a Hazardous Materials Business Plan, and through an emergency spill response program. All of these measures would work together to help keep potential pollutants properly contained. Therefore, the impacts would be less than significant.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Construction and Operation

Less Than Significant Impact. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the local water quality control plan. The project would comply with the Basin Plan by implementing the requirements of the Construction General Permit, as described in section (a) above, and through the preparation of a construction SWPPP. This impact would be less than significant.

SCVWD developed a groundwater management plan for the Santa Clara and Llagas Subbasins that is intended to be functionally equivalent to a GSP. The information contained in the SCVWD groundwater management plan is used to inform the city of Santa Clara's UWMP about groundwater supplies. Therefore, it is reasonable to rely on the UWMP to evaluate how a proposed project would impact the implementation of the sustainable groundwater management plan. The city's UWMP for 2020 shows that it has sufficient supply to meet the project's demand of 67 AFY in normal and single dry year scenarios. However, the UWMP also shows that the city could have a deficit in a multiple dry year scenario that assumes that supply from SFPUC would be interrupted. Under this scenario, the city's supply from SFPUC might be interrupted if certain conditions specified in the interruptible contract between the city and SFPUC are met (Santa Clara 2021). If supply from SFPUC is interrupted the city would have to replace the demand using groundwater or supply water from SCVWD.

According to the UWMP, the groundwater basin has been managed successfully to prevent overdraft conditions. In case of a water supply shortage, the city has adopted water conservation policies to reduce demand such that available supplies are sufficient to meet demand (Santa Clara 2021). The proposed project would therefore not be expected to impede the implementation of the SCVWD's groundwater management plan. This impact would be less than significant.

4.10.3 Mitigation Measures

HYD-1: The LDC will incorporate the following into the design and these measures should be treated as mitigation incorporated into the project. The following will reduce construction-related water quality impacts:

- Burlap bags filled with drain rock shall be installed around storm drains to route sediment and other debris away from the drains.
- Earthmoving or other dust-producing activities shall be suspended during periods of high winds.

- All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary.
- Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered.
- All trucks hauling soil, sand, and other loose materials shall be required to cover all trucks or maintain at least two feet of freeboard.
- All paved access roads, parking areas, and staging areas adjacent to the construction sites shall be swept daily (with water sweepers).
- Vegetation in disturbed areas shall be replanted as quickly as possible.

4.10.4 References

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DayZen 2020a – Application for Small Power Plant Exemption, Part 1: Lafayette Data Center (TN233041-1). May 2020. Accessed on: June 5, 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=233041-1&DocumentContentId=65519

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Santa Clara 2021 – City of Santa Clara 2020 Urban Water Management Plan (UWMP). Prepared by the city of Santa Clara Water and Sewer Utilities. Adopted June 22, 2021. Accessed on: August 2, 2021. Available online at: https://www.santaclaraca.gov/home/showpublisheddocument/74073/637606452907100000

USGS 2018 – United States Geological Survey, San Jose West Quadrangle, 7.5-minute series, Published 2018. Accessed on: June 10, 2021. Available online at: https://viewer.nationalmap.gov

4.11 Land Use and Planning

This section describes the environmental setting and regulatory background and discusses impacts associated with the construction and operation of the project with respect to land use and planning.

LAND USE AND PLANNING Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.11.1 Environmental Setting

The proposed project would be built on relatively flat land in an urban area within the city of Santa Clara that is developed with various industrial and commercial uses. Lafayette Street borders the west side of the project site, and Central Expressway borders the north side. Railroad tracks used by the Altamont Commuter Express and Amtrak's Capitol Corridor are adjacent to the east side of the project site. Norman Y. Mineta San José International Airport is located approximately 930 feet east of the project site's eastern boundary. Digital Realty owns a separate data center on the adjacent property south of the project site.

The project site is currently developed with two, two-story office buildings (approximately 326,000 square feet), loading docks, and associated paved parking. The buildings and other structures on the site would be demolished as part of the project.

Regulatory Background

Federal

No federal regulations relating to land use and planning apply to the project.

State

No state regulations relating to land use and planning apply to the project.

Local

Airport Comprehensive Land Use Plan. The Santa Clara County Airport Land Use Commission (ALUC) adopted the Comprehensive Land Use Plan (CLUP) for the San José International Airport in 2011; the ALUC approved minor amendments to the CLUP in

2016. The purpose of the CLUP is to safeguard the general welfare of the inhabitants in the airport vicinity and the aircraft occupants. It is also intended to ensure that new land uses do not affect airport operations.

The project site is located within the designated Airport Influence Area (AIA), which is a "composite of the areas surrounding the airport that are affected by noise, height, and safety considerations." "The AIA is defined as a feature-based boundary around the airport within which all actions, regulations and permits must be evaluated by local agencies to determine how the Airport Comprehensive Land Use Plan policies may impact the proposed development" (ALUC 2016). (The project's conformance with applicable policies is discussed below under, "4.11.2 Environmental Impacts.")

The CLUP identifies general compatibility policies that apply to ALUC consistency review, including the following:

- Policy G-5 – Where legally allowed, dedication of an avigation easement to the City of San José shall be required to be offered as a condition of approval on all projects located within an Airport Influence Area, other than reconstruction projects as defined in paragraph 4.3.7 [of the CLUP]. All such easements shall be like that shown as Exhibit 1 in Appendix A [of the CLUP].
- Policy G-6 – Any proposed uses that may cause a hazard to aircraft in flight are not permitted within the AIA. Such uses include electrical interference, high intensity lighting, attraction of birds (certain agricultural uses, sanitary landfills), and activities that may produce smoke, dust, or glare. This policy requires the height at maturity of newly planted trees to be considered to avoid future penetration of the Federal Aviation Administration (FAA) Federal Aviation Regulations (FAR) Part 77 surfaces.
- Policy G-7 – All new exterior lighting or large video displays within the AIA shall be designed to create no interference with aircraft operations. Such lighting shall be constructed and located so that only the intended area is illuminated, and off-site glare is fully controlled. The lighting shall be arrayed in such a manner that it cannot be mistaken for airport approach or runway lights by pilots.

Policies concerning height compatibility are as follows:

- Policy H-1 – Any structure or object that penetrates the FAR Part 77, *Objects Affecting Navigable Airspace*, (FAR Part 77) surfaces as illustrated in Figure 6 [of the CLUP], is presumed to be a hazard to air navigation and will be considered an incompatible land use, except in the following circumstance. If the structure or object is above the FAR Part 77 surface, the proponent may submit the project data to the FAA for evaluation and air navigation hazard determination, in which case the FAA's determination shall prevail.
- Policy H-2 – Any project that may exceed a FAR Part 77 surface must notify the FAA as required by FAR Part 77, Subpart B on FAA Form 7460-1, *Notice of Proposed Construction or Alteration*. (Notification to the FAA under FAR Part 77, Subpart B, is

required even for certain proposed construction that does not exceed the height limits allowed by Subpart C of the FARs).

The objective of safety compatibility is to minimize the risks associated with potential aircraft accidents. Safety impacts are evaluated according to the Airport Safety Zones shown in Figure 7 of the CLUP. The project site is located inside the Traffic Pattern Zone, and portions of the site are in the Turning Safety Zone and Inner Safety Zone. Safety compatibility includes a policy concerning fuel and hazardous materials storage:

- Policy S-4 – Storage of fuel or other hazardous materials shall be prohibited in the Runway Protection Zone. Above ground storage of fuel or other hazardous materials shall be prohibited in the Inner Safety Zone and Turning Safety Zone. In the Sideline Safety Zones and Outer Safety Zones, storage of fuel or other hazardous materials not associated with aircraft use should be discouraged.

Safety compatibility policies concerning uses that are prohibited in all Airport Safety Zones include the following under Policy S-7:

- Any use which would generate smoke or water vapor, or which would attract large concentrations of birds, or which may otherwise negatively affect safe air navigation within the area.
- Any use which would generate electrical interference that may be detrimental to the operation of aircraft and/or aircraft instrumentation, communication, or navigation equipment.

General Plan. The *City of Santa Clara 2010–2035 General Plan* (General Plan) was adopted November 16, 2010. The General Plan Map 2018 shows the project site is in an area of contiguous properties designated Light Industrial. "This classification is intended to accommodate a range of light industrial uses, including general service, warehousing, storage, distribution, and manufacturing. It includes flexible space, such as buildings that allow combinations of single and multiple users, warehouses, mini-storage, wholesale, bulk retail, gas stations, data centers, indoor auto-related uses and other uses that require large, warehouse-style buildings." The maximum floor area ratio (FAR) is 0.60 (Santa Clara 2010). The General Plan Map 2018 shows the surrounding area including Heavy Industrial and Low Intensity Office/R&D land use designations.

Section 5.3.5 of the General Plan contains policies pertaining to industrial and office land use development, including a policy on conformance with building height requirements as it pertains to the FAA:

- 5.3.5-P7 – Require building heights to conform to the requirements of the Federal Aviation Administration, where applicable.

Section 5.10.5 of the General Plan contains policies on safety, including airport hazards and airspace protection. Policies concerning projects located in the Airport Influence Area are as follows:

- 5.10.5-P29 – Continue to refer proposed projects located within the Airport Influence Area to the Airport Land Use Commission.
- 5.10.5-P30 – Review the location and design of development within Airport Land Use Commission jurisdiction for compatibility with the Airport Land Use Compatibility Plan.
- 5.10.5-P31 – Discourage schools, hospitals, sensitive uses, and critical infrastructure, such as power plants, electric substations and communications facilities, from locating within specified safety zones for the Airport as designated in the Airport Comprehensive Land Use Plan.
- 5.10.5-P32 – Encourage all new projects within the Airport Influence Area to dedicate an avigation easement.
- 5.10.5-P33 – Limit the height of structures in accordance with the Federal Aviation Administration Federal Aviation Regulations, FAR Part 77 criteria.

Zoning Code. The project site is in the MH – Heavy Industrial zoning district (Santa Clara 2022, Chapter 18.50). Permitted uses include "[a]ny manufacturing, processing, assembling, research, wholesale, or storage uses that, in the opinion of the Planning Commission, shall not be objectionable by reason of the production of offensive noise, smoke, odor, dust, noxious gases, vibrations, glare, heat, fire hazards, industrial wastes, or handling of explosives or dangerous materials" (Santa Clara 2022, § 18.50.030, subd. (b)).

The MH zoning district industrial site and building requirements include the following (Santa Clara 2022, Chapter 18.50):

- The maximum building height is 70 feet.
- The yard requirements (minimum setbacks):
  - Front yard – 15 feet
  - Side yard (street side yard of each corner lot exclusive of front yard) – 15 feet
  - Rear yard – none

The Zoning Administrator has the authority to permit a "minor modification" to the building height regulation so long as the increase does not exceed 25 percent of the zoning district's permitted maximum height. The height of mechanical equipment and any accompanying screening is subject to approval by the Director of Community Development (Santa Clara 2022, §§ 18.90.020, subd. (a); 18.50.140, subd. (f)).

4.11.2 Environmental Impacts

a. Would the project physically divide an established community?

Construction and Operation

No Impact. Staff reviewed aerial and street view imagery (Google Maps) and site photographs. Historical photographs show that the project would be constructed and operated in an area that was developed with manufacturing and industrial uses starting in the mid-1950s. The project site and surrounding area have been developed with technology and data management businesses and light industrial uses, including general service, warehousing, storage, distribution, and manufacturing. The project would be consistent with past and existing uses in the area. No changes are proposed involving construction of new facilities that could physically divide the community or separate one part of a neighborhood from the other. Therefore, project construction and operation would not physically divide an established community, and no impact would occur.

b. Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Construction and Operation

Less Than Significant Impact. As discussed in the subsections that follow, construction and operation of the project would not conflict with any applicable land use plans, policies, or regulations such that significant environmental impacts would occur.

Airport Comprehensive Land Use Plan. CEC staff reviewed the project for conformance with applicable policies from the CLUP. Policy G-5 requires dedication of an avigation easement to the city of San José, which currently holds a 1982 avigation easement governing the height of structures on the project site property. On May 7, 2021, the FAA issued seven Determinations of No Hazard to Air Navigation to the applicant that identify and evaluate structure points A through G for proposed buildings at the site (Digital Realty 2021). The San José Airport Department will review the data from the FAA Determinations of No Hazard as it prepares a new avigation easement in coordination with the city of Santa Clara during the permitting process for the proposed project. Completion of the process required to produce the updated avigation easement would ensure the project would conform to Policy G-5.

Policy G-6 does not permit uses within the AIA that might cause a hazard to aircraft in flight, such as uses that could cause electrical interference; high intensity lighting; attraction of birds; and activities that may produce smoke, dust, or glare. The proposed project would not involve use of any unlicensed high current, high frequency systems capable of interfering with flight operations, neither would it create smoke or dust or involve uses that could attract birds. The project's chillers and emergency diesel-fired generators would emit thermal plumes but not at vertical velocities that would be expected to cause hazards to aircraft in flight, as discussed in section **4.17**

Transportation. The height at maturity of newly planted trees must also be considered. A couple of the proposed species of new trees listed in the applicant's revised project information (honey locust and Southern magnolia) could reach heights at maturity between approximately 60 and 80 feet tall (Digital Realty 2023a), which would not likely exceed the height of the proposed project's tallest structures (discussed below). The proposed project would not cause hazardous conditions for aircraft in flight. Therefore, the project would conform to Policy G-6.

Policy G-7 requires exterior lighting to be constructed and located to fully control off-site glare. As discussed in section **4.1 Aesthetics**, outdoor lighting would be directed or shielded to ensure the project would not create a new source of substantial light or glare. Therefore, the project would conform to Policy G-7.

Policies H-1 and H-2 specify requirements to ensure that structures do not pose hazards to air navigation. As described above, the FAA issued seven Determinations of No Hazard to Air Navigation to the applicant; structural height data is provided for seven mapped building points for the proposed project (Digital Realty 2021). With issuance of the Determinations of No Hazard to Air Navigation, the FAA concluded that structure heights would not exceed obstruction standards. Project structures would not penetrate or obstruct any Federal Aviation Regulations Part 77 surfaces. (See sections **4.9 Hazards and Hazardous Materials** and **4.17 Transportation** for the analysis details.) Therefore, the project would conform to policies H-1 and H-2.

Policy S-4 prohibits above ground storage of fuel or other hazardous materials in the Inner Safety Zone and Turning Safety Zone. The applicant revised the project description to include installing the fuel tanks on the east side of the site in recessed concrete trenches with the tops of the tanks matching adjacent grade (Digital Realty 2022). With this change, the project would conform to Policy S-4. (As described in section **4.9 Hazards and Hazardous Materials**, the ALUC previously ruled on another project's design modification, the Sequoia Data Center, and determined that lowering the fuel tanks below grade would conform to Policy S-4.)

Policy S-7 prohibits uses in all Airport Safety Zones that would generate smoke or water vapor, attract large concentrations of birds, negatively affect safe air navigation, or generate electrical interference. As described for Policy G-6, above, the proposed project would not involve use of any unlicensed high current, high frequency systems capable of interfering with flight operations, neither would it create smoke or dust or involve uses that could attract birds. The proposed project's air-cooled chillers would be mounted on the data center roofs for building and server room cooling. The chillers would not use or discharge water or cause formation of visible plumes. Therefore, the project would conform to Policy S-7.

The ALUC will review the project, including this environmental document, prior to issuing a final consistency determination letter listing conditions that the project owner must satisfy. The conditions will include the updated avigation easement and the plan to underground specific fuel tanks on the east side of the site. With its conditions met, the

ALUC could find the proposed project to be consistent with the CLUP. Staff anticipates including a discussion of ALUC requirements in the final environmental impact report for the project. (See also section **4.9 Hazards and Hazardous Materials** for an analysis of the proposed project's conformance with the CLUP.)

General Plan. The project site is in an area with the General Plan land use designation of Light Industrial (Santa Clara 2010). The project involves a use consistent with uses allowed in this land use designation, as discussed below.

Floor area ratio is a tool for local governments to predict and limit the intensity of land uses and their resulting environmental impacts. The floor area ratio, or FAR, of a development is the total square footage of a building(s) on a lot divided by the total lot area. The Light Industrial land use designation has a maximum FAR of 0.60. The applicant's revised project information shows the data center building with a total of 575,401 square feet (sq. ft.). With a lot line adjustment, the proposed project site would cover approximately 15.45 acres, or 673,002 sq. ft. (Digital Realty 2023b). Using those values, CEC staff determined FAR to be 0.85.

On July 18, 2019, the applicant met with city of Santa Clara (city) staff as part of the Project Clearance Committee (PCC) review process. The project's floor area ratio was discussed with city staff, and it was agreed that a FAR of 0.90 would be set as a not-to-exceed threshold for the project, which is greater than the General Plan's maximum floor area ratio of 0.60 for the Light Industrial land use designation. According to the applicant, city staff agreed at the meeting that an increase in the allowable FAR may be obtained for data centers due to the nature of their low-population use (Digital Realty 2020). The project's FAR of 0.85 is below the revised 0.90 threshold set for the project. According to city staff, the applicant is resubmitting for PCC review as of February 2023. Because the purpose of the proposed data center project has not changed, CEC staff assumes that the previously accepted FAR threshold will also not change during the city's PCC review process. Therefore, the project would conform to the FAR standard for properties designated Light Industrial.

Sections 5.3.5 and 5.10.5 of the General Plan contain several policies addressing safety for projects located in the Airport Influence Area (policies listed above under "Regulatory Background"). These policies duplicate the content or intent of policies contained in the CLUP and evaluated by staff in the subsection above, "Airport Comprehensive Land Use Plan." As discussed above, the ALUC's final consistency determination letter is expected to specify conditions that the project owner must satisfy to ensure the project's consistency with the CLUP. With these conditions met, the project would also conform to policies contained in sections 5.3.5 and 5.10.5 of the General Plan.

Zoning Code. Maximum permitted building height in the MH – Heavy Industrial zoning district is 70 feet. Height of buildings is defined as the vertical distance from the adjacent ground elevation "to the highest point of the coping of a flat roof…" (Santa Clara 2022, §§ 18.50.070; 18.06.010, subd. (h)(1)). The applicant's revised project information shows the data center building would have an approximate height of 64½ feet from the ground

floor to the top of the parapet[1] (Digital Realty 2023b). Therefore, the project would conform to the City's regulation limiting height of buildings in the MH zoning district.

The City's Special Height Regulations specify additional requirements, conditions, and exceptions for height limits: "[T]he height limitations contained in the schedule of [zoning] district regulations do not apply to spires, belfries, cupolas, antennas, water tanks, ventilators, chimneys, or other mechanical appurtenances usually required to be placed above the roof level and not intended for human occupancy or to be used for any commercial or advertising purposes" (Santa Clara 2022, § 18.64.010, subd. (a)). The height of exposed mechanical equipment and any accompanying screening is subject to approval by the Director of Community Development (Santa Clara 2022, § 18.50.140, subd. (f)). The applicant's revised project information shows the screen wall enclosing rooftop mechanical equipment would have an approximate height of 73 feet from the ground floor. The height to the top of the elevator and stair penthouse to access the roof would be approximately 82 feet from the ground floor (Digital Realty 2023b). With the Director's approval, the heights and screening for the mechanical equipment and the penthouses for roof access would conform to the City's Special Height Regulations. Consistent with the Zoning Code, the project's site plan shows a street side front yard along Lafayette Street and street side yard of a corner lot of at least 15 feet. The project would conform to the minimum setback requirements, and no conflict would occur (Santa Clara 2022, §§ 18.50.080, 18.50.090).

The applicant submitted a Master Plan application to the City in November 2019. As stated above, the applicant is resubmitting for City PCC review. As the permitting agency for the project, the City will ensure that project plans meet its regulatory requirements and all airport operations and aircraft safety requirements and conditions imposed on the project. Therefore, the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, and impacts would be less than significant.

4.11.3 Mitigation Measures

None.

4.11.4 References

ALUC 2016 – Santa Clara County Airport Land Use Commission. Comprehensive Land Use Plan, Santa Clara County, Norman Y, Mineta San José International Airport. Pages 1-1, 3-17, 4-4 to 4-8; Figures 6, 7, and 8. Adopted by Santa Clara County Airport Land Use Commission, San José, CA. May 25, 2011; amended November 16, 2016. Accessed on: June 10, 2020. Available online at: https://www.sccgov.org/sites/dpd/Commissions/ALUC/Pages/ALUC.aspx

1 The parapet refers to that part of a perimeter wall immediately adjacent to a roof and extending above the roof. In other words, it is a vertical extension of the wall at the edge of the roof. As a roofing term, coping is a protective cover on top of the wall that is typically slanted or curved to shed water.

Digital Realty 2020 – (TN 234818). *Lafayette Backup Generating Facility (20-SPPE-02) Response to CEC Staff Data Request Set 2 (96–103)*. Response to Data Request 96, Project Description. September 2020. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-02

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Digital Realty 2022 – (TN 242558). *Lafayette Backup Generating Facility Below Grade Generator Tank Drawings*. Submitted April 5, 2022. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-02

Digital Realty 2023a – (TN 248685). *Lafayette Backup Generating Facility Revised Project Description to Conform to Data Responses and PCC, Part II*. Plant Palette Imagery. Docketed February 7, 2023. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=20-SPPE-02

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4.12 Mineral Resources

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project with respect to mineral resources. Analysis of impacts is limited to project components where ground disturbance would occur, and operation of new facilities would limit access to mineral resources.

MINERAL RESOURCES Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.12.1 Environmental Setting

Information on mineral resources was compiled from published literature, maps, and review of aerial photographs. Impacts to mineral resources from project construction and operational activities were evaluated qualitatively based on the area occupied by the project, site conditions, expected construction practices, anticipated materials used, and the locations and duration of project construction and operational activities.

The project site, located in the city of San Jose within Santa Clara County, is in an area identified as Mineral Resource Zone 1 (MRZ-1) for aggregate materials by the State of California (Kohler-Antablin 1996). MRZ-1 refers to an area where available geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood for their presence exists (Kohler-Antablin 1996). The project site and surrounding area are not known to support significant mineral resources of any type. In addition, the Division of Mine Reclamation's list of mines, referred to as the AB 3098 List and regulated under the Surface Mining and Reclamation Act (SMARA), does not include any mines within the city of Santa Clara (DOC 2016).

Regulatory Background

Federal

No federal regulations related to mineral resources apply to the project.

State

Surface Mining and Reclamation Act. SMARA requires that the State Geologist classify land into MRZ or Scientific Zones according to the known or inferred mineral potential of the land (Pub. Resources Code, §§ 2710-2796).

MRZs are defined as the following (Kohler-Antablin 1996):

- MRZ-1: Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood for their presence exists.
- MRZ-2: Areas where adequate information indicates that significant deposits are present, or where it is judged that a high likelihood for their presence exists. The guidelines set forth two requirements to be used to determine if land should be classified MRZ-2:
    - The deposit must be composed of material that is suitable as a marketable commodity.
    - The deposit must meet threshold value. The projected value (gross selling price) of the deposit, based on the value of the first marketable product, must be at least $5 million (1978 dollars).
- MRZ-3: Areas containing mineral deposits, but their significance cannot be evaluated from available data.
- MRZ-4: Areas where available information is inadequate for assignment to any other MRZ category.

Scientific Zones are defined as: Areas containing unique or rare occurrence of rocks, minerals, or fossils that are of outstanding scientific significance shall be classified in this zone.

4.12.2 Environmental Impacts

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

Construction

No Impact. The project site is in a developed urban area and does not contain any known or designated mineral resources. Therefore, the project would not result in the loss of availability of a known mineral resource.

Operation

No Impact. The project site is in a developed urban area and does not contain any known or designated mineral resources. Therefore, the project would not result in the loss of availability of a known mineral resource recovery site.

b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Construction

No Impact. The project site is in an area and does not contain any known or designated mineral resources. Therefore, the project would not result in the loss of availability of a locally important mineral resource recovery site.

Operation

No Impact. The project site is in an area and does not contain any known or designated mineral resources. Therefore, the project would not result in the loss of availability of a locally important mineral resource recovery site.

4.12.3 Mitigation Measures

None.

4.12.4 References

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4.13 Noise

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project.

NOISE Would the project result in:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.13.1 Environmental Setting

The project area consists primarily of heavy industrial land uses. A data center facility is located directly south of the project site and is designated heavy industrial use (Santa Clara 2014, §5.2.2). A building designated commercial use lies just south of the existing data center on Walsh Ave. The project site is bounded to the north by the Central Expressway. On the north side of the expressway is an area zoned as Heavy Industrial (MH) which is occupied by several industrial structures. Tucked within those industrial structures, and approximately 400 feet from the northern boundary of the project site, are four non-conforming residential units that were built in the 1960's. According to the city of Santa Clara, the existence of those non-conforming units does not make that area a residential area. Thus, the noise limits for the heavy industrial zone would apply to the non-conforming residential units (LDC 2022). The nearest conforming residential area is located on Avila Avenue and is approximately 0.7 mile south of the project site boundary. The nearest noise sensitive land use is Memorial Cross Park, located about 2,200 feet to the southeast of the southernmost project boundary, adjacent to Norman Y. Mineta San Jose International Airport located approximately 0.3 mile east of the project site. In addition, there is a set of railroad tracks located approximately 175 ft to the east of the

project site, however, there is no information about whether those tracks are active and, if they are, the frequency of trains running through that area. The predominant ambient noise sources are attributed to the automobile traffic and from aircraft arriving to and departing from the airport. Additional ambient noise in the immediate project area includes mechanical noise from the data center to the south of the project site, and the Owens Corning industrial site to the west, as well as intermittent vehicular traffic on Lafayette Street and possibly train traffic on the racks to the east of the project site.

An ambient noise monitoring program was conducted in the areas surrounding the project site between May 29, 2019 and May 31, 2019 (DayZen 2020a, section 4.13.1.2). At ST-1 located at the northeast corner of the project site, daytime L_{eq}[1] noise levels ranged between 58 and 69 dBA, with spikes as high as 85 dBA due to airplane takeoff and landing. Due to air traffic to and from the nearby airport, the 10-minute equivalent noise level at that location was 69 dBA. Noise level measurements at ST-4, located at the western parking lot of the project site, adjacent to Lafayette Street, averaged 68 dBA. The noise generated was due to the Owens Corning industrial site and vehicle traffic on Lafayette Street to the west. The overall high noise levels in the project vicinity are mostly due to airport operations. At the data center property line directly south of the project, the measured noise levels averaged 62 dBA L_{eq}. At a monitoring point between the buildings surrounding the project site, noise levels ranged between 52 and 60 dBA due to the shielding effect of the structures that results in attenuating noise coming from airport operations. It is worth mentioning that a noise survey was conducted in February 2019 in the same vicinity for the Walsh Data Center. That survey showed similar results for the similar observation points in the industrial areas (Walsh 2019).

Regulatory Background

Thresholds of Significance

There are no adopted thresholds for an increase in dBA level to be considered a significant impact for construction activities. Generally, noise due to construction activities are considered to be less than significant if the construction activity is temporary and the use of heavy equipment and noisy activities is limited to daytime hours. However, an increase of 10 dBA or more during the day can be perceived as noisy (triggering a community reaction) and warrant additional measures to address the noise levels. An increase of 10 dBA corresponds to doubling of loudness or dBA level and is generally considered to be the starting point at which significant impacts may occur. The exact level of noise resulting from construction is very difficult to identify because it fluctuates based on many factors over the course of a week, day, or even hour. It also depends on other factors, such as intervening structures, land topography and land cover. For example, intervening structures block or impede sound waves, and undulating topography and land roughness would play a role in attenuating the propagation of noise waves. Therefore, performance

[1] L_{eq} is a measurement of average energy level intensity of noise over a given period of time.

standards (i.e., a complaint and redress process) are ultimately used as a backstop measure to address any adverse impacts that are perceived by the community.

Federal

None.

State

The CEQA Guidelines state that a project would normally be considered to have a significant impact if noise levels conflict with adopted environmental standards or plans, or if noise levels generated by the project would substantially increase existing noise levels at noise-sensitive receivers on a permanent or temporary basis. CEQA does not define what noise level increase would be substantial. Generally, an increase of 3 dBA is noticeable and an increase of 5 dBA is distinct. A noise level increase of greater than 5 dBA may be considered potentially significant. Some factors, such as the frequency of occurrence of the noise and time of day/night it occurs, are considered in determining if such an increase is clearly significant or not.

In September 2013, California Department of Transportation (Caltrans) released the Transportation and Construction Vibration Guidance Manual, available at http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf. This manual includes the FTA method and findings. The Caltrans manual states that for construction activities that generate vibration, the threshold of human response begins at a peak particle velocity of 0.16 in/sec. This is characterized by Caltrans as a "distinctly perceptible" event with an incident range of transient to continuous (Caltrans 2013). A level of 0.20 in/sec has been found to be annoying to people in buildings and can pose a risk of architectural damage to buildings.

Local

City of Santa Clara 2010-2035 General Plan. The City of Santa Clara 2010-2035 General Plan describes the levels of exterior noise considered compatible for various land uses to guide land use planning decisions. The Santa Clara Municipal Code, discussed below, establishes more specific sound limits (Santa Clara 2019). The General Plan also includes several policies that aim to keep noise levels to within acceptable levels and avoid nuisance to residents. The following are policies applicable to the project:

Policy 5.10.6-P1: Review all land use and development proposals for consistency with the General Plan compatibility standards and acceptable noise exposure levels defined on Table 5.10-1.

Policy 5.10.6-P3: New development should include noise control techniques to reduce noise to acceptable levels, including site layout (setbacks, separation and shielding), building treatments (mechanical ventilation system, sound-rated windows, solid core doors and baffling) and structural measures (earthen berms and sound walls).

Policy 5.10.6-P4: Encourage the control of noise at the source through site design, building design, landscaping, hours of operation and other techniques.

Policy 5.10.6-P5: Require noise-generating uses near residential neighborhoods to include solid walls and heavy landscaping along common property lines, and to place compressors and mechanical equipment in sound-proof enclosures.

Policy 5.10.6-P7: Implement measures to reduce interior noise levels and restrict outdoor activities in areas subject to aircraft noise in order to make Office/research and Development uses compatible with the Norman Y. Mineta San José International Airport land use restrictions.

City of Santa Clara Municipal Code. Chapter 9.10 (noise ordinance) of the City of Santa Clara Municipal Code applies to the regulation of noise and vibration for this project. Section 9.10.040 specifies the exterior noise limits that apply to land use zones within the city. The city's exterior noise limit is 75 dBA (anytime) for heavy industrial land use zones, 70 dBA (anytime) for light industrial land use zones, 65 dBA daytime and 60 dBA nighttime for commercial land uses, and 55 dBA daytime and 50 dBA nighttime for residential land uses. The city's noise limits for stationary noise sources are not applicable to emergency work, including the operation of emergency generators during an emergency (Section 9.10.070); however, intermittent testing of emergency generators is subject to the local noise regulations defined in the city's noise ordinance (Santa Clara 2019).

Section 9.10.050 (Vibration Regulation) of the Municipal Code prohibits activities that generate vibration levels above the vibration perception threshold of an individual at the closest property line point to the vibration source.

Section 9.10.060 (c) (Noise, sound, or vibration evaluation criteria): If the measured ambient noise level at any given location differs from those levels set forth in SCCC 9.10.040, Schedule A, the allowable noise exposure standard shall be adjusted in five dBA increments in each category as appropriate to encompass or reflect said ambient noise level.

4.13.2 Environmental Impacts

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Construction

Less Than Significant with Mitigation Incorporated. In addition to construction of the LDC, the project would require demolition of existing structures and foundations and removal of underground utilities. Demolition and construction activities would likely utilize equipment that could generate noise levels that exceed ambient noise, such as bulldozers and jackhammers. Typical equipment used for construction and demolition of similar

projects produces noise levels between 82 (for trenching and foundation) and 91 dBA (for demolition) at 50 feet. The project application also indicates that impact pile driving might be used at the site but for short durations to install deep foundation piles. Impact pile installation can generate an equivalent hourly noise level, L_{eq}, of 95 dBA 50 feet away.

The city's Municipal Code does not establish construction noise sources in its prescribed noise level limits, but limits construction and demolition activities to occur during the daytime hours of 7:00 a.m. to 7:00 p.m. Monday through Friday, and prohibits construction work on weekends at sites within 500 feet of residential uses unless permission is granted with a development permit or other planning approval. There are no residences within 500 feet from the project site boundary.

It is well understood in the field that sound levels from stationary noise sources attenuate in an inverse exponential pattern at a rate of 6 dBA for every doubling of distance. At the data center located about 100 feet directly to the south, the highest hourly equivalent noise level of 89 dBA (from impact pile driving) translates to an exterior level of 83 dBA. This is an increase of 21 dBA above the ambient level in the project vicinity (62 dBA). Since staff working at data centers are normally indoors, the noise level is adjusted by about 25 dBA from outside to inside resulting in a noise level of 58 dBA. Besides, typically, data centers are staffed with very few workers; no more than a handful of employees work at data centers at a time. Also, if needed, quieter equipment or commonly used noise-reducing accessories that are readily available can be used to reduce noise. Several best management methods are available for reducing noise and vibration generated by traditional pile driving. These methods include, but are not limited to: (1) the use of pads or impact cushions of plywood; (2) dampened driving, which involves some form of blanket or enclosure around the hammer; (3) equipping jackhammers with mufflers that reduce noise exposure; and (4) the use of vibratory drivers or hydraulic pile pushers instead of impact drivers. These methods can be effective in reducing the noise by 8 dBA to 15 dBA compared to un-silenced pile drivers. Taking all these factors into consideration, the noise level increase is therefore not considered significant, especially that the use of the loudest equipment would be infrequent and for short durations (i.e., jackhammer to break up pavement and concrete and impact pile driving for pile installation).

Using the rate of 6 dBA for every doubling of distance, at the residences 3,800 feet, or 0.7 mile away, the attenuation is about 38 dBA. Reducing the noise level of the loudest piece of equipment (95 dBA) by 38 dBA, the exterior sound that would be detected at the closest residence would be 57 dBA. However, this does not account for the shielding effects of 6 to 8 rows of buildings that separate the construction site from the nearest residences. According to the Federal Transit Authority (FTA), the shielding effect due to rows of structures is a 4.5-dBA reduction for the first row and 1.5-dBA reduction per row for the subsequent rows, with a maximum of 10 dBA (FTA 2018 – Table 4-17). Taking the shielding effect at least 6 rows of structures into account, the resulting noise level would be reduced by 10 dBA, bringing the projected noise level to well below the average daytime ambient noise level at this residential area and would not have a noticeable

impact. Projecting the noise caused by the loudest construction activity to the Memorial Cross Park at about 2,200 feet southeast of the project's southernmost boundary results in a noise level of 62 dBA. Again, that's below the ambient noise level in the park's vicinity, especially that the park is right next door to the San Jose International Airport. Furthermore, demolition and construction activities would occur only during daytime hours, and the loudest equipment would be used for limited durations during the day.

While the residential noise limit does not apply to the non-conforming residential units in the heavy industrial area across the Central Expressway, staff chooses to assess the impact of project construction of those units in a conservative approach. Staff projected the noise level from the loudest construction equipment to those units located approximately 400 ft. away. The noise from impact pile driving, or 95 dBA at 50 ft., translates to approximately 77 dBA at those units. That's a conservative estimate since it assumes that the loudest activity would occur right at the boundary closest to those units. The loudest activity would occur mostly closer to the center of the project site and would only occur closest to the non-confirming residential units for a fraction of the construction time. If the loudest activity is assumed to occur closer to the center of the project, approximately 700 ft. away from those residential units, the projected noise due to the loudest construction activity would be about 72 dBA. That would be about 4 dBA above the ambient noise level of 68 dBA (the lower of the measured noise levels at ST-1 (68 to 69 dBA) and ST-4 (68 dBA), which are the closest to the residential units).

As discussed above, an increase of 10 dBA or more during the day can be perceived as noisy (triggering a community reaction) and warrant additional measures to address noise levels. An increase of 10 dBA corresponds to doubling of loudness or dBA level and is the starting point for significant impacts. Again, the loudest construction activities can elevate the existing ambient noise levels at the nearest non-conforming residences by up to 9 dBA when the activity takes place at the project site portion closest to the non-conforming residences. The increased noise level would not result in a significant impact—the loudest construction activities would be temporary and would last for short periods.

Furthermore, the applicant plans to implement appropriate measures to reduce demolition and construction noise (DayZen 2020a). Also, as part of the application for demolition permits from the city, city regulations require the applicant to prepare a construction noise control plan to be submitted for review and approval by the city's Director of Community Development prior to issuance of the demolition permit. Examples of measures that would be included in this plan are temporary noise barriers and blankets, equipping all internal combustion engine-driven construction equipment with intake and exhaust mufflers that are in good condition, and locating noisy equipment as far away from noise-sensitive receptors as feasible.

Moreover, performance standards (i.e., a complaint and redress process) are ultimately used as a backstop measure to address any impacts that might be perceived by the community. Therefore, staff proposes **NOI-1**, requiring a complaint and redress process

be implemented to ensure construction noise impacts would not be significant, as perceived by the community.

With implementation of **NOI-1**, the project's construction noise impact would be less than significant.

Operation

Less Than Significant Impact. The emergency generators would provide backup power to the data center building if an equipment failure or other conditions result in an interruption of the electricity provided by Silicon Valley Power (SVP). Sources of operational noise for LDC would include the 45 backup generators, 93 air-cooled chillers, 37 rooftop units, and 22 makeup air units. A sound-attenuating enclosure would be provided for each backup generator that is designed to limit noise to 80 dBA at 23 feet (DayZen 2020a – section 4.13.2). The generator yard would be enclosed with a 12-foot tall sound attenuating screen wall. In addition, an 11-foot tall rooftop parapet would be installed on top of the data center building to act as a noise screen.

As described above, the city's exterior noise limit is 75 dBA (anytime) for heavy industrial land use zones, 70 dBA (anytime) for light industrial land use zones, 65 dBA daytime and 60 dBA nighttime for commercial land uses, and 55 dBA daytime and 50 dBA nighttime for residential land uses. The applicant performed computer noise modeling using the industry-accepted and widely-used noise prediction software, CadnaA (DayZen 2020a – Appendix F). Modeling was performed for three scenarios: 1) normal mode, with air-cooled chillers, makeup air units, and HVAC units operating; 2) testing mode including all rooftop equipment and one generator operating at the same time; and 3) emergency mode consisting of normal mode of operation and all of the generators operating at the same time. The noise model assumed all the generators, air-cooled chillers, makeup air units, and HVAC units were operating at full load. It should be noted that the model assumed that the receivers are located at a height of 14.75 feet, equivalent to the second story in a building, which is a more conservative assumption than the 5-foot elevation required by the city regulations. At an elevation of 14.75 feet, the shielding effect would be smaller and thus the perceived noise level would be higher than at a 5-foot height. Furthermore, the effects of topography were neglected in the analysis, which is another conservative assumption.

For normal mode of operation, the results showed that project noise would be below the city's criteria at the nearest residential area located 0.7 mile away as well as at the data center and commercial buildings to the south of the site.

It should be noted that the noise assessment model included a scenario for emergency operation of the generators for CEQA noise impact determination even though the city regulations exclude emergency operation from its noise regulations.

The results of the model show that during worst-case emergency operation (where normal mode of operation and all of the engine generators operate simultaneously), the

noise level of project operation at the Memorial Cross Park would be 57 dBA without accounting for the effect of the intervening structures between the project site and the park. There are two rows of intervening structures that would reduce noise levels by 4.5 dBA per row (9 dBA total). Thus, the noise levels would be 48 dBA at memorial cross park, which is below the city's noise limit of 55 dBA. Moreover, section 9.10.060 of the city's municipal code allows for the city's noise limit to be superseded by an incrementally adjusted ambient limit, by 5 dBA, should the ambient noise level exceed that of the city's limit. Since the park is within the airport's 65 dBA CNEL and it is so close to the airport's runways, it is reasonable to assume that the ambient noise level at the park is approximately 65 dBA L_{eq}, if not higher. Thus, the adjusted city noise limit would be 65 dBA and the worst-case operational noise level would be below the adjusted city noise limit. Staff interpolated the modeled noise level at the non-conforming residences from one of the modeled noise levels reported by the applicant and found it to be 73 dBA. That is 2 dBA less than the city's limit, but 5 dBA above the ambient noise levels at this area. Again, this worst-case scenario corresponds to all the generators running simultaneously with all the other mechanical equipment at the project, which would likely be an infrequent occurrence. The potential impact would be less than significant. This is consistent with city General Plan's Policy 5.10.6-P1.

Impact from project operation in terms of noise pollution would be less than significant. Project operation would not result in generation of a substantial increase in ambient noise levels exceeding the city's standards.

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Construction

Less Than Significant Impact. Activities associated with demolition of the subgrade infrastructure would likely include vibration generating equipment such as jackhammers and vibratory rollers. This analysis relies on the vibration thresholds identified by Caltrans to determine the significance of vibration impacts related to adverse human reaction. While the city's Municipal Code does not specify a numerical threshold for vibration, the Municipal Code (section 9.10.050) prohibits activities that generate vibration levels above the vibration perception threshold of an individual at the closest property line point to the vibration source. The threshold of human response begins at a peak particle velocity of 0.16 in/sec. Caltrans characterizes this as a "distinctly perceptible" event (Caltrans 2013). A level of 0.20 in/sec has been found to be annoying to people in buildings and can pose a risk of architectural damage to buildings.

Jackhammers can cause a groundborne vibration rate of 0.035 in/sec at 25 feet (less than the threshold of human response) and vibratory rollers can cause a groundborne vibration of 0.21 in/sec at 25 feet, while typical vibration rate caused by impact pile driving at 25 feet is 0.64 in/sec (Caltrans 2013). However, vibration rates dissipate rapidly with distance, and the vibration rate generated by an impact pile driver drops to 0.15 in/sec

at a distance of 100 feet from the source. The closest structures to the project site boundary are industrial buildings located 100 to 160 feet from the site's property line. The vibration rate due to pile driving would be below the threshold of human response; therefore, vibration impacts from project construction and demolition would be less than significant.

Operation

No Impact. Sources of ground-borne vibration associated with project operation would include the backup generators, air-cooled chillers, makeup air units, and rooftop HVAC units. These pieces of equipment are well-balanced, as they are designed to produce very low vibration levels throughout the life of a project. In most cases, even when there is an imbalance, it could contribute to ground vibration levels only in the immediate vicinity of the equipment and would be quickly dampened within a short distance. The proposed backup generators are equipped with specifications that ensure sufficient exhaust silencing to reduce vibration. Therefore, there would be essentially no vibration impacts due to project operation.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Construction and Operation

Less Than Significant Impact. The nearest airport to the project site is the Norman Y. Mineta San Jose International Airport, located approximately 0.3 mile to the east. The project site is located inside the Airport Noise Zone (the 65 CNEL[2] contour, as set forth by state law) as defined in the Comprehensive Land Use Plan for the airport. Aircraft-related noise is occasionally audible at the project site. The project's operational noise levels would not exceed the 24-hour ambient noise levels at the nearest residential receptors. The project site is surrounded with mostly industrial uses and the closest residence is about 0.7 mile away from both the project site and the airport. The project area is fairly noisy due to the presence of the airport nearby and the other industrial and commercial activities. Thus, the project, combined with the airport, would not expose people residing or working in the project area to excessive noise levels. Besides, data center workers, as with other industrial projects, must be protected by the Occupational Safety and Health Administration, or OSHA, requirements of providing hearing protection

[2] CNEL is the average sound level over a 24 hour period, with a penalty of 5 dB added between 7 pm and 10 pm and a penalty of 10 dB added for the nighttime hours of 10 pm to 7 am. CNEL is frequently used in regulations of airport noise impact on the surrounding community.

for employees. Furthermore, implementation of **NOI-1** would ensure that the impact of the project construction would be less than significant.

4.13.3 Mitigation Measures

NOI-1: The project shall implement the following measures to reduce temporary construction noise to less than significant levels.

- Construction is not permitted during the hours of 6 p.m. to 7 a.m. Monday through Friday, between 6 p.m. to 9 a.m. on Saturday, and prohibited on Sundays and holidays.
- Prior to the start of construction, identify a noise control disturbance coordinator. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint received (e.g., starting too early, bad muffler, etc.) and shall ensure that reasonable measures warranted to correct the problem are implemented as soon as possible. If the project coordinator and complainant cannot reach consensus on a noise complaint, the project coordinator shall notify the City's Director of Planning or director's designee of the Santa Clara Department of Planning, Building and Code Enforcement.
- Prior to the start of construction, establish a telephone number for the disturbance coordinator, and post it in a conspicuous location on the construction site.
- Prior to the start of construction, notify, in writing, the neighboring uses within 800 feet from the center of the project site of the construction schedule, and provide a written schedule of "noisy" construction activities to the adjacent land uses.
- Include the telephone number for the disturbance coordinator of the construction site in the above notice regarding the construction schedule sent to the community.
- The project owner shall orient construction equipment and locate construction staging areas within the project site away from its neighbors as much as practicable.

Equip all construction-related internal combustion engine-driven equipment with the best available noise control equipment (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) and use best noise control practices to minimize noise levels from construction activities.

4.13.4 References

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4.14 Population and Housing

This section describes the environmental and regulatory setting and discusses the impacts specific to population and housing associated with the construction and operation of the project.

POPULATION AND HOUSING Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.14.1 Environmental Setting

The project is proposed in the City of Santa Clara in Santa Clara County. Nearby cities include the cities of Campbell, Cupertino, Milpitas, San Jose, and Sunnyvale. The applicant estimates the construction and operations workers would come from the greater Bay Area. Staff considers that the local workers[1] from the greater Bay Area are not likely to temporarily (during construction) or permanently (during operations) move closer to the project. Staff considers the City of Santa Clara as the study area for population and housing-related impacts and the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area (MSA), which covers San Benito and Santa Clara counties, as the setting for labor supply for the project.

Population Growth

The City of Santa Clara has an estimated land area of 18.4 square miles. The Housing Element of the Comprehensive General Plan for the City of Santa Clara (adopted December 2014) forecasts population and housing estimates in three phases, reflecting the near (2010-2015), mid (2015-2023), and long term (2023-2035) horizons. By 2035, the general plan would allow for an additional 32,400 residents (Santa Clara 2014, pg. 2-4). The 2020 population for the city was 127,647 people (US Census 2020).

Association of Bay Area Governments (ABAG) data is used in **Table 4.14-1** to show household growth projections between 2015 and 2050. ABAG divides the Bay Area counties into sub-county areas, called superdistricts. The superdistricts are combinations of cities, towns, and unincorporated areas that represent a more localized pattern of

1 Workers with a greater commute would be considered non-local and would tend to seek lodging closer to the project site (temporarily during construction or permanently during operations).

growth within the Bay Area (ABAG 2021a, page 122). The historical and projected households for the superdistricts within proximity of the project site, plus Santa Clara County is shown in **Table 4.14-1**. The household projections between 2015 and 2050 show a growth ranging from 42 to 199 percent or 1.2 and 5.7 percent per year in superdistricts throughout a 6-mile radius of the project site.

TABLE 4.14-1 HISTORICAL AND PROJECTED HOUSEHOLDS

Superdistrict	Area	2015	2050	Projected Household Change 2015-2050 Number	Projected Household Change 2015-2050 Percent (%)	Projected Household Change 2015-2050 Percent per Year (%)
North Santa Clara County	Sunnyvale, Santa Clara (partial), Mountain View (partial), Milpitas (partial), San Jose (partial), Palo Alto (partial)	107,000	320,000	212,000	199%	5.7%
West Santa Clara County	Los Gatos, Monte Sereno, Saratoga, Cupertino, Campbell (partial), Santa Clara (partial)	121,000	172,000	51,000	42%	1.2%
Central Santa Clara County	Campbell (partial), San Jose (partial)	105,000	168,000	63,000	60%	1.7%
East Santa Clara County	Milpitas (partial), San Jose (partial)	108,000	180,000	453,000	67%	1.9%
Santa Clara County		623,000	1,075,000	602,061	73%	2.1%

Source: ABAG 2021b

Housing

Table 4.14-2 presents housing supply data for the project area. Year 2022 housing estimates indicated 3,557 vacant housing units within the City of Santa Clara and the vacancy rate ranges from 3.3 percent to 6.9 percent for the cities within and around a 6-mile radius of the project site. (CA DOF 2022).

TABLE 4.14-2 HOUSING SUPPLY ESTIMATES IN THE PROJECT AREA			
Housing Supply	**2022 Total Number**	**2022 Vacant Number**	**2022 Vacant Percent**
Campbell	18,427	1,088	5.9
Cupertino	21,757	1,194	5.5
Milpitas	25,349	837	3.3
San Jose	342,902	13,918	4.1
Santa Clara	51,252	3,557	6.9
Sunnyvale	61,722	3,137	5.1
Santa Clara County	664,469	33,053	5.0

Source: CA DOF 2022

By 2035, the general plan would allow for an additional 32,400 residents in 13,312 new housing units, and 25,040 new jobs in 24,253,600 square feet of new non-residential development. This development would occur in addition to "in progress" development taking place under the general plan, for a total population of 154,990 and a total employment base of 152,860 by 2035 (Santa Clara 2014, pg. 2-4). The Santa Clara County regional housing needs assessment allocation forecasts a county need of 129,577 new housing units by 2031. Of the 129,577 new housing units, 11,632 new housing units would be needed in the City of San Clara (ABAG 2021c, page 28).

Labor Supply

According to the California Employment Development Department 2018-2028 Occupational Employment Projections for the San Jose-Sunnyvale-Santa Clara MSA, the 2028 projected employment for the construction and extraction occupations is 47,700, which is a 0.8 percent annual average percent change from 2018 estimated employment levels (44,210) as shown in **Table 4.14-3** (CA EDD 2021). In addition, the projected employment for general and operations managers is 18,260, which is a 0.8 percent annual average percent change from 2018 estimated employment levels (18,260). The projected employment for security guards is 10,420, which is a 0.5 percent annual average percent change from 2018 estimated employment levels (9,910). The projected employment for janitors is 19,710, which is a 0.8 percent annual average percent change from 2018 estimated employment levels (118,810) (CA EDD 2021).

TABLE 4.14-3 PROJECTED EMPLOYMENT GROWTH			
San Jose-Sunnyvale-Santa Clara MSA	**Year 2018**	**Year 2028**	**Annual Average Percent Change**
Construction and Extraction Occupations	44,210	47,700	0.8
General and Operations Managers	16,920	18,260	0.8
Security Guards	9,910	10,420	0.5
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	18,180	19,710	0.8

Source: CA EDD 2022

Regulatory Background

No regulations related to population and housing apply to the project.

4.14.2 Environmental Impacts

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Construction

Less Than Significant Impact. The project would not directly or indirectly induce substantial unplanned growth in the City of Santa Clara. The project does not propose new housing or land use designation changes and would not facilitate growth by extending growth inducing infrastructure such as roads, water supply pipelines, or other growth inducing infrastructure. While the project includes 45 backup generators (44 for the data center suites and 1 for the power base building), the electricity produced would directly serve the project if utility power interruptions occurred and would not be an extension of infrastructure that would result in indirect population growth.

Construction activities would last approximately 24 months to the initial occupancy of the building. (DayZen 2020a, pg. 16). Interior room buildout would continue as suites are leased indoors to bring the building to full occupancy (DayZen 2023a, page 12). Construction of the project would employ an average of 90 workers and reach a peak workforce of 175 workers in month 10 (DayZen 2020b).

The applicant anticipates the construction workforce for the project would be sourced locally from the greater Bay Area (DayZen 2020b). As shown in the "Setting" subsection of this analysis, there is a sufficient local construction workforce in the San Jose-Sunnyvale-Santa Clara MSA to accommodate the project; thus, the construction workforce would not likely seek temporary lodging closer to the project site. Therefore, the project's construction workforce would not directly or indirectly induce substantial population growth in the project area. The impact would be less than significant.

Operation

Less Than Significant Impact. The project would employ 30 to 35 operations workers (DayZen 2020a). The applicant anticipates the operations workforce would be sourced from the greater Bay Area (DayZen 2020b). Based on the proximity of the supply of operations workers, they are not likely to relocate closer to the project. As shown in the "Setting" subsection of this analysis, there is a sufficient local operations workforce in the San Jose-Sunnyvale-Santa Clara MSA. If some operations workers were to relocate, housing data shows a vacancy rate of 5.4 percent in the City of Santa Clara. A 5-percent vacancy is a largely industry-accepted minimum benchmark for a sufficient amount of

housing available for occupancy (Virginia Tech 2006). There is a sufficient supply of available housing units for the possible few operations workers that could seek housing closer to the project. In addition, the city's general plan has accounted for population growth in the City of Santa Clara, which includes the project site designated as Light Industrial with data centers as an allowable use. Therefore, the project's operations workforce would not directly or indirectly induce a substantial unplanned population growth in the project area. The impact would be less than significant.

b. Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Construction and Operation

No Impact. The project would occur on a parcel currently occupied by two two-story office buildings and therefore would not displace any people or housing. Construction of replacement housing elsewhere would not be necessary and thus, no impact would occur.

4.14.3 Mitigation Measures

None.

4.14.4 References

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4.15 Public Services

This section describes the environmental and regulatory setting and discusses impacts specific to public services associated with the construction and operation of the project.

PUBLIC SERVICES a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☒	☐
iv. Parks?	☐	☐	☒	☐
v. Other public facilities?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.15.1 Environmental Setting

The project is proposed in the City of Santa Clara in Santa Clara County. Fire and police protection services are provided from departments within the City of Santa Clara. Recreation facilities and other public facilities like libraries are within the City of Santa Clara. The project site is within the Santa Clara Unified School District boundaries. The study area for public services-related impacts is the City of Santa Clara. Site preparation activities include demolition, site grading, and excavation. The project would construct a three-story approximately 575,400 square foot data center building, generator equipment yard, surface parking, and landscaping. A substation owned and operated by Silicon Valley Power would also be constructed on the project site.

Fire Protection

The project would be located within the jurisdiction of the Santa Clara Fire Department (SCFD). The SCFD provides fire suppression, emergency medical, fire prevention, and hazardous materials services to the City of Santa Clara (Santa Clara 2020a). There are 9 fire station districts in the City of Santa Clara; the project site is in District 2 at 1900 Walsh Avenue, approximately 0.5 mile west of the project site (Santa Clara 2020b).

SCFD has approximately 167 fire service personnel supplemented by 40 Reserve Firefighters when fully staffed. In 2020, SCFD had a total call volume of 8,853 calls. Approximately 69.7 percent of the calls were for emergency medical service, 11.2 percent were for alarm activation, 8.0 percent were for service, 7.4 percent for good intent/special incidents, 2.7 percent were for fire, 1.0 percent were for hazardous materials, and 0.1

percent were for technical rescue (Santa Clara 2020c). Based on the city's 2020-estimated population and the department's current fire personnel roster, the department's staffing ratio is 1.3 fire personnel for every 1,000 residents. The city is not in a very high fire hazard severity zone in a local responsibility area (CalFire 2008).

Police Protection

Police protection would be provided by the Santa Clara Police Department (SCPD). SCPD has two police stations. The police headquarters, located approximately 1.4 miles south, is the closest station to the project site.

In 2020, there were 68,865 calls for service. The department's average response time for priority 1 calls was approximately 2.08 minutes after dispatch. Police staff includes 159 sworn officers and 80 civilian professionals. As of 2020, there are 1.2 officers for every 1,000 residents. (Santa Clara 2021)

Schools

The project would be located within the Santa Clara Unified School District. The district covers 56 square miles in the northwestern portion of Santa Clara County (SCUSD 2020a). This district serves the cities of Santa Clara, Sunnyvale, San Jose, and Cupertino. The Santa Clara Unified School District had an enrollment of 11,935 students in the 2021/2022 school year (CDE 2022). Santa Clara Unified School District facilities include: 2 alternative schools, 1 continuation high school, 1 community day school, 2 high schools, 3 middle schools, 17 elementary schools, and 1 K-8 school (CDE 2018). The nearest schools to the project site are the Granada Islamic (private), approximately 0.6 mile northwest of the project and the Scott Lane Elementary (public), approximately 1.2 miles southwest of the project.

Parks

The City of Santa Clara has 350 total park acres, made up of improved and unimproved acreage (Santa Clara 2019). Included in the park and recreation areas are community parks, mini/pocket parks, neighborhood parks, public open space, recreation facilities, recreational trails, and joint use facilities (Santa Clara 2014). The City of Santa Clara has a parkland dedication/in lieu standard based on the city's existing ratio of developed park acreage per 1,000 residents (Santa Clara 2014, Santa Clara 2019). The service population used to estimate the existing service standard for parks in the current development impact fee update study (April 2019) is 126,408 residents (Santa Clara 2019).[1] With a combined total of 328 acres[2], Santa Clara has approximately 2.6 acres per 1,000 residents and meets its park standards (Santa Clara 2019, pg. 19).

1 While the April 2019 City of Santa Clara Park and Recreation Facilities Development Impact Fee Update Study is an Administrative Draft, the methodology used to estimate the park standard associated with the mitigation fee is consistent with that used in the June 2014 Final Development Impact Fee Study.

2 Total acres of improved and unimproved parkland that meets the Mitigation Fee Act Standard.

The closest parks are Rotary Park located 1.1 miles southwest of the project site and Larry J Marsalli Park located 1.2 miles south of the project site. Rotary Park has a small children's tot lot with a picnic area. Larry J Marsalli Park is a seven-acre park with a picnic area, restrooms, softball field, and play area. The parks are maintained by the City of Santa Clara (Santa Clara 2019).

Other Public Facilities

The Santa Clara City Library has three branches to serve the City of Santa Clara. The closest library to the project site is the Northside Branch Library, which is located approximately 1.6 mile to the north (Santa Clara 2020d).

Regulatory Background

No regulations related to public services apply to the project.

4.15.2 Environmental Impacts

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire protection?

Construction

Less Than Significant Impact. The project site is currently developed with two two-story office buildings and is already serviced by fire protection services. The project site is in an industrial area surrounded by industrial development and office uses.

Project construction activities that could pose a risk for fire or the need for fire protection response due to heated exhaust or sparks, include the use of grinders, cranes, excavation equipment, vehicles, and bulldozers. Other construction activities with a potential fire risk due to heat sources or open flames could include the use of torches or welding equipment.

The standard for response to structure fire calls for the first unit to arrive is under 6 minutes from dispatch of alarm, 90 percent of the time. Current data show the SCFD arrived in less than 6 minutes, 90 percent of the time. The SCFD standard for an effective firefighting force (17 personnel) on scene is less than 10 minutes from dispatch of alarm, 90 percent of the time for structure fire calls. Current data shows that SCFD arrived in less than 10 minutes, 90 percent of the time. For emergency medical calls, the standard for an advanced life support fire company is to arrive in under 8 minutes from dispatch

of the alarm, 90 percent of the time. Current data shows that SCFD arrived in less than 8 minutes, 90 percent of the time (Santa Clara 2020c).

As the project is located on a site already served, emergency response time to the project would be consistent with a 6-minute response. While there may be a slight increased need for fire protection response during project construction, these effects would not be sufficient to induce the construction of new or physically altered governmental facilities that could result in significant environmental impacts; therefore, the impact would be less than significant.

Operation

Less Than Significant Impact. The project would employ 30 to 35 operations workers. The applicant estimates the workers would be hired locally from the greater Bay Area (DayZen 2020b). Based on the proximity of the supply of operations workers, they are not likely to relocate closer to the project. The few operations employees that may move into the city and within the service area would have a negligible effect on the ability of the fire stations that serve the project site to meet their emergency service and response standards.

Diesel fuel would be stored in tanks beneath each block of generators. The diesel tanks would be double-walled and equipped with leak detection systems (DayZen 2020b, pg. 125). The project would complete a Hazardous Materials Business Plan for the safe storage and use of chemicals onsite (see **Section 4.9 Hazards and Hazardous Materials**). Diesel fuel deliveries would be on an as needed basis in a compartmentalized truck. An emergency pump shut-off would be used if a pump hose breaks while fueling the tanks (DayZen 2020b, pg. 14). The project would be constructed in accordance with current building and fire codes. Also, SCFD would review the site development plans to ensure fire protection design features are incorporated and adequate emergency access is provided (DayZen 2020b, pg. 128). With all the above elements, the impact to the fire protection services would be less than significant.

ii. Police Protection?

Construction

Less Than Significant Impact. The construction workforce is not expected to relocate closer to the project site and would not increase the demand for emergency response services, including police protection. Construction of the project would include concrete screening walls for the generator yard and the substation (DayZen 2020b, pg. 13, 16). Outdoor security lighting would be installed along the data center building and driveway entrances (DayZen 2020b, pg. 36) As noted in the "Setting" subsection above, SCPD meets their response goals. The response goals for the police department would not be significantly affected by the project nor would the project induce construction of new or physically altered governmental facilities, such as police stations that could result in significant environmental impacts; therefore, the impact would be less than significant.

Operation

Less Than Significant Impact. The 30 to 35 operations workers that would be employed by the project would have a negligible effect on the emergency response times of the stations that serve the project site and vicinity. This limited effect would be from the few workers who may choose to relocate closer to the project site. As described in the construction analysis above, the project would be secured by fencing and security lighting, deterring criminal activity during operation. Additionally, SCPD would review the final site design to ensure the project provides adequate safety and security measures (DayZen 2020b, pg. 161). Therefore, the project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered police service facilities to maintain acceptable service ratios, response times, or other performance objectives. The impact would be less than significant.

iii. Schools?

Construction and Operation

Less Than Significant Impact. The project would be in the Santa Clara Unified School District. District Board Policy (BP 7211 Facilities: Developer Fees) allows the Board of Trustees to establish, levy, and collect developer fees on residential, commercial, and industrial construction within the district. Government Code section 65995 expressly provides that "[t]he payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code in the amount specified in Section 65995… are hereby deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving but not limited to, the planning, use, or development of real property, or any change in governmental organization… on the provision of adequate school facilities." The current school impact fee for the district is $0.78 per square foot of covered, enclosed commercial/industrial space (SCUSD 2020b). Based on the proposed size of the building (575,401 square feet), an estimated $448,812 would be assessed. These fees would be collected at the time the applicant applies for building permits from the City of Santa Clara; therefore, the impact would be less than significant.

iv. Parks?

Construction

No Impact. As identified in the "Setting" subsection, the city is currently meeting its park standards with a ratio of 2.6 acres per 1,000 residents. Construction of the project would require an average of 90 workers and a peak of 175 workers (DayZen 2020a). The construction workforce would be drawn from the greater Bay Area, which would not require an influx of new workers (see **Section 4.14 Population and Housing**). Also, construction workers who may temporarily relocate closer do not typically visit area parks or park facilities while in the project area and tend to return to their primary residence for the weekends. Therefore, construction of the project would not affect park standards

or increase the demand for park facilities. The project construction would have no impact on parks or park facilities.

Operation

Less Than Significant Impact. The project would employ 30 to 35 operations workers. Like the project construction workforce, operations employees would be drawn from the greater Bay Area and are not likely to relocate closer to the project. If some operations workers were to relocate, the few new residents would have a negligible increase on the usage of or demand for parks or other recreational facilities. Therefore, the project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered park facilities to maintain acceptable service ratios or other performance objectives. The impact would be less than significant.

v. Other Public Facilities?

Construction

No Impact. The project construction workforce would be drawn from the greater Bay Area and workers would not likely relocate closer to the project site. However, if some construction workers relocate temporarily, they are not likely to visit public facilities such as public libraries while working in the project area and would tend to return to their primary residence for the weekends. There would be no impacts to public facilities during project construction.

Operation

Less Than Significant Impact. As discussed above, the project's 30 to 35 operations employees are expected to be drawn from the greater Bay Area and are not expected to relocate closer to the project site. However, if some operations workers were to relocate, the few new residents would likely have a negligible increase in the usage of or demand for the surrounding libraries or public facilities; therefore, the project's operations impact would be less than significant.

4.15.3 Mitigation Measures

None.

4.15.4 References

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4.16 Recreation

This section describes the environmental and regulatory setting and discusses impacts specific to recreation associated with the construction and operation of the project.

RECREATION	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.16.1 Environmental Setting

The project is proposed in the City of Santa Clara in Santa Clara County. The project would construct a three-story approximately 575,401 square foot data center building, generator equipment yard, surface parking, and landscaping. A substation owned and operated by Silicon Valley Power would also be constructed on the project site.

While nearby cities include the cities of Campbell, Cupertino, Milpitas, San Jose, and Sunnyvale, staff considers the City of Santa Clara as the project study area for recreation impacts. This is consistent with staff's experience that local workers are not likely to temporarily or permanently relocate closer to the project site (see **Section 4.14 Population and Housing**) and thus, not add new users to the city's recreation facilities.

Recreation Facilities

The City of Santa Clara has 2 community parks, 6 mini parks, 26 neighborhood parks, 3 open space parks, 5 recreational facilities, 4 trail reaches, and 11 joint use facilities for a total of approximately 255 acres of developed parks, not including city golf courses and 98 acres of undeveloped parks (Santa Clara 2019a, pages 6-8). The closest recreational resources are Rotary Park located 1.1 miles southwest of the project site and Larry J Marsalli Park located 1.2 miles south of the project site. Rotary Park has a small children's tot lot with a picnic area. Larry J Marsalli Park is a seven-acre park with a picnic area, restrooms, softball field, and play area. The parks are maintained by the City of Santa Clara (Santa Clara 2020).

Regulatory Background

No regulations related to recreation apply to the project.

4.16.2 Environmental Impacts

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Construction

No Impact. The project would require an average of 90 workers during construction and a maximum of 175 workers during the peak construction period (TN 234295). Construction is expected to last for approximately 24 months (TN 233041-1). The applicant estimates that the construction workforce would be recruited from the greater Bay Area and would likely be drawn from the San Jose-Sunnyvale-Santa Clara region[1]. Based on the proximity of the available workforce to the project, construction workers from neighboring cities and counties are not likely to temporarily relocate closer to the project site or visit the nearby parks. Thus, the project would not increase the use of or accelerate the physical deterioration of parks or other recreational facilities. Therefore, the project would have no impact on the surrounding parks and recreational facilities.

Operation

Less Than Significant Impact. The project would employ 30 to 35 operations workers who would be drawn from the greater Bay Area (see **Section 4.14 Population and Housing**). Based on the proximity of the supply of operations workers, they are not likely to relocate closer to the project. Although, if some operations workers were to move closer to the project, they would not be in numbers where the use of existing parks or recreational facilities would be increased to the extent that substantial physical deterioration of the park or facility would result. The impact to surrounding parks and recreational facilities would be less than significant.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Construction

No Impact. Recreational facilities are not included as part of the project nor would the project require the construction or expansion of recreational facilities. The construction needs of the project would be supplied by the existing workforce from the greater Bay Area and would not require an influx of new workers. Construction workers would

1 Region in this instance is the Metropolitan Statistical Area. A Metropolitan Statistical Area is a geographical region with a relatively high population density at its core and close economic ties throughout the area.

commute to the project site during the 24 months of construction, and they are not likely to temporarily relocate closer to the project. Therefore, the project would have no impact to recreational facilities.

Operation

Less Than Significant Impact. Operation of the project would be conducted by 30 to 35 onsite employees (TN 233041-1). If some operations workers did move closer to the project, they would not be in numbers that would require the construction or expansion of recreational facilities. Therefore, the project would have a less than significant impact on recreational facilities and would not require the construction or expansion of recreational facilities to accommodate the project.

4.16.3 Mitigation Measures

None.

4.16.4 References

Santa Clara 2019 – City of Santa Clara (Santa Clara). City of Santa Clara Park and Recreation. Facilities Development Impact Fee Update Study – Administrative Draft, April 9, 2019, prepared by Willdan Financial Services. Available online at: https://www.santaclaraca.gov/home/showdocument?id=63995

Santa Clara 2020 – City of Santa Clara (Santa Clara). Parks and Recreation Department, Parks. Accessed on: June 2020. Available online at: http://missioncity.maps.arcgis.com/apps/MapTour/index.html?appid=4c84d4f8913541cebd8a8ef3fc31a326&amp

Lafayette 2020a- Digital Realty Responses to Data Request Set 1- LBGF (Part 1): Lafayette Data Center (TN234295). August 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=234295&DocumentContentId=67140

Lafayette 2020b – Application for Small Power Plant Exemption: Lafayette Data Center (TN233041-1). May 2020. Accessed on: June 5, 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=233041-1&DocumentContentId=65519

4.17 Transportation

This section describes the environmental setting and regulatory background of the project with respect to transportation and discusses transportation impacts associated with the construction and operation of the project.

TRANSPORTATION Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☒	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

4.17.1 Environmental Setting

The project site is in the city of Santa Clara on a 15.5-acre developed lot. The site is associated with three addresses: 2805 Lafayette Street, 2825 Lafayette Street and 2845 Lafayette Street. The 2825 Lafayette Street and 2845 Lafayette Street portion of the site is currently developed with two, two-story office buildings with paved parking and loading dock areas. Both buildings would be demolished to allow construction of the new data center building. The existing building associated with the 2805 Lafayette Street address would remain in place and a portion of the site would be used for the construction of the new Silicon Valley Power (SVP) substation.

Regional access to the site is provided by U.S. Highway 101 (US-101) and Interstates 280, 680, 880, and Central Expressway. Direct access to the project site is provided by the western side of the project at two existing driveways along Lafayette Street. A third gated driveway would be constructed slightly south of the two existing driveways to provide access to the new substation. A fire loop drive aisle would be located around the perimeter of the data center building on all sides and would connect all entrances.

Nearby transportation infrastructure includes bike lanes, bus transit, passenger rail, and the Norman Y. Mineta San José International Airport. Intermittent sidewalks are located on Lafayette Street and Central Expressway. There is a Class III bike route (shared with vehicles) along De La Cruz Boulevard, east of the project (VTA 2020). The nearest bus stop is located approximately 0.7 mile southwest of the site along the Santa Clara Valley Transportation Authority's Bus Route 59 (VTA 2022). Other nearby bus routes include

Bus Route 21 and Bus Route 53. Caltrain, Altamont Commuter Express (ACE), and Amtrak's Capitol Corridor provide passenger train service approximately 1.9 miles south of the project site at the Santa Clara Transit Center. Caltrain provides service with 15-to-30-minute headways during commute hours (VTA 2022). Railroad tracks used by the ACE and Amtrak's Capitol Corridor are adjacent to the eastern side of the project.

The Norman Y. Mineta San José International Airport is located approximately 930 feet from the project's eastern boundary and has two runways that exceed 3,200 feet in length (AirNav 2022).

Regulatory Background

Federal

Code of Federal Regulations (14, Part 77.9 [b]). Title 14, Part 77.9 of the Code of Federal Regulations requires Federal Aviation Administration (FAA) notification for construction or alterations within 20,000 feet of an airport with a runway more than 3,200 feet in length if the height of the construction or alteration exceeds a slope of 100 to 1 extending outward and upward from the nearest point of the nearest runway of the airport (CFR 2020a). The threshold for the FAA notification 100 to 1 surface exceedance height is approximately 9.5 feet above ground level (AGL) at the project site. If a project's height, including any temporary equipment (such as cranes used during construction) or any ancillary structures (such as transmission poles), exceeds the 100 to 1 surface, the project applicant must submit a copy of FAA Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA.

State

California Department of Transportation. Project construction activities that require movement of oversized or excessive load vehicles on state roadways require a transportation permit issued by the California Department of Transportation under Vehicle Code, section 35780 (Caltrans 2019). Caltrans may also require the applicant to prepare a Transportation Management Plan prior to construction to reduce effects on the state transportation network.

Local

Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan for Norman Y. Mineta San José International Airport. The Norman Y. Mineta San José International Airport is located east of the project site. Figure 6 of the Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan (CLUP) identifies the Federal Aviation Regulations (FAR) Part 77 surfaces above the project site. FAR Part 77 surfaces are those identified by the FAA as obstruction surfaces around an airport. Exceedance of these surfaces could result in obstruction of airspace and hazards to aircraft entering or exiting the San José International Airport. At the project site, the FAR Part 77 surface shown on Figure 6 of the CLUP extends from 112 feet above mean sea level (AMSL) to 212 feet AMSL; meaning any structures at the project site exceeding

112 to 212 feet AMSL, depending on the structure location, could pose a safety hazard (Santa Clara County 2016).

In addition, the CLUP contains Safety and Height Compatibility policies that are intended to minimize the risks associated with potential aircraft accidents. These include the safety of people on the ground and the safety of aircraft occupants. The project requires the storage of diesel fuel for the emergency generators and is close to the airport, thus the project must comply with the Safety and Height Compatibility policies below.

- Safety Policy S-4: Storage of fuel or other hazardous materials shall be prohibited in the Runway Protection Zone. Above ground storage of fuel or other hazardous materials shall be prohibited in the Inner Safety Zone and Turning Safety Zone. In the Sideline Safety Zones and Outer Safety Zones, storage of fuel or other hazardous materials not associated with aircraft use should be discouraged.
- Height Policy H-1: Any structure or object that penetrates the FAR Part 77, Objects Affecting Navigable Airspace, (FAR Part 77) surfaces as illustrated in Figure 6 [of the CLUP], is presumed to be a hazard to air navigation and will be considered an incompatible land use, except in the following circumstance. If the structure or object is above the FAR Part 77 surface, the proponent may submit the project data to the FAA for evaluation and air navigation hazard determination, in which case the FAA's determination shall prevail.
- Height Policy H-2: Any project that may exceed a FAR Part 77 surface must notify the Federal Aviation Administration (FAA) as required by FAR Part 77, Subpart B on FAA Form 7460-1, Notice of Proposed Construction or Alteration. (Notification to the FAA under FAR Part 77, Subpart B, is required even for certain proposed construction that does not exceed the height limits allowed by Subpart C of the FARs).

City of Santa Clara 2010-2035 General Plan. The *City of Santa Clara 2010-2035 General Plan* (General Plan) includes policies for the purpose of avoiding or mitigating impacts resulting from planned development projects within the city. While several General Plan policies pertain to city efforts to enhance the overall multimodal transportation system, the following policies are specific to new development and are assumed applicable to the proposed project (Santa Clara 2010).

- 5.8.2-P9: Require all new development to provide streets and sidewalks that meet City goals and standards, including new development in employment areas.
- 5.8.3-P8: Require new development to include transit stop amenities, such as pedestrian pathways to stops, benches, traveler information and shelters.
- 5.8.5-P1: Require new development and City employees to implement transportation demand management (TDM) programs that include site-design measures, including preferred carpool and vanpool parking, enhanced pedestrian access, bicycle storage and recreational facilities.

City of Santa Clara, Transportation Analysis Policy. The city of Santa Clara approved a revised Transportation Analysis Policy on June 23, 2020. This policy

establishes requirements for evaluating transportation environmental impacts by measuring Vehicle Miles Traveled (VMT) per the California Environmental Quality Act (CEQA) and establishes Level of Service (LOS) as an operational measure of intersection efficiency, which is not defined as a transportation environmental impact per CEQA. The city uses the Santa Clara County average VMT (16.64), as the established environmental baseline. To evaluate whether a proposed project would have a significant impact under CEQA, the city compares the project's VMT with this baseline. Industrial projects would have a less than significant impact if it results in a 15% VMT reduction (14.14), compared to the baseline. The policy also formalizes Transportation Operational Analysis (TOA) requirements that occur outside of CEQA. All proposed projects are required to undergo environmental review as part of the city's approval process. This includes an analysis of CEQA impacts (VMT) and non CEQA operational measures of intersection efficiency (LOS) (CEC 2023a).

4.17.2 Environmental Impacts

a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Construction

Less Than Significant Impact. Construction of the project would not significantly obstruct any transit, roadway, bicycle, or pedestrian facilities in the area. Construction activities would occur mostly onsite and not in the public right-of-way, with the exceptions of the addition of a third driveway along Lafayette Street; interconnection to domestic water, fire water, sanitary sewer, fiber and natural gas services at Lafayette Street and Central Expressway; and the installation of a new transmission line along Lafayette Street at the western side of the project for routing into the new substation. While construction would require temporary lane blockages or closures on Lafayette Street and Central Expressway it would not interfere with pedestrian, bicycle or transit routes, as none exist on the affected portions of Lafayette Street and Central Expressway (VTA 2020, VTA 2022). Furthermore, Lafayette Street and Central Expressway have two and three lanes travelling in each direction. Temporary construction activities associated with the project's interconnection to existing water, sewer, fiber, and gas services are not anticipated to disrupt more than one travel lane at a time. This would ensure at least one travel lane remains open in each direction. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections.

The city of Santa Clara, as the permitting agency, would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Lafayette Street and Central Expressway during construction. Furthermore, the city of Santa Clara would require the project owner to obtain permits from Caltrans for any encroachment of state roadways and for the movement of oversized or excessive load vehicles on state roadways, and to submit to Caltrans a Transportation Management Plan, if required for the project, prior to construction to reduce effects on the state transportation network.

The permitting process ensures that all applicable requirements are complied with. Therefore, the construction of the project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities, and would therefore have less than significant impacts.

Operation

Less Than Significant Impact. Operation of the project would occur fully onsite and would not obstruct pedestrian, bike, or transit facilities. The project would not interfere with any future pedestrian, bike, or transit plans for the area. The project would be consistent with General Plan policies discussed under the "Regulatory Background" heading of this section, which requires new development provide pedestrian improvements and implement TDM programs to reduce vehicle trips. These policies are intended to improve multimodal accessibility between land uses and facilitate the use of non-vehicular travel. The project owner, in accordance with these policies, would construct a new driveway that would meet all city development standards and would implement a TDM program to reduce the number of vehicle trips generated by the project. Thus, the project would be consistent with these policies. Operation of the project would not conflict with any program, plan, ordinance, or policy addressing the circulation system, and would therefore result in less than significant impacts.

b. Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines section 15064.3, subdivision (b), states that generally VMT is the most appropriate measure of transportation impacts. VMT refers to the amount and distance of automobile travel attributable to a project. Increased VMT exceeding an applicable threshold could constitute a significant impact. If existing models or methods are not available to estimate the VMT for the project being considered, a lead agency may analyze the project's VMT qualitatively, evaluating factors such as the availability of transit or proximity to other destinations.

Construction

Less Than Significant Impact. For construction traffic, a qualitative analysis of VMT impacts (instead of a more detailed quantitative analysis) is often appropriate (CANRA 2018; see also CEQA Guidelines section 15064.3, subdivision (b)(3)). The city of Santa Clara's Transportation Analysis Policy establishes thresholds of significance for development projects. Thresholds of significance are applied based on the development type (e.g. employment, industrial, residential, etc.). Currently there is not a designated threshold or measurement criteria used to calculate VMT construction impacts. As discussed above, the Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA, recommends a qualitative analysis of VMT impacts for construction traffic. In addition, construction workers are expected to commute locally from the greater Bay Area (DayZen 2020b). The San José-Sunnyvale-Santa Clara Metropolitan Statistical Area (MSA) that serves Santa Clara and San Benito counties has a sufficient local construction workforce to accommodate the project, as described in

Section 4.14 Population and Housing. Thus, the construction workforce for the project would commute locally rather than requesting construction workers from MSAs that are further away (e.g., Sacramento-Roseville-Folsom MSA). The paragraphs below describe the construction activities that are expected to occur during the project's construction timeline.

Project construction would involve a temporary increase in vehicle trips resulting from workers commuting to the project site and the delivery and hauling of project materials. Preparation of the site would require the removal of roughly 4,000 cubic yards of soil and undocumented fill to be replaced by 34,000 cubic yards of fill at the site (DayZen 2021-a). No off-site staging or laydown areas are proposed, as construction staging would occur on site. Typical activities related to the construction of any development could include temporary lane narrowing, lane closures, sidewalk and pedestrian crosswalk closures, and bike lane closures. In the event of any type of closure, clear signage (closure and detour signs) would be provided to ensure vehicles, pedestrians, and bicyclists are able to adequately reach their intended destinations safely.

The average construction workforce is estimated to be 90 workers and reach a peak workforce of 175 workers during the 10th month of construction (DayZen 2020b). Like other recent data center projects, the daily trip rates for employees at a general light industrial facility were used to estimate construction worker trips. The Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition, has a trip generation rate for general light industrial land uses (land use code 110) of 3.05 daily one-way trips per employee (ITE 2022).

Project construction is estimated to generate an average of 275 (i.e., 3.05 daily one-way trips X 90 workers = 275) daily one-way worker commute trips. The peak construction interval is estimated to involve a maximum of 534 (i.e., 3.05 daily one-way trips X 175 workers = 534) daily one-way worker commute trips. Many of the construction worker trips would be expected to occur prior to the morning and evening peak traffic hours in the Santa Clara region, in accordance with typical construction schedules. The project owner estimates truck trips associated with the removal and delivery of equipment and materials would average about five trips per day and would be scheduled for off-peak traffic hours whenever possible (DayZen 2020b). See **Table 4.17-1** below for details.

TABLE 4.17-1 CONSTRUCION TRIP GENERATION

Trip Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Delivery/Haul Trucks	--/5		--/5		--/5	--/5
Construction Workers (Maximum/Average)	534/275		534/275		534/275	534/275
Total Construction Traffic	--	--	539/280	--	--	539/280

Source: (DayZen 2020b)
Peak workforce expected during the 10th month of construction

Upon the completion of construction, all temporary worker commute trips and truck trips would cease. As such, project-related construction trips would not result in a substantial or sustained increase in VMT compared to Santa Clara County average VMT. Further, construction trips would not result in temporary emissions increases at levels that could obstruct the implementation of plans and policies related to the reduction of greenhouse gas emissions by reducing VMT. Refer to **Section 4.3 Air Quality** for information related to exhaust emissions during construction. For these reasons, project construction would not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b). VMT impacts from project construction would be less than significant.

Operation

Less Than Significant Impact with Mitigation Incorporated. The data center would be operational 24-hours, 7-days a week. Operation trips would be generated by the 30-35 daily employees who would travel to and from the project site, periodic trips by a tanker truck to supply diesel fuel for the backup generators on an as-needed basis, visits from customers setting up or maintaining equipment, and delivery and trash-hauling trucks at the building throughout the day.

The VTA in conjunction with Santa Clara County and the cities in the county developed the Santa Clara Countywide VMT Evaluation Tool. This tool allows local government staff, consultants, and new developments to measure VMT for land use projects within Santa Clara County. Based on this tool, the target VMT for the project is 15 percent below the county average, which results in project-related commute trips needing to be no more than 14.14 daily vehicle miles per worker (DayZen 2022a).

Table 4.17-2 shows the VMT analysis conducted for the project. As shown, the project under a normal 5-day workweek schedule would exceed the VMT threshold. However, when the workweek schedule is shifted to a 4-40 (four days a week, 10-hour workdays), the project's VMT would be reduce to below the threshold.

Table 4.17-2. VTA VMT ESTIMATION

VMT Threshold and Scenario	**VMT Per Worker**	
Santa Clara County Average VMT	16.64	*Exceed 14.14 VMT Threshold?*
Project Threshold: 15% Below County Average	14.14	
Estimated Project VMT (5-Day Work Schedule)	15.69	*YES*
Estimated Project VMT (4-40 Work Schedule)	13.34	*NO*

Source: DayZen 2022a

To meet the target VMT for the project, the applicant has proposed an alternative work schedule for employees reflecting a 4-40 workweek (40 hours in 4 days) so that the project VMT would be below the city's threshold. This is a TDM measure, which is the commitment to a 4-40 work schedule. CEC staff evaluated the measure in the context of impacts to VMT and concludes that the requirement defined in this TDM measure is sufficient. This TDM measure would reduce the project VMT to 13.34 per employee, causing the project VMT to fall below the city approved threshold of 14.14. The city requires a TDM annual report, which would allow it to obtain confirmation that the 4-day,

40-hour work schedule has been complied with. CEC staff proposes **TRANS-1**, which would require the implementation of a TDM program that incorporates the 4-40 work schedule TMD measure.

Additionally, the city of Santa Clara, as the permitting agency for the project, would ensure project consistency with the General Plan policies related to trip reduction, transit connectivity, and alternative modes of transportation (as provided in Section 4.17.1, Local Regulatory Background). Therefore, with implementation of **TRANS-1**, the project would have a less-than-significant impact on VMT.

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Construction

Less Than Significant Impact. Construction activities would occur mostly onsite and not in the public right-of-way, with the exceptions of the addition of a third driveway along Lafayette Street; connection to domestic water, fire water, sanitary sewer, fiber and natural gas connection services at Lafayette Street and Central Expressway; and installation of a new transmission line along Lafayette Street on the western side of the project for routing into the new SVP substation. Temporary construction associated with connecting the project site to the existing utilities are not anticipated to disrupt more than one travel lane at a time. This would ensure at least one or more travel lanes remain open. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections that could result in roadway hazards.

The city of Santa Clara, as the permitting agency, would ensure the project owner obtains the proper permits, including encroachment permits, to minimize disruption to Lafayette Street and Central Expressway during construction. The city of Santa Clara would also require the project owner to prepare a Traffic Control Plan to ensure localized traffic control around the project site during deliveries and construction activities that could cause hazards by obstructing roadways. Furthermore, the city of Santa Clara, as the permitting agency, would require the project owner to obtain all the required permits from Caltrans for the movement of oversized or excessive load vehicles on state roadways, and to submit to Caltrans a Transportation Management Plan, if required for the project, prior to construction. These actions would reduce any hazards from transportation of materials to and from the site and from construction activities affecting roadways.

As discussed under the "Regulatory Background" heading of this section, under Title 14, Part 77.9 of the Code of Federal Regulations, the threshold for FAA notification 100 to 1 surface exceedance height is approximately 9.5 feet at the project site. Project construction would require a crane for placement of each generator. The crane would exceed 9.5 feet in height and would require the project owner to submit a copy of Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The FAA generally

grants a Determination of No Hazard for temporary construction equipment. The city of Santa Clara, as the permitting agency for the project, would ensure consistency with this regulation and compliance with any of the FAA's conditions. For these reasons, project construction would not increase hazards due to a geometric design feature or incompatible uses; therefore, impacts would be less than significant.

Operation

Less Than Significant Impact.

Access. The site has two existing driveways located along Lafayette Street that would continue to provide access to the project. A third driveway would be constructed between the two existing driveways to provide access to the proposed SVP substation. The new driveway would be secured by a gate and would serve as a maintenance access driveway to the substation. Vehicle and truck access would utilize the two existing driveways that are 40 feet and 100 feet wide (DayZen 2020a). In addition, truck turning movements for trucks with lengths of 40 and 65 feet were assessed for site access and circulation for garbage pickup and fuel deliveries. The project's internal roads would be adequately sized to accommodate such deliveries (DayZen 2022a, Attachment C Truck Turning Movements). Project operation would not permanently alter any public roadways or intersections, nor would operation introduce a design feature or incompatible uses to the project area.

Very High Frequency Omni-Directional Range/Distance Measuring Equipment (VOR/DME) Interference. The applicant conducted an airspace study to analyze the potential aeronautical impacts of the thermal plumes. The project site is located outside of Airport Design Surfaces and would not adversely impact the airport design surfaces. However, the San José International Airport VOR/DME is near the project site and is within the 1,000-foot VOR critical area (DayZen 2022c). As previously noted, the applicant submitted Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The FAA analyzed potential impacts to air navigation, inclusive of this navigational aid, and made a "Determination of No Hazard" for the building. The FAA Technical Operations Line of Business was also provided an opportunity to comment during the Form 7460-1 review process and no comments were received (DayZen 2021a). Solid or fixed structures would represent a more critical concern for the VOR critical area than the plumes associated with the chillers or backup diesel generators (DayZen 2022c). Lastly, CEC staff independently confirmed that plumes associated with the project would not interfere with the signal transmission for this navigational aid. VOR/DME are limited to line-of-sight and signal interference is due to obstacles, terrain, and even the slope of the earth (Martin 2018). Thus, since the data center building and associated plumes would not obstruct line-of-sight with the VOR/DME and aircrafts, the project would not interfere with signal transmission.

Emergency Generator Fuel Tanks. The project site is in the Traffic Pattern Zone, and portions of the site are in the Turning Safety Zone (TSZ) and Inner Safety Zone (ISZ). The most restrictive safety zone is the ISZ which is located at the eastern portion of the site. Above ground storage of fuel and other hazardous materials are prohibited in both

the TSZ and ISZ (SCCALUC 2016). As discussed in **Sections 5.9 Hazards and Hazardous Materials** and **5.11 Land Use** of this document, the project's 20 emergency generators located within the ISZ have been redesigned with below grade fuel tanks to comply with San José CLUP Safety Policy S-4 (DayZen 2022b and DayZen 2020b). The ALUC previously ruled on another project's design modification, the Sequoia Data Center, and determined that lowering the generators below grade would conform to Policy S-4 (ALUC 2021). Because the project owner redesigned the 20 emergency diesel generators that would be located within the TSZ and ISZ with below grade fuel storge tanks, CEC staff anticipates the project would comply with CLUP Safety Policy S-4; therefore, impacts would be less than significant.

Structure Height. The project is located approximately 930 feet (0.18 mile) west of the Norman Y. Mineta San José International Airport. Tall structures can potentially pose a hazard to occupants of aircraft, depending on the heights of structures and their proximity to air traffic. Incompatible uses near airports can also pose hazards to aircraft.

As discussed under the "Regulatory Background" heading of this section, under Santa Clara County Airport Land Use Commission's Comprehensive Land Use Plan for Norman Y. Mineta San José International Airport, Height Compatibility policies 1 and 2, states any "structure or object" that is above or "may" exceed the FAR Part 77 surface must notify the FAA as required by FAR Part 77, Subpart B on FAA Form 7460-1, Notice of Proposed Construction or Alteration for an air navigation hazard determination.

The highest point of the proposed project, the top of the penthouse, would be approximately 82 feet above ground level (AGL). Figure 6 in the Santa Clara County ALUC's CLUP for the San José International Airport identifies a FAR Part 77 obstruction surface at the project site that extends from a height of 112 feet AMSL to 212 feet AMSL (Santa Clara County 2016). The obstruction surface elevation gradually increases moving away from the airport. The project, with a maximum structure height of 82 feet AGL, at the rooftop penthouse, or 122 feet ASML taking into account the 40-foot finished site elevation of the project site, would not exceed the FAA's FAR 77 obstruction surface of 140 AMSL (DayZen 2021a).

However, the project site is still subject to Title 14, Part 77.9 of the Code of Federal Regulations, Construction or Alteration Requiring Notice. With a maximum project height of 82 feet AGL, the project would exceed the FAA notification 100 to 1 surface threshold of 9.5 feet at the project site, requiring the applicant submit Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. The project owner submitted Form 7460-1, Notice of Proposed Construction or Alteration, to the FAA. In May 2021, the FAA issued seven determinations of no hazard for the data center building including the rooftop penthouse, discussed above (DayZen 2021a).

Thermal Plumes. The project would include 44 backup emergency diesel generators and 37 roof-mounted air chillers (DayZen 2020a). The project's emergency diesel generators and chillers would discharge thermal plumes, high-velocity columns of hot air, during operation. Thermal plume velocities would be greatest at the discharge points,

with plume velocities decreasing with increasing altitude. Plume velocities would also be highest during certain weather conditions, such as cool temperatures and calm winds. High velocity thermal plumes have the potential to affect aviation safety, and the FAA Aeronautical Information Manual identifies thermal plumes as potential flight hazards (FAA 2022), though it should be noted that while the FAA regulates the height of physical structures, it does not regulate plumes. Aircraft flying through thermal plumes may experience significant air disturbances, such as turbulence and vertical shear. The FAA manual advises that, when able, a pilot should fly upwind of smokestacks and cooling towers to avoid encountering thermal plumes.

CEC staff uses a peak vertical plume velocity of 10.6 meters per second (m/s) (5.3 m/s average plume velocity) as a screening threshold for potential impacts to aviation. Based on a literature search, this velocity generally defines the point at which aircraft begin to experience severe turbulence.

The applicant modeled the plume velocity of the project's backup generators and rooftop chillers to determine whether the project's thermal plumes would exceed 10.6 m/s at altitudes where aircraft would fly. In addition, the applicant provided a supplemental analysis that modeled the San José International Airport's imaginary surfaces, obstacle clearance surfaces and considered aircraft overflights of the site. The applicant's analysis was independently reviewed and accepted by the CEC Air Quality staff. CEC staff calculated that under worst-case weather conditions and calculation methods[1], the vertical velocity of the plumes from the backup generators would not drop below 10.6 m/s until reaching an altitude of 113 feet AGL. The vertical velocity of the plumes from the chillers would not drop below 10.6 m/s until reaching an altitude of 133 feet AGL.

Considering the elevation of the project site is 40 feet AMSL, the chillers would produce a worst-case plume reaching hazardous velocities of 10.6 m/s up to an altitude of 173 feet AMSL over the project site. Therefore, thermal plumes generated by the project would encroach into the FAA obstruction surface (shown in Figure 6 of the CLUP), which starts at 112 AMSL and gradually increases to 212 AMSL over the site. However, this worst-case scenario plume would only happen infrequently during worst-case weather conditions, which typically only occur during a few hours each year[2], and aircraft would not fly over the project site at an altitude where the high velocity portion of the plume would occur (DayZen 2022c). The traffic pattern at the San José International Airport is much higher than 173 feet AMSL (942 feet AGL for single-engine aircraft and 1,442 feet AGL for multi-engine and turbine powered aircraft) making it unlikely that aircraft would

1 Worst-case weather conditions are based on very calm-wind and neutral atmospheric conditions for the entire vertical extent of the plume, with 100 percent maximum loading, to determine worst-case impacts. It should be noted that the critical vertical velocities identified in the thermal plume analysis are extremely conservative in that these worst-case conditions typically only occur during a few hours each year (DayZen 2022c).

2 The meteorological files submitted as part of the project application show calm wind conditions, which are defined as conditions having wind speeds of 0.5 meters per second or less, occurring 1.21% of the time (DayZen 2020a and DayZen 2022d).

be flying at such low altitudes over the project site (AirNav 2022). Furthermore, an analysis of overflights was performed to determine the frequency at which overflights occur and at what altitudes those overflights occurred at the project site. On average, approximately 720 small airplanes overfly the project site monthly. These aircraft are generally at an altitude of 600 feet AMSL to 1,200 feet AMSL. The lowest altitude observed was 250 feet AMSL. All small aircraft overflying the area were above the maximum plume height of 173 feet AMSL. Lastly, penetrations to the Part 77 Transitional Surface are common occurrences near airports. Based upon the currently FAA approved Airport Layout Plan, the San José International Airport features over 100 obstacles which currently penetrate the Part 77 Transitional Surfaces (DayZen 2022c). Because full operation of the chillers resulting in the worst-case plume scenario would only occur during cool weather and calm winds, and because low altitude overflight at elevations where thermal plumes would occur over the site would be rare, it is unlikely that worst-case plume velocities would coincide with low altitude overflight of the site. As a result, impacts to aircraft from thermal plumes are expected to be less than significant.

The city of Santa Clara, as the permitting agency for this project would ensure compliance with the FAA's determination. The project is also consistent with General Plan policies concerning airport hazards and airspace protection and with CLUP policies, as discussed further in **Sections 5.9 Hazards and Hazardous Materials** and **5.11 Land Use** of this document.

As discussed above, the project would not substantially increase hazards to aircraft from either a geometric design feature, such as structure height, or incompatible uses, including land uses or thermal plumes. The project would not substantially increase any other hazards. For these reasons, impacts would be less than significant.

d. Result in inadequate emergency access?

Construction

Less Than Significant Impact. As discussed under criterion "a", above, project construction would include the construction of a new driveway along Lafayette Street; interconnection to domestic water, fire water, sanitary sewer, fiber, and natural gas services at Lafayette Street and Central Expressway; and the installation of a new transmission line along Lafayette Street at the western side of the project for routing into the new substation. While these construction activities would require temporary lane blockages or closures on Lafayette Street and Central Expressway during daytime hours, temporary construction associated with connecting the project site to utility services is not anticipated to disrupt more than one travel lane at a time. Project construction would not otherwise temporarily or permanently alter any public roadways or intersections that could result in roadway hazards.

The city of Santa Clara, as the permitting agency, would ensure the project applicant obtains the proper encroachment permit to minimize disruption to Lafayette Street and Central Expressway during construction. As part of the permit, the city of Santa Clara

may require the applicant to ensure temporary lane closures and traffic control measures occur according to standard guidelines outlined in the Manual on Uniform Traffic Control Devices, the Standard Specifications for Public Works Construction, and the California Joint Utility Traffic Control Manual. This would ensure emergency vehicle travel on these roads and access to adjacent buildings is not disrupted during the construction of the project. Therefore, the impact would be less than significant.

Operation

Less Than Significant Impact. Vehicular access would be provided to the site by two existing driveways on Lafayette Street. The driveways would provide access to a two-way drive aisle that would loop around the perimeter of the data center buildings for site circulation and emergency vehicle access. The loop would also provide emergency vehicle access at the substation. A third driveway would be constructed between the two existing driveways. The new driveway would be gated, functioning as a maintenance access driveway for the proposed SVP substation. The city of Santa Clara development standards requires two-way driveways to be a minimum width of 22 feet (20-foot pavement with one-foot clearance on each side) (Santa Clara 2019, § 18.74.050). From north to south, the existing driveways along Lafayette Street are currently 20 and 100 feet wide (DayZen 2020a). The project site plan was also reviewed for truck access using truck turning-movement templates for the California legal truck type SU-40 (garbage truck) and for California legal trucks up to 65 feet long (black trucks), which is the largest semi-trailer truck that would access the site. Truck turning templates were also completed for the loading docks and trash enclosures located at the northwest and northeast corners of the building (DayZen 2022a). Both truck sizes would be able to maneuver into and out of the trash enclosures and loading docks as well as traverse throughout the internal drive aisles. The city of Santa Clara, as the permitting agency, would ensure the project's final site design would be consistent with regulatory requirements for emergency vehicle access. The project would not physically block any access roads or result in traffic congestion that could significantly compromise timely access to this facility or any other location during operation of the project. Therefore, the impact would be less than significant.

4.17.3 Mitigation Measures

TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles traveled (VMT) associated with the project would be reduced to 14.14 or less per employee. The TDM program shall include, but is not limited to, the following measure, which has been determined to be a feasible method for achieving the required VMT reduction:

- The operations workforce at the project shall work a 4-40 work schedule (40 hours in 4 days).

Prior to the issuance of an occupancy permit, the TDM program shall be submitted and approved by the Director of Community Development and shall be monitored annually to gauge its effectiveness in meeting the required VMT reduction. The TDM program shall establish an appropriate estimate of initial vehicle trips generated by the occupant of the proposed project and shall include the conducting of driveway traffic counts annually to measure peak-hour entering and exiting vehicle volumes. The volumes shall be compared to trip thresholds established in the TDM program to determine whether the required reduction in vehicle trips is being met. The results of annual vehicle counts shall be reported in writing to the Director of Community Development.

If TDM program monitoring results show that the trip reduction targets are not being met, the TDM program shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM program shall be subject to the same approvals and monitoring requirements listed above.

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4.18 Utilities and Service Systems

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project including the data center and the backup generation facility on the Utilities and Service Systems in the project area.

UTILITIES AND SERVICE SYSTEMS Would the project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

4.18.1 Environmental Setting

Potable Water Supply

The project would be supplied with potable water provided by the city of Santa Clara. The potable water system gets water from three sources: Santa Clara Valley Water District (SCVWD), the San Francisco Public Utilities Commission (SFPUC), and 26 groundwater wells operated by the City's Water and Sewer Utility. The project is in the northern part of the city, which is served with water from SFPUC. In 2020, about one third of the city's potable water came from the imported treated water supplies (SCVWD and SFPUC) and groundwater made up approximately two thirds of the city's potable water supply. The water system in the city consists of more than 335 miles of distribution mains, 26 groundwater wells, and seven storage tanks with a total capacity of approximately 28.8 million gallons. According to the city's 2020 Urban Water Management

Plan (UWMP), which was approved and adopted by the Santa Clara City Council on June 22, 2021, the citywide demand for potable water in 2020 was 18,302 AF (Santa Clara 2021). One AF is equivalent to approximately 326,000 gallons.

Recycled Water Supply

Recycled water is supplied to the city of Santa Clara through the South Bay Water Recycling (SBWR) program. The SBWR obtains advanced tertiary treated water from the San Jose-Santa Clara Regional Wastewater Facility (RWF), formerly known as the San Jose-Santa Clara Water Pollution Control Plant. In 2015, the RWF treated 14,770 AF of wastewater, of which 3,529 AF was treated to title 22 recycled water standards for use by the City of Santa Clara, and the remaining 11,241 AF of treated wastewater was discharged to the San Francisco Bay (Santa Clara 2016). The recycled water purchased from the SBWR made up approximately 17 percent of the overall water use in the city. The City of Santa Clara uses recycled water for the non-potable needs of businesses, industries, parks, and schools located along pipeline routes. The state of California Water Code sections 13550 and 13551 include strong language prohibiting the use of potable water where recycled water can be used, such as cooling, if recycled water is available and economically feasible. The Santa Clara City Code also has similar requirements. A recycled water connection that can serve the proposed project is located at the intersection of Lafayette Street and Walsh Avenue, less than 1,000 feet west of the southwest corner of the project site (Santa Clara 2012).

Wastewater Service

The City of Santa Clara's Departments of Public Works and Water and Sewer Utilities are responsible for the wastewater collection system within the city. Wastewater is collected by sewer systems in Santa Clara and is conveyed by pipelines to the San Jose-Santa Clara RWF. The RWF is jointly owned by the cities of San Jose and Santa Clara and is operated by the City of San Jose's Department of Environmental Services. The RWF has a capacity to treat 167 million gallons per day (mgd) of wastewater and currently treats an average of 110 mgd, thus the RWF facility has 57 mgd, or 35 percent of available capacity. Approximately 13 percent of the RWF's effluent undergoes advanced tertiary treatment to meet Title 22 recycled water standards, after which it flows to SBWR's adjacent pump station to be distributed to several customers in the city. The remaining effluent flows into San Francisco Bay. The RWF's current Waste Discharge Requirements (WDRs) were issued by the San Francisco Regional Water Quality Control Board (RWQCB) in September of 2014.

Storm Sewer Service

The city of Santa Clara owns and maintains the municipal storm drainage system in the vicinity of the project site. The project site drains by a combination of surface flow and underground pipes towards the city's storm water system located underneath Walsh Avenue, which discharges to Guadalupe River and ultimately the San Francisco Bay (DayZen 2020a).

Solid Waste

Solid waste and recycling collection for businesses at commercial and institutional properties in the city of Santa Clara is provided by Mission Trail Waste Systems through a contract with the city. Newby Island Landfill, located in San Jose, provides disposal capacity to nearby cities, including San Jose, Milpitas, Santa Clara, Cupertino, Los Altos, and Los Altos Hills. According to the City's General Plan, the city of Santa Clara has an arrangement with the owners of the Newby Island Landfill, as well as other landfills located outside of the county, to provide disposal capacity for the city. The Newby Island Landfill is permitted to accept a maximum of 3,260 tons of solid waste per day and has an available disposal capacity of 21.2 million cubic yards (cy). In December 2016, the city of San Jose Planning Commission approved a vertical expansion of the Newby Island Landfill where the permitted height was increased from 150 feet to 245 feet. The approved increase in elevation resulted in an increase of approximately 15.12 million cubic yards in the landfill capacity and an estimated closure date of January 2041 (Mercury News 2016).

Electric Power, Natural Gas, and Telecommunications

Silicon Valley Power (SVP) would provide the electricity needed for project operation. Telecommunication services would be provided by one of several fiber optics providers in the project area, who provide their services using lines that run in city-owned conduits that run close to the project site. The services would be provided to the facility via established rights of way, as is the industry's common practice.

Natural gas, for comfort heating, would be supplied to the project by Pacific Gas and Electric (PG&E).

Regulatory Background

Federal

Clean Water Act and California's Porter-Cologne Water Quality Control Act. The State Water Resources Control Board (SWRCB) and its nine RWQCBs are responsible for the regulation and enforcement of the water quality protection requirements of the federal Clean Water Act (CWA) and the state's Porter-Cologne Water Quality Control Act (Porter-Cologne). The National Pollutant Discharge Elimination System (NPDES) is the permitting program that allows point source dischargers to comply with the CWA and Porter-Cologne laws. This regulatory framework protects the beneficial uses of the state's surface and groundwater resources for public benefit and environmental protection. Protection of water quality could be achieved by the proposed project by complying with applicable NPDES permits from the SWRCB or the San Francisco Bay RWQCB. The RWF complies with the Clean Water Act through its current NPDES WDRs, which were issued by the San Francisco RWQCB September of 2014.

Under Section 303(d) of the CWA, states are required to identify impaired surface water bodies and develop total maximum daily loads (TMDLs) for contaminants of concern. The

TMDL is the quantity of pollutant that can be assimilated by a water body without violating water quality standards. Listing of a water body as impaired does not necessarily suggest that the water body cannot support the beneficial uses; rather, the intent is to identify the water body as requiring future development of a TMDL to maintain water quality and reduce the potential for future water quality degradation. Coyote Creek, east of the project site, is currently listed on the United States Environmental Protection Agency's Section 303(d) Listed Waters for California for diazinon and trash.

The San Francisco Bay RWQCB issued a Municipal Regional Storm Water NPDES Permit (Permit Number CAS612008) that requires the city of San Jose to implement a storm water quality protection program. This regional permit applies to 77 Bay Area municipalities, including the city of San Jose. Under the provisions of the Municipal NPDES Permit, redevelopment projects that disturb more than 10,000 square feet are required to design and construct storm water treatment controls to treat post-construction storm water runoff. The permit requires the post-construction runoff from qualifying projects to be treated by using low impact development (LID) treatment controls, such as biotreatment facilities.

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) assists co-permittees, such as the city of San Jose, in the implementation of the provisions of the Municipal NPDES Permit. In addition to water quality controls, the Municipal NPDES Permit requires all new and redevelopment projects that create or replace one acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration, where such hydromodification is likely to cause increased erosion, silt pollutant generation, or other impacts to beneficial uses of local rivers, streams, and creeks. Projects may be deemed exempt from the permit requirements if they do not meet the size threshold, drain into tidally influenced areas or directly into the Bay (per the city of San Jose Hydromodification Management Map). The project site is in a catchment area with a hardened channel or drains to a tidal area; thus, the project site is not subject to the SCVURPPP hydromodification requirements.

State

California Water Code, Sections 10910-10915. California Water Code (Sections 10910-10915) requires water service providers to evaluate stresses to the water supply service system caused by proposed project developments. The code sections require public water systems to prepare water supply assessments (WSA) for certain defined development projects subject to the California Environmental Quality Act (CEQA).

According to Section 10912, if a "Project" meets any of the following criteria, then a detailed WSA would need to be prepared by the water supplier:

- A proposed residential development of more than 500 dwelling units.
- A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

- A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- A proposed hotel or motel, or both, having more than 500 rooms.
- A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- A mixed-use project that includes one or more of the projects specified in this subdivision.
- A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

Further guidance for how to interpret these sections of the Water Code is provided in a California Department of Water Resources document titled "Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001" (Guidebook) (DWR 2003). A helpful interpretive section on page 3 of the Guidebook explains how to interpret item (1) above. The guidebook states that one dwelling unit typically consumes 0.3 to 0.5 AF of water per year (DWR 2003); therefore 500 dwelling units could be interpreted to mean 150 to 250 acre-feet per year (AFY) of potable water.

The guidebook also provides guidance about how to interpret other items in the list, but the one central theme is that WSAs are necessary for projects that increase the demand on the local system substantially. The guidebook also emphasizes that WSAs are necessary in areas with a poorly understood water supply, or in an area where the project would increase the demand substantially, or 10-percent (DWR 2003).

The project would be in a very well-studied service area with many service connections. The proposed project does not meet any of the requirements that require the preparation of a WSA by the water supplier.

California Energy Efficiency Standards for Residential and Nonresidential Buildings—Green Building Code (2011), Title 24 Update (2021). The California Green Buildings Standards Code applies to planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires installation of energy and water-efficient indoor infrastructure.

Integrated Waste Management Act. (Public Resources Code, Section 40000 et seq.) The Integrated Waste Management Act of 1989 requires cities and counties to reduce, by 50 percent, the amount of solid waste disposed of in landfills by the year 2000 and beyond. To comply with the Integrated Waste Management Act, counties adopt regulations and policies to fulfill the requirements of the Act.

California Senate Bill 350 (Renewable Energy Targets). Senate Bill (SB) 350, the Clean Energy and Pollution Reduction Act of 2015 was signed into law by California Governor Jerry Brown on October 7, 2015. This Bill calls for adoption of regulations to

increase the procurement of electricity from renewable sources from 33 percent to 50 percent by 2030. SB 350 also requires establishment of annual targets for statewide energy efficiency savings and demand reduction by November 1, 2017. These energy efficiency savings and demand reductions will be designed to achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas use by January 1, 2030.

Senate Bill 100—The 100 Percent Clean Energy Act of 2018. Senate Bill (SB) 100 (Chapter 312, Statutes of 2018) requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030. This requirement applies to Silicon Valley Power (SVP) program, which would be the primary source of energy supply for the project. The bill also requires the Public Utilities Commission, California Energy Commission, and State Air Resources Board to utilize programs authorized under existing statutes to meet the state policy goal of 100 percent of total retail sales of electricity in California provided by eligible renewable energy resources and zero-carbon resources by December 31, 2045.

Local

City of Santa Clara General Plan. The Santa Clara General Plan includes numerous policies related to utilities and service systems. With respect to waste, General Plan Policy 5.10.1-P8 aims to increase reduction for solid waste tonnage to 80 percent by 2020, or as consistent with the Climate Action Plan, Plan 2014 (Santa Clara 2016).

Santa Clara City Code. According to Santa Clara City Code Section 8.25.285, applicants seeking building or demolition permits for projects greater than 5,000 square feet are required to recycle at least 50 percent of the solid waste generated by the project (Santa Clara 2014).

4.18.2 Environmental Impacts and Mitigation Measures

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Construction and Operation

Less Than Significant Impact. The project's wastewater flow during construction and operation would be treated by the RWF, which is monitored by the San Francisco Bay RWQCB to ensure compliance with the facility's NPDES wastewater discharge permit. The RWF is permitted to treat the industrial and sanitary waste flows that would be generated

by the project. Furthermore, as discussed below, the RWF has sufficient available capacity to accommodate the project's estimated wastewater flow. Therefore, the project would not cause the RWF to exceed its wastewater treatment requirements of the San Francisco Bay RWQCB for project construction and operation. The impact of the project on wastewater treatment capacity would be less than significant.

Electricity demand for construction and operation of the proposed project would be provided by SVP. While the project would use a relatively small amount of electric energy during construction, it would use up to 867,240 MWh per year of electricity during operation (DayZen 2020a). Electricity demand for the proposed project would be provided by SVP. In 2020, SVP sold approximately 3.5 million MWh to its customers, the vast majority of which was for non-residential (industrial and commercial) customers (SVP 2020. According to SVP's 2017 Integrated Resources Plan (IRP), electric demand in the SVP service area is projected to grow from 586 MW in 2017 to approximately 873 MW in 2038 (SVP 2021). The anticipated increase is attributed to projected increases in population and prospective demand for commercial and industrial development, including data centers. To meet this increase in demand, SVP is continuously entering into agreements to procure electricity from renewable sources. Between currently owned supplies and guaranteed future deliveries, SVP has a total of approximately 1,121 MW, or approximately 9.8 million MWh per year of total energy supplies (SVP 2021). Thus, SVP has approximately 6.3 million MWh per year available to meet planned growth in demand. This is much more than the project's estimated annual energy demand of 867,240 MWh per year. SVP's available electrical resources are reliable, and therefore, SVP and its suppliers have sufficient energy to serve the expected future demand of the project. Project electricity demand during construction and operation would not be substantial and would not be expected to affect existing users. Construction and operation of the project would not require new or expanded electric power utilities. Therefore, potential impacts would be less than significant.

Telecommunication services for the proposed project would be met by existing service providers in the project area. Those providers have adequate available capacity to accommodate the project needs during construction and operation. The impact of the project on telecommunication services would be less than significant.

PG&E owns natural gas distribution facilities within the city of Santa Clara. The LDC would incrementally increase natural gas use but would not require the construction of any additional offsite facilities.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Construction and Operation

Less Than Significant Impact. The water system in the city is operated and maintained by the City's Water and Sewer Utility. This system is supplied with potable water from three sources: SCVWD, SFPUC, and 26 groundwater wells operated by the city's Water and Sewer Utility. The proposed project is in an area served primarily with surface water from SFPUC. In 2020, about one third of the city's potable water came from the imported treated water supplies (SCVWD and SFPUC); the other two thirds came from groundwater. The water system in the city consists of more than 335 miles of distribution mains, the 26 groundwater wells discussed above, and seven storage tanks with approximately 28.8 million gallons of capacity. According to the 2020 UWMP, the citywide demand for potable water in 2020 was 18,302 acre-feet (Santa Clara 2021). The UWMP also concludes that the city is expected to meet projected future demands ranging from approximately 21,801 AFY in 2025 and gradually increasing to approximately 31,676 AFY in 2045. Those demands include recycled water demands projected to be approximately 4,570 AFY in 2025 and gradually increasing to approximately 9,488 AFY in 2045.

Construction water use data was not provided by the applicant. However, given the short duration of construction activities, the amount of water needed is expected to be small, especially since some of the existing buildings would be reused and only a portion of the existing structures would be demolished for the new facilities. Demolition and construction of the new structures would take approximately 24 months (DayZen 2020a). The largest use of water during construction would be for dust suppression, typically requiring approximately 1,000 gallons per acre per day. Assuming that water would be applied to all 15.45 acres of the project site every day of the 24 months of demolition and construction (approximately 528 workdays), that would add up to approximately 8 million gallons, or about 25 AF. This overly conservative estimate is still less than the project demand for one year of operation. The impact of construction water demand would therefore be less than significant.

The proposed project would have an operational demand of 67 AFY. The city's UWMP for 2020 shows that the city has sufficient supply to meet the project's demand in normal and single dry year scenarios. However, the UWMP shows that the city could have a deficit in multiple dry year scenarios. This would be possible if supply from SFPUC is interrupted. Under a multi-year drought scenario, the city's supply from SFPUC might be interrupted if certain conditions specified in the interruptible contract between the city and SFPUC are met (Santa Clara 2021). However, if supply from SFPUC is interrupted for any reason, the city has conservation plans and other measures in place to manage supply to meet demand.

The proposed project would be constructed on a previously disturbed site that was fully developed with two two-story office buildings, a data center building and associated paved parking and loading dock areas. Water used for the industrial activities was potable water supplied by the city. Though historic water use at the site is not available, it is not expected to be as high as the proposed project's annual water demand of 67 AFY considering the nature of the previous use as an office building. However, this means that not all the water demand of the proposed project would be new use, but only the

portion above whatever the previous use has been. Furthermore, since recycled water is available in the project area, the project applicant has filed an application with the city of Santa Clara to use recycled water for cooling and landscaping purposes (DayZen 2021), and approval of the request is anticipated. Use of recycled water for cooling and landscaping purposes would result in a substantial reduction in the project's demand for potable water; therefore, the impact of the project's operation on water demand would be less than significant.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Construction and Operation

Less Than Significant Impact. The RWF treats an average of 110 mgd of wastewater, which is 57 mgd less than its 167 mgd treatment capacity. The project would generate a maximum of 91 gallons per minute, or 130,000 gallons per day, which is less than 0.1 percent of the available treatment capacity of the RWF. Implementation of the proposed project would not result in an increase in the RWF's need for wastewater treatment beyond its design capacity. Therefore, the impact on wastewater treatment facilities would be less than significant.

The majority of the project site is currently covered with impervious surfaces. The project would reduce the amount of impervious areas, resulting in more storm water infiltration and thus a reduction in storm water runoff. The proposed project would also include a storm water collection system that includes storm water bio-swales to reduce the overall runoff into the city's collection system and to control sedimentation impacts. In addition, the project would have to comply with the city's municipal storm water permit, which would further reduce the likelihood of the project causing an increase in storm water discharge from the site. The impact from the project on the storm water system capacity would be less than significant.

d. Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Construction and Operation

Less Than Significant Impact. Demolition and construction activities for the project would result in a minor, temporary increase in solid wastes. Operations would result in long-term generation of a small amount of solid waste. The solid waste would be disposed of at the Newby Island Landfill in San Jose. In December 2016, the city of San Jose Planning Commission approved a vertical expansion of the Newby Island Landfill where the permitted height was increased from 150 feet to 245 feet. The approved increase in elevation resulted in an increase of approximately 15 million cubic yards in the landfill

capacity on top of the then remaining capacity of 21 million cubic yards for a total of approximately36 million cubic yards. As a result of the extension the estimated closure date has been extended to January 2041 (Mercury News 2016). The project would not significantly increase solid waste generation and could be accommodated by existing solid waste facilities. Therefore, the impact resulting from construction and operation of the proposed project on landfill capacity would be less than significant.

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Construction and Operation

No Impact. The California Integrated Waste Management Act of 1989 (Assembly Bill 939) requires local jurisdictions in California to reduce, by 50 percent, the amount of solid waste disposed of in landfills by the year 2000 and beyond. During construction, the project would collect and haul construction debris off-site for recycling or disposal in local jurisdictions that comply with this state requirement and have programs in place to ensure that disposal of solid waste meets these requirements. The project would comply with these requirements pursuant to city requirements. The project would not result in an impact on solid waste collection and would comply with management and reduction regulations (DayZen 2020a). Typically, data centers do not generate special or unique wastes. Likewise, the LDC would not generate any special or unique wastes causing non-compliance with federal, state, and local statutes or solid waste management and reduction regulations. Management of hazardous waste and applicable federal regulations are discussed in **Section 4.9, Hazards and Hazardous Materials**.

During operation, the project would comply with federal, state, and local statutes and regulations related to solid waste. There would be no change in compliance with federal, state, or local statutes and regulations related to solid waste management and reduction. No impact would occur.

4.18.3 Mitigation Measures

None.

4.18.4 References

DayZen 2020a – Application for Small Power Plant Exemption, Part 1: Lafayette Data Center (TN233041-1). May 2020. Accessed on: June 5, 2020. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=233041-1&DocumentContentId=65519

DayZen 2021 – Digital Realty's Responses to CEC Data Request Set 3 – Lafayette Data Center (TN 240184). November 1, 2021. Available online at: https://efiling.energy.ca.gov/GetDocument.aspx?tn=240184&DocumentContentId=73642

DWR 2003 – Department of Water Resources (DWR). Guidebook for Implementation of Senate Bill 610 and Senate Bill 221 of 2001. California Department of Water Resources. October 8, 2003. Accessed on: May 7, 2020. Available online at: https://water.ca.gov/LegacyFiles/pubs/use/sb_610_sb_221_guidebook/guidebook.pdf

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Santa Clara 2014 – City of Santa Clara (Santa Clara). City of Santa Clara 2010-2035 General Plan. Approved by City Council November 16, 2010, and updated December 9, 2014. Accessed on: February 14, 2020. Available online at: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan

Santa Clara 2021 – City of Santa Clara 2020 Urban Water Management Plan (UWMP). Prepared by the city of Santa Clara Water and Sewer Utilities. Adopted June 22, 2021. Accessed on: August 2, 2021. Available online at: https://www.santaclaraca.gov/home/showpublisheddocument/74073/637606452907100000

SVP 2020 – The Silicon Valley Power (SVP). Electric utility fact sheet, December 2020. Accessed on: March 6, 2023. Available online at: https://www.siliconvalleypower.com/home/showpublisheddocument/72343/637515110025130000

SVP 2021 – The Silicon Valley Power (SVP). Resources Map. Accessed on: December 9, 2021. Available online at: http://www.siliconvalleypower.com/home/showdocument?id=5763

4.19 Wildfire

This section describes the environmental and regulatory setting and discusses impacts associated with the construction and operation of the project with respect to wildfires.

WILDFIRE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
i. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
ii. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
iii. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
iv. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Environmental criteria established by CEQA Guidelines, Appendix G.

4.19.1 Environmental Setting

Wildfire Hazards

The Department of Forestry and Fire Protection (Cal Fire) identifies and maps areas of significant fire hazards based on fuels, terrain, and other relevant factors. These maps categorize this information by Fire Hazard Severity Zones (FHSZ), grouped into unzoned, moderate, high, and very high zones. State Responsibility Areas (SRA) are locations where the state of California is responsible for wildfire protection and Local Responsibility Areas are locations where the responding agency is the county or city.

The California Public Utilities Commission (CPUC) categorizes fire threat areas as Tier 1, Tier 2, or Tier 3. Tier 1 (or CAL FIRE Zone 1) encompasses High Hazard Zones (HHZ) on the United States Forest Service (USFS-CAL FIRE) joint map of Tree Mortality HHZ. This tier represents areas where tree mortality directly coincides with critical infrastructure such as communities, roads, and utility lines, and are a direct threat to public safety. Tier

2 consists of areas where there is an elevated risk (including likelihood and potential impacts on people and property) from wildfires associated with overhead utility power lines or overhead utility power-line facilities also supporting communication facilities. Tier 3 consists of areas where there is an extreme risk (including likelihood and potential impacts on people and property) from wildfires associated with overhead utility power lines or overhead utility power-line facilities also supporting communication facilities.

The project site is surrounded by urban and industrial development in the city of Santa Clara and is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC. The project site is also not within a state of California FHSZ (Cal Fire 2019) at the wildland and urban interface and is not in the vicinity of wildlands.

Regulatory Background

Federal

No federal regulations related to wildfires apply to the project.

State

Fire Hazard Severity Zones (Pub. Resources Code, §§ 4201-4204). The purpose of this code section is to provide for the classification of lands within SRAs in accordance with the severity of fire hazard present and identify measures to be taken to retard the rate of spreading and to reduce the potential intensity of uncontrolled fires that threaten to destroy resources, life, or property.

Fire Hazard Severity (Cal. Code Regs, tit. 14, § 1280). FHSZs reflect the degree of severity of fire hazard.

CPUC General Order 95: Rules for Overhead Electric Line Construction. CPUC GO 95, Section 35, covers all aspects of design, construction, operation, and maintenance of overhead electrical lines and management of safety hazards. Its application would ensure adequate service and safety to persons engaged in the construction, maintenance, operation or use of overhead lines and to the public in general.

CPUC General Order 166: Standards for Operation, Reliability, and Safety during Emergencies and Disasters. CPUC GO 166 covers the standards which require all electric utilities to be prepared for emergencies and disasters in order to minimize damage and inconvenience to the public which may occur as a result of electric system failures, major outages, or hazards posed by damage to electric distribution facilities.

Local

Santa Clara County Operational Area Hazard Mitigation Plan. The plan includes risk assessment that identifies the natural hazards and risks that can impact a community based on historical experience, estimate the potential frequency and magnitude of disasters, and assess potential losses to life and property. The plan also includes

developed mitigation goals and objectives as part of a strategy for mitigating hazard-related losses.

4.19.2 Environmental Impacts

a. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

i. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Construction

No Impact. During project construction, traffic levels would experience a minimal increase that is not expected to degrade traffic performance significantly. Emergency response access during construction would not be significantly impeded. The project would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No streets would be closed, rerouted, or substantially altered during construction.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

Operation

No Impact. The project does not involve the addition of a large number of people to the local area who could increase emergency response demand during a potential evacuation. Thus, the project would not interfere with the coordination of the city's emergency operations plan at the emergency operations center or alternate emergency operations center, nor would the project interfere with any statewide emergency response, or evacuation routes or plans. Adequate emergency access to the project site and surrounding industrial area would be maintained.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

ii. Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Construction and Operation

No Impact. The topography of the project site is flat and the project area is highly developed with minimal open space areas, faces, or slopes. Therefore, project construction would not exacerbate wildfire risk or expose occupants to pollutant concentrations from a wildfire.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

iii. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Construction and Operation

No Impact. The project would require the installation of an onsite distribution substation. The substation would contain two receiving stations for stepping down the voltage from Silicon Valley Power from 115 kV to 60 kV. The construction of the substation would not block access to any road or result in traffic congestion. Maintenance of this substation would not physically block any access roads or result in traffic congestion that could significantly compromise timely access to this facility or any other location. Any large trees that would be crossed by the electrical supply line would be trimmed or removed consistent with electric reliability requirements. Therefore, the constructed electrical supply line and other project infrastructure will not constitute a possible ignition source for local vegetation, nor will it block access to any road or result in traffic congestion.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

iv. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Construction

No Impact. The project would not substantially alter local drainage patterns. Storm water discharge during construction would be managed according to the project's Storm Water Pollution Prevention Plan, and appropriately discharged to the city of Santa Clara's storm drain system. The project would therefore not be expected to contribute to a flooding hazard onsite or offsite. For further discussion of the potential flooding impacts that could result from the proposed project, please see the discussion in **Section 4.10 Hydrology and Water Quality**.

As discussed in this section, the topography of the project site and surrounding area is relatively flat and highly developed. Therefore, the project would not be exposed to post-fire slope instability or drainage changes.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

Operation

No Impact. Operation of the project would not alter the course of a drainage (stream or river) and would not substantially alter local drainage patterns. The proposed onsite storm drainage system would be designed to meet the city's storm water drainage standards and sized adequately to convey water away from the site and to the city of Santa Clara's storm drain system. The project would therefore not contribute to a flooding hazard onsite or offsite.

As discussed in this section, the topography of the project site and surrounding area is relatively flat and highly developed. Therefore, the project would not be exposed to post-fire slope instability or drainage changes.

Additionally, the project is not located in or near a SRA or a very high FHSZ, or land classified as having a fire threat by the CPUC.

4.19.3 Mitigation Measures

None.

4.19.4 References

CALFIRE 2019 – CalFire (CALFRE). *Santa Clara County FHSZ Map in Local Responsibility Area*. Accessed on: June 11, 2020. Available online at: https://osfm.fire.ca.gov/media/5935/san_jose.pdf

4.20 Mandatory Findings of Significance

This section describes impacts specific to mandatory findings of significance associated with the construction and operation of the project.

MANDATORY FINDINGS OF SIGNIFICANCE	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

a. Does the project have the potential to substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation Incorporated.

Biological Resources

Less Than Significant with Mitigation Incorporated. With implementation of CEC staff (staff) recommended mitigation measures, the project would not substantially degrade the quality of the environment, substantially reduce the existing habitat of any fish or wildlife species, cause any fish or wildlife population to drop below self-sustaining levels,

threaten to eliminate any plant or animal community, or substantially reduce the number or restrict the range of an endangered, threatened, or rare plant or animal species.

The project site is in a highly developed area and surrounded by commercial and industrial buildings. Therefore, the potential to degrade environmental quality is minimal, as the project site and surrounding properties do not support natural vegetation that would allow for extensive wildlife foraging or occupancy. However, mature landscaping trees and shrubs provide nesting opportunities for protected migratory bird species. Implementation of mitigation measures **BIO-1** and **BIO-2**, which would require avoidance and minimization measures for protected migratory bird species, as well as a mitigation plan for removal of on-site trees protected by local ordinance, would ensure that project impacts would be less than significant.

Cultural and Tribal Cultural Resources

Less Than Significant with Mitigation Incorporated. Important examples of the major periods of California history or prehistory represented by historical, unique archaeological, or tribal cultural resources are not known to be present in the project area. Nevertheless, the extent of proposed ground disturbance has the potential to damage unknown, buried archaeological resources in the project area. As described in **Section 4.5 Cultural and Tribal Cultural Resources**, the majority of archaeological resources aged about 5,000 years or older are buried beneath the ground surface. If these resources were to be exposed or destroyed, it would be a significant impact. Implementation of mitigation measures **CUL-1** and **CUL-2** included in **Section 4.5 Cultural and Tribal Cultural Resources** would reduce the impacts to buried cultural resources to a less-than-significant level. The proposed project therefore is unlikely to eliminate important examples of major periods of California history or prehistory, thus, the impact would be less than significant.

Geology and Soils

Less Than Significant with Mitigation Incorporated. Paleontological resources that represent important examples of the major periods of California prehistory are known to be present in the project area. The extent of proposed ground disturbance has the potential to damage unknown, buried paleontological resources in the project footprint. As described in **Section 4.7 Geology and Soils**, paleontological resources may be buried beneath the ground surface in Pleistocene age sediments. Five fossil sites have been found at or near the ground surface within several miles of the project site, particularly along stream beds (UCMP 2020). If significant paleontological resources were to be exposed or destroyed, it would be a significant impact. Adherence to the City of Santa Clara 2010-2035 General Plan (General Plan) Goal 5.6.3 through implementation of policies (5.6.3-P1, 2, 4, and 5) (Santa Clara 2010), and implementation of proposed mitigation measure **GEO-1** included in **Section 4.7 Geology and Soils** would reduce the impacts to buried paleontological resources to a less-than-significant level. The proposed project therefore is unlikely to eliminate important examples of paleontological

resources that are part of the prehistory of California, therefore the impact would be less than significant.

There are no unique geologic features on or adjacent the project site, thus there would be no project impacts to such features.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant with Mitigation Incorporated. The analysis of cumulative impacts can employ one of two methods to establish the effects of other past, current, and probable future projects. A lead agency may select a list of projects, including those outside the control of the agency, or, alternatively, a summary of projections. These projections may be from an adopted general plan or related planning document, or from a prior environmental document that has been adopted or certified, and these documents may describe or evaluate the regional or area-wide conditions contributing to the cumulative impact.

General Plan Projection

This section evaluates cumulative impacts using the City of Santa Clara 2010-2035 General Plan Integrated Final Environmental Impact Report (General Plan FEIR) since the project would be consistent with applicable land use plans and policies (Santa Clara 2011). The General Plan FEIR identified that the build out of the General Plan would contribute to five, significant and unavoidable cumulative impacts in the areas of climate change, noise, population and housing, traffic, and solid waste.

General Plan Significant Unavoidable Impacts

The General Plan FEIR identified the following significant unavoidable environmental impacts applicable to the proposed project:

- Climate Change – Contribution to greenhouse gas (GHG) emissions exceeding Santa Clara's emission reduction target for 2035;
- Noise – Increase in localized traffic noise level on roadway segments throughout Santa Clara;
- Population and Housing – Exacerbation of land use impacts arising from the jobs/housing imbalance;
- Traffic – Degradation of traffic operations on regional roadways and highways within Santa Clara of an unacceptable level of service; and
- Solid Waste – Contribution to solid waste generation beyond available capacity after 2024.

Although the project, in combination with future development in the city of Santa Clara, could conceivably have a significant cumulative impact to these environmental resources, the following discussion demonstrates how the project's contribution to these impacts would be less than cumulatively considerable.

Climate Change Impacts (Greenhouse Gas Emissions)

Less Than Significant with Mitigation Incorporated. The Bay Area Air Quality Management District (BAAQMD) 2017 California Environmental Quality Act (CEQA) Air Quality Guidelines do not identify a GHG emissions threshold for construction-related emissions. Because construction emissions would cease once construction is complete, these emissions are considered short term. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, and the impacts be determined in relation to meeting California Global Warming Solution Act of 2006, Assembly Bill (AB) 32, GHG emissions reduction goals. BAAQMD further recommends the incorporation of Best Management Practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable.

BMPs may include the use of alternative-fueled (for example, renewable diesel or electric) construction vehicles and equipment for at least 15 percent of the fleet, use of at least 10 percent of local building materials, and recycling or reusing at least 50 percent of construction waste (BAAQMD 2017b). The project would implement mitigation measure **AQ-1**, which would require, among other things, that the construction equipment be tuned and maintained in accordance with manufacturer's specifications and that construction equipment idling time be limited to five minutes to reduce GHG emissions from fuel consumed from unnecessary idling or the operation of poorly maintained equipment. The project would also participate in the city's Construction & Demolition Debris Recycling Program by recycling or diverting at least 65 percent of materials generated for discards by the project to reduce the amount of demolition and construction waste going to the landfill.

The project's temporary construction emissions would be in conformance with state and local GHG emissions reduction goals, so impacts would be less than significant and not cumulatively considerable.

For readiness testing and maintenance-related emissions, the BAAQMD 2017 CEQA Air Quality Guidelines state that for stationary-source projects, the threshold to determine the significance of an impact from GHG emissions is 10,000 metric tons per year of carbon dioxide equivalent ($MTCO_2e/yr$). However, BAAQMD is in the process of preparing and presenting to the BAAQMD board for approval an update to the CEQA GHG threshold for stationary sources to 2,000 $MTCO_2e/yr$ or compliance with the California Air Resources Board's cap-and-trade program. As a stationary source, the project's emergency backup generators (gensets) may be subject to the pending CEQA GHG threshold. The gensets would not have a cumulatively considerable contribution to GHGs if emissions are below the applicable BAAQMD CEQA GHG threshold.

Other project-related emissions from mobile sources, area sources, energy use, and water use would not be included for comparison to the stationary source threshold, based on guidance in BAAQMD's CEQA Guidelines. Instead, GHG impacts from all other project-related emissions sources would be considered to have a less-than-significant impact if the project is consistent with the city of Santa Clara Climate Action Plan (CAP), which is considered a qualified GHG reduction strategy, and applicable regulatory programs and policies adopted by the California Air Resources Board (CARB) or other California agencies. The city of Santa Clara updated the CAP on June 7, 2022 (Santa Clara 2021). The 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045.

With the applicant's requested 50 hours of readiness testing and maintenance per year per engine, the GHG emissions of the gensets of the project are expected to be less than the 10,000 $MTCO_2e$/yr threshold but more than the 2,000 $MTCO_2e$/yr threshold BAAQMD is currently considering. Therefore, staff proposes mitigation measure **GHG-1** would require the applicant to use renewable diesel as fuel for the gensets. Staff also proposes mitigation measure **GHG-2** to require the applicant to participate in Silicon Valley Power's Large Customer Renewable Energy (LCRE) program or other renewable energy program that accomplishes the same objective as SVP's LCRE Program for 100 percent carbon-free electricity or purchase renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. Additionally, the project would implement efficiency measures to meet California's green building standards, and additional voluntary efficiency and use reduction measures. As such, GHG emissions related to the project would not conflict with the city of Santa Clara CAP or other plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Therefore, the project's GHG emissions would not be cumulatively considerable.

Noise Impacts

Less Than Significant with Mitigation Incorporated. The General Plan FEIR anticipates significant noise impacts from the build-out of the General Plan. The significant noise impacts identified are attributed to noise associated with increased traffic. As discussed in **Section 4.17 Transportation**, traffic from the project would not have a significant impact on surrounding roadways and the transportation network. The project would contribute to vehicle trips during the construction period as construction workers commute, and trucks deliver construction materials, to the project site. These trips would be temporary in nature; therefore, they would not significantly add to regular traffic. Implementation of mitigation measure **NOI-1** would reduce noise from construction vehicles to less than significant levels. Operational employees would generate minimal daily trips and would not substantially increase the traffic or associated traffic-related noise levels in the project area. Any noise impacts associated with construction and operations traffic would be less than significant. The project's contribution to this cumulative impact would not be cumulatively considerable.

Population and Housing Impacts

Less Than Significant. The General Plan FEIR identified significant impacts from the build-out of the General Plan land use designations. The General Plan EIR concluded that the proposed land uses would create a regional jobs/housing imbalance, as workers who are unable to live near their employment would commute long distances from outlying areas. As described in **Section 4.14 Population and Housing**, the project would not displace any people or housing, or necessitate construction of replacement housing elsewhere. Operation of the project would require 30 to 35 employees. The project's construction and operation workforce would not directly or indirectly induce a substantial population growth in the project area. Therefore, the project's contribution to the jobs-housing imbalance would not be cumulatively considerable.

Transportation Impacts

Less Than Significant. The General Plan FEIR anticipates significant traffic impacts from the build-out of the General Plan. As discussed in **Section 4.17 Transportation**, traffic from the project would not have a significant impact on surrounding roadways and the transportation network. The project would contribute vehicle trips during the construction period as construction workers commute, and trucks deliver construction materials, to the project site. These trips would be temporary in nature; therefore, they would not significantly add to regular traffic. Operational employees, periodic tanker truck trips to replenish diesel fuel for the gensets on an as needed bases, visits from customers setting up or maintaining equipment and delivery and trash-hauling trucks would generate minimal daily trips and would not substantially increase the regular traffic in the project area. Furthermore, implementation of **TRANS-1** would reduce the project's operational VMT to a level below the city of Santa Clara's industrial threshold thus, the project's contribution to this cumulative impact would not be cumulatively considerable.

For cumulative impacts related to thermal plumes, staff reviewed several projects[1] in proximity to the Lafayette Data Center (LDC) that would produce plumes that could possibly merge with the LDC's plumes produced by the diesel-fired gensets and rooftop chillers. The merging of thermal plumes relies on the distance from other plume producing equipment and atmospheric conditions, such as wind (DayZen 2022b). The Walsh Data Center is located immediately south of the LDC, and also produces thermal plumes from rooftop chillers and diesel gensets. Walsh's rooftop chillers produce a thermal plume reaching hazardous velocities of 10.6 m/s (5.3 m/s average plume velocity) up to an altitude of 203-feet above ground level (AGL), and the gensets produce thermal plumes reaching hazardous velocities of 10.6 m/s up to an altitude of 126-feet AGL over the site.

1 Staff analyzed thermal plume data from five nearby data centers (Walsh Data Center, Sequoia Data Center, Martin Data Center, McLaren Data Center and SC-1 Data Center) to determine if these data center's thermal plumes could combine to create a thermal plume that would pose a hazard to aircraft.

CEC air quality staff analyzed emergency operational data contained in Appendix B[2]of this document to consider the possibility of the LDC's rooftop chillers and gensets thermal plumes merging with the Walsh Data Center's thermal plumes and at what altitude the critical velocity of those plumes would occur.

Staff determined plume exit velocities of the rooftop chillers and the gensets, if both data centers were operating concurrently under conservative calm wind conditions, would not result in a merged plume with a critical velocity threshold of 10.6 m/s (5.3 m/s average plume velocity). Rather, cumulative impacts associated with nearby data center plumes would be unlikely because thermal plumes would merge only at a height exceeding 200-feet AGL, with a combined velocity of approximately 3.4 m/s, which is below the critical threshold of 10.6 m/s. Therefore, nearby data centers could potentially generate thermal plumes simultaneously with LDC's thermal plumes; however, these plumes would not be expected to increase thermal plume velocity due to the physical distance between the data centers and the low buoyancy of the thermal plumes generated. The LDC would not cause significant cumulative impacts to aviation.

As discussed in **Section 4.17 Transportation**, the project would create high-velocity thermal plumes that would exceed a peak velocity of 10.6 m/s (5.3 m/s average plume velocity) and could impact aviation safety at altitudes up to 173-feet AGL under unusual worst-case weather conditions of cool weather and calm winds, which rarely occur in the project area as discussed in the **Air Quality** section 4.3.2. Cumulative thermal plume impacts to aircraft would be less than significant, as the chance of a low altitude overflight coinciding with the generation of worst-case thermal plumes would be unlikely.

Solid Waste Impacts

Less Than Significant. As stated in **Section 4.18 Utilities and Service Systems**, the city of Santa Clara has available landfill capacity at the Newby Island Landfill in the city of San José through 2041. The current landfill impacts are addressed within an ongoing Integrated Waste Management Plan of the city of Santa Clara to provide waste disposal services. The project would participate in the city's Construction and Demolition Debris Recycling Program by recycling or diverting at least 50 percent of materials generated for discards by the project to reduce the amount of demolition and construction waste going to the landfill. During operation the project would generate minimal operational waste as data centers typically require very little equipment turnover. Additionally, the project does not include a residential component and would not generate any increases in the supply and demand of utility services and infrastructure. Therefore, the project's contribution to this cumulative impact would not be cumulatively considerable.

2 Staff analyzed the probability of the LDC engaging in emergency operation. Staff determined emergency operation would be infrequent and unlikely. See Appendix B for more details.

Other Technical Areas

Although the city's General Plan FEIR did not identify significant effects in the areas of air quality, cultural resources, and geology (paleontology), and did not include an analysis of impacts to tribal cultural resources as the General Plan FEIR was adopted before the passage of AB 52 requiring such analysis, CEC staff concluded that the project's impacts in these areas are *less than significant with mitigation*. Thus, staff has considered whether the project would contribute to cumulatively considerable impacts in these areas. Staff has also included an analysis of potential cumulative impacts for the other technical areas where project impacts would be *less than significant*.

Aesthetics

Less Than Significant. The proposed project is located on relatively flat land in a highly developed urban area within the city of Santa Clara, specifically intended to encourage heavy industrial development.

There are no scenic vistas as discussed in **Section 4.1 Aesthetics** in the area. Existing aboveground buildings, structures, earthworks, equipment, trees, and vegetation, et cetera block or limit public views of the project and new or foreseeable projects from scenic resources.

The project and new or foreseeable projects within this urbanized area would not conflict with applicable city zoning and other regulations governing scenic quality.

The project and other projects typically include outdoor lighting for driveways, entrances, walkways, parking areas, and security purposes. Lighting would be directed away from residential areas and public streets.

The project and new or foreseeable projects would not: have a substantial adverse effect on a scenic vista; substantially damage scenic resources; substantially degrade the existing visual character or quality of public views of the site and its surrounding; and would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. The project's contribution to Aesthetics impacts in the area would not be cumulatively considerable.

Air Quality

Less Than Significant with Mitigation Incorporated. The proposed project would be in Santa Clara County in the San Francisco Bay Area Air Basin (SFBAAB), under the jurisdiction of BAAQMD. The SFBAAB is designated as a nonattainment area for ozone and fine particulate matter having a diameter of less than or equal to 2.5 microns (PM2.5) under both California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The SFBAAB is also designated as nonattainment for particulate matter having a diameter of less than or equal to 10 microns (PM10) under CAAQS but not NAAQS.

SFBAAB's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. In developing thresholds of significance for air pollutants, BAAQMD considers the emissions 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. CEQA would then require the implementation of all feasible mitigation measures.

The construction exhaust emissions of the project would be lower than the thresholds of significance from the BAAQMD CEQA Air Quality Guidelines. There is no numerical threshold for fugitive dust generated during construction in BAAQMD's jurisdictional boundaries. The BAAQMD CEQA Guidelines recommend the control of fugitive dust through BMPs to conclude that impacts from fugitive dust emissions are less than significant. The mitigation measure **AQ-1** would reduce air quality impacts during project construction. This measure requires incorporation of BAAQMD's recommended construction BMPs to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. With the implementation of **AQ-1**, PM10 and PM2.5 emissions during construction would be reduced to a level that would not result in a considerable increase of these pollutants. Therefore, the project's construction emissions would not be cumulatively considerable.

During readiness testing and maintenance, the oxides of nitrogen (NOx) emissions of the gensets are estimated to exceed the BAAQMD significance threshold of 10 tons per year. All other pollutants would have estimated emissions rates below BAAQMD significance thresholds. The NOx emissions from the genset readiness testing and maintenance would be required to be fully offset through the BAAQMD permitting process. Therefore, the project's emissions during readiness testing and maintenance would not be cumulatively considerable.

The criteria pollutant air quality impact analysis found that the concentrations from construction and readiness testing and maintenance of the gensets would not cause any exceedance of ambient air quality standards. Therefore, the project's criteria air pollutant impacts from genset readiness testing and maintenance would be less than significant and would not be cumulatively considerable.

The health risk assessment (HRA) shows that the project's health risk impacts would not exceed BAAQMD significance thresholds during construction or genset readiness testing and maintenance. The proposed project would not cause cumulatively considerable impacts, either. The project would not expose sensitive receptors to substantial toxic air contaminant (TAC) concentrations during construction or genset readiness testing and maintenance.

Due to the infrequent nature of emergency conditions and the record of highly reliable electric service available to the project (see **Appendix B**), the project's emergency

operations would be unlikely to expose sensitive receptors to substantial concentrations of criteria air pollutants or TACs. Therefore, the project's air quality impacts would not be cumulatively significant.

Biological Resources

Less Than Significant with Mitigation Incorporated. The General Plan FEIR found less than significant biological resources impacts in the event of a full build-out scenario. The project site and surrounding properties are highly developed with commercial and industrial buildings and associated paved parking. The potential to degrade environmental quality is minimal, as the project site and surrounding properties do not support natural vegetation that would allow for extensive wildlife foraging or occupancy. However, mature landscaping trees and shrubs and other features on and near the project site could provide nesting opportunities for birds protected under the Migratory Bird Treaty Act and Fish and Game Code. Effects could include disruptions during the breeding season from construction and tree removal. To ensure impact avoidance, **Section 4.4 Biological Resources** identifies the following mitigation measures: **BIO-1**, which requires nesting bird pre-construction surveys and implementation of appropriate nest buffers, and **BIO-2**, which provides detailed requirements for the replacement of trees removed as part of the project. Biological resources impacts from the proposed project would be less than significant with implementation of staff's proposed mitigation measures, and therefore would not be cumulatively considerable.

Cultural and Tribal Cultural Resources

Less Than Significant with Mitigation Incorporated. The General Plan FEIR does not specifically address impacts on tribal cultural resources. Historical resources and unique archaeological resources, as defined by CEQA, share several of the impact vulnerabilities that tribal cultural resources face, especially the effects of ground-disturbing activities. In addition, historical and unique archaeological resources can also qualify as tribal cultural resources. The suite of mitigation measures for cultural resources presented in the General Plan FEIR would reduce the severity of some impacts on tribal cultural resources. No known historical resources, unique archaeological resources, or tribal cultural resources have been found on the project site, although ground disturbance associated with the proposed project could result in the exposure and destruction of buried, as-yet unknown archaeological resources that could qualify as historical resources, unique archaeological resources, or tribal cultural resources. Implementation of mitigation measures **CUL-1** and **CUL-2** would prevent, minimize, or compensate for impacts on buried historical, unique archaeological, or tribal cultural resources. Project impacts to cultural resources and tribal cultural resources therefore would not be cumulatively considerable.

Energy and Energy Resources

Less Than Significant Impact. The total number of hours of operation for reliability purposes (i.e., readiness testing and maintenance) for the gensets would be restricted to

no more than 50 hours per genset. At this rate, the total quantities of diesel fuel used for all the gensets operating at full load would be approximately 10,929 barrels per year (bbl/yr). California has a diesel fuel supply of approximately 316,441,000 bbl/yr. The project's use of fuel constitutes a small fraction (less than 0.003 percent) of available resources, and the supply is more than sufficient to meet necessary demand. For these reasons, the project's use of fuel is less than significant.

The project's consumption of energy resources during operation would not be inefficient or wasteful, as discussed in **Section 4.6 Energy and Energy Resources**. Project operation would have a less-than-significant adverse effect on local or regional energy supplies and energy resources and likewise, would not be cumulatively considerable.

Geology and Soils

Less Than Significant with Mitigation Incorporated. The General Plan identifies four policies (5.6.3-P1, 2, 4, and 5) that specifically address impacts on paleontological resources (Santa Clara 2010). Paleontological resources can be impacted by the effects of ground-disturbing activities. Five fossil sites have been found at or near the ground surface within several miles of the project site, particularly along stream beds (UCMP 2020). The suite of mitigation measures for paleontological resources presented in the General Plan FEIR would reduce the severity of some impacts on paleontological resources. No known paleontological resources have been found on the project site. Ground disturbance associated with the proposed project could result in the exposure and destruction of buried, as-yet unknown paleontological resources that could qualify as significant paleontological resources. Implementation of mitigation measure **GEO-1** would prevent, or minimize, impacts on buried paleontological resources. Project impacts to paleontological resources therefore would not be cumulatively considerable.

Hazards and Hazardous Materials

Less Than Significant Impact with Mitigation Incorporated. As discussed in **Section 4.9 Hazards and Hazardous Materials**, ground disturbing activities associated with the grading and construction activities of the project would have the potential to encounter impacted soil. The contaminated soil could contain residual pesticides and herbicides from agriculture use, fuel related volatile organic compounds, and chlorinated solvents from industrial use. Mitigation measure **HAZ-1** would require a site management plan (SMP) to be created. The SMP would establish proper procedures to be taken when contaminated soil is found and how to dispose of the contaminated soil properly. In addition, if contaminated soils are found in concentrations above set thresholds, the project would halt construction and the soil would be treated or removed to an appropriate disposal facility. With the implementation of **HAZ-1,** the construction of the project would create a less than significant impact to the public or the environment.

The proposed project would use hazardous materials in small quantities associated with construction. These hazardous materials would be stored in designated construction staging areas in compliance with local, state, and federal requirements. Any diesel fuel

transported on site would also comply with the extensive regulatory framework that applies to the shipment of hazardous materials. In addition, the project owner would implement procedures, safety features and precautions that would reduce the risk of an accidental hazardous materials release. Therefore, the impact from the use, transport, disposal, or accidental release of hazardous materials would not be cumulatively significant.

Hydrology and Water Quality

Less Than Significant Impact with Mitigation Incorporated. The project would comply with the Municipal NPDES Permit and the Santa Clara Valley Urban Runoff Pollution Prevention Program. The plans and permits work together to establish specific requirements to reduce storm water pollution from new and redevelopment projects, individually and cumulatively. If implemented as described in **Section 4.10 Hydrology and Water Quality**, these standards would avoid a cumulatively considerable impact to the basin's hydrology by protecting water quality of both surface water and groundwater bodies receiving discharge from the project. Incorporation of mitigation measure **HYD-1**, which outlines implementation of best management practices included in the Storm Water Pollution Prevention Plan, is expected to ensure the project would not violate water quality standards or violate waste discharge requirements during construction and operation, thereby reducing impacts to less than significant.

Land Use and Planning

Less Than Significant Impact. Staff assessed consistency of the proposed project with applicable plans, policies, and regulations. Relevant policies and regulatory requirements are identified in the Santa Clara County Comprehensive Land Use Plan (CLUP) for the Norman Y. Mineta San José International Airport, City of Santa Clara 2010–2035 General Plan (General Plan), and the Santa Clara Zoning Code. The General Plan land use designation is Light Industrial, which has a maximum floor area ratio (FAR) of 0.60. City of Santa Clara (city) staff agreed that a FAR of 0.90 would be set as a not-to-exceed threshold for the project, which the city considers appropriate for data centers. The zoning district is MH – Heavy Industrial. As described in **Section 4.11 Land Use and Planning**, the project would conform to applicable industrial site and building requirements in the MH zoning district (e.g., building heights and setbacks).

The Santa Clara County Airport Land Use Commission (ALUC) will review the project, including this environmental document, prior to issuing a final consistency determination letter listing conditions that the project owner must satisfy. The conditions will include an updated avigation easement and the plan to underground specific fuel tanks on the east side of the site. With its conditions met, the ALUC could find the proposed project to be consistent with the CLUP. Staff anticipates including a discussion of ALUC requirements in the final EIR for the project. Construction and operation of the project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Land use impacts would be less than significant.

In its description of existing land uses, the General Plan FEIR states that as of 2010 the city had developed almost all its vacant land and was essentially built out (Santa Clara 2011). It also describes how the central portion of the city, north of the Caltrain corridor and south of U.S. 101 (where the project site is located), consists mostly of light and heavy industrial uses, although some of the area had by that time transitioned into office, research and development, and data center uses. In describing areas of potential development, the General Plan FEIR states that most new development will reuse existing underutilized properties for redevelopment. It was concluded that implementation of the General Plan in accordance with the city's proposed policies and actions would result in less-than-significant land use impacts, and no mitigation measures were required (Santa Clara 2011). Neither would the proposed project cause a cumulatively considerable incremental contribution to any land use impact.

Public Services

Less Than Significant Impact. As discussed in **Section 4.15 Public Services**, the construction and operation of the project would not result in substantial adverse physical environmental impacts associated with the provision of new or physically altered fire and police service facilities to maintain acceptable service ratios, response times, or other performance objectives. The project would be consistent with the planned growth in the General Plan. The Santa Clara Fire Department would review the site development plans to ensure appropriate safety measures are incorporated to reduce fire hazards and the police department would review the final site design to ensure that the project provides adequate safety and security measures.

In accordance with California Government Code Section 65996, the project would be required to pay the appropriate school impact fees to Santa Clara Unified School District. The applicant anticipates the operational workforce would be drawn from the greater Bay Area. Even if all the operation work force would relocate closer to the project site, the additional population would be consistent with growth projections and service ratios in the General Plan and thus the project would not cause significant environmental impacts associated with the provision of new or physically altered park and other public facilities to maintain acceptable service ratios or other performance objectives. The project's impacts to the public services would not be cumulatively considerable.

Recreation

Less Than Significant Impact. As discussed in **Section 4.16 Recreation**, the project does not require or propose the construction or expansion of recreation facilities. The project's operational workforce of 30-35 persons would be consistent with growth projects and service ratios in the General Plan and thus the project would not increase the use of existing parks or recreational facilities to the extent that substantial physical deterioration of the park or facility would result. The project's impacts to recreation would not be cumulatively considerable.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant Impact with Mitigation Incorporated. The proposed project would not cause substantial adverse effects on human beings either directly or indirectly. The proposed project would result in less than significant temporary impacts to human health during construction, including changes to air quality, and exposure to geologic hazards, noise, and hazardous materials. As discussed in **Section 4.3 Air Quality**, with implementation of the applicant's mitigation incorporated into the project design, **AQ-1**, which includes the BAAQMD's recommended BMPs for fugitive dust and construction equipment emissions, the project would result in a less than significant impact related to human health. As discussed in **Section 4.7 Geology and Soils**, implementation of seismic design guidelines in the current California Building Code and project-specific recommendations in a final geotechnical engineering report, as required by **GEO-1**, would ensure the project would not expose people or property to significant impacts associated with geologic or seismic conditions onsite. The project would result in temporary noise impacts to humans during construction and intermittently during operation. As discussed in **Section 4.13 Noise**, noise impacts would be less than significant with the implementation of **NOI-1**. As discussed in **Section 4.9 Hazards and Hazardous Materials**, hazards impacts would be less than significant with the implementation of **HAZ-1**. As discussed in **Section 4.10 Hydrology and Water Quality**, water quality impacts would be less than significant with the implementation of **HYD-1**. No additional impacts to human beings would occur during operation and maintenance activities.

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4.21 Environmental Justice

This section describes the environmental setting and regulatory background and discusses impacts specific to environmental justice associated with the construction and operation of the proposed project.

4.21.1 Environmental Setting

The United States Environmental Protection Agency (U.S. EPA) defines environmental justice (EJ) as, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies" (U.S. EPA 2015, pg. 4).

The "Environmental Justice in the Energy Commission Site Certification Process" subsection immediately below describes why EJ is part of the California Energy Commission's (CEC's) site certification process, the methodology used to identify an EJ population, and the consideration of data from the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool (CalEnviroScreen 4.0). Below that, the "Environmental Justice Project Screening" subsection presents the demographic data for those people living in a six-mile radius of the project site and a determination on presence or absence of an EJ population. When an EJ population is identified, the analysis in 10 technical areas[1] and Mandatory Findings of Significance consider the project's impacts on this population and whether any impacts would disproportionately affect the EJ population. Lastly, the "Project Outreach" subsection discusses the CEC's outreach program specifically as it relates to the proposed project.

Environmental Justice in the CEC Site Certification Process

President Clinton's Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," focuses federal attention on the environment and human health conditions of minority communities and calls on federal agencies to achieve environmental justice as part of their mission. The order requires the U.S. EPA and all other federal agencies (as well as state agencies receiving federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

The California Natural Resources Agency recognizes that EJ communities are commonly identified as those where residents are predominantly minorities or live below the poverty

1 The 10 technical areas are Aesthetics, Air Quality, Cultural and Tribal Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Population and Housing, Transportation, and Utilities and Service Systems. Cultural and Tribal Cultural Resources considers impacts to Native American populations.

level; where residents have been excluded from the environmental policy setting or decision-making process; where they are subject to a disproportionate impact from one or more environmental hazards; and where residents experience disparate implementation of environmental regulations, requirements, practices, and activities in their communities. Environmental justice efforts attempt to address the inequities of environmental protection in these communities.

An EJ analysis is composed of the following:

- Identification of areas potentially affected by various emissions or impacts from a proposed project;
- Providing notice in appropriate languages (when possible) of the proposed project and opportunities for participation in public meetings to EJ communities;
- A determination of whether there is a significant population of minority persons, or persons below the poverty level, living in an area potentially affected by the proposed project; and
- A determination of whether there may be a significant adverse impact on a population of minority persons or persons below the poverty level caused by the proposed project alone, or in combination with other existing and/or planned projects in the area.

California law defines EJ as "the fair treatment of people of all races, cultures and income with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies" (Gov. Code, § 65040.12; Pub. Resources Code, §§ 71110-71118). All departments, boards, commissions, conservancies and special programs of the California Natural Resources Agency must consider EJ in their decision-making process if their actions have an impact on the environment, environmental laws, or policies. Such actions that require EJ consideration may include:

- Adopting regulations;
- Enforcing environmental laws or regulations;
- Making discretionary decisions or taking actions that affect the environment;
- Providing funding for activities affecting the environment; and
- Interacting with the public on environmental issues.

Bay Area Air Quality Management District Community Health Programs

The project site is located within the Bay Area Air Quality Management District (BAAQMD). BAAQMD has community health programs intended to reduce air pollution disparities in the San Francisco Bay Area. The Community Health Protection Program is BAAQMD's local implementation of the California Air Resources Board's (CARB) Community Air Protection Program, as enacted by Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017). The statewide Community Air Protection Program requires CARB to develop a new community-focused program to reduce exposure more effectively to air pollution and preserve public health and to take measures to protect communities disproportionally

impacted by air pollution. CARB selects the highest priority locations in the state for the deployment of community air monitoring systems and select locations around the state for the preparation of community emissions reduction programs. CARB's governing board has selected 17 communities for a community emissions reduction program (CARB 2022). The project site is not located in an AB 617 community.

The Community Air Risk Evaluation (CARE) program was implemented by BAAQMD to identify areas in the Bay Area that experience a disproportionate share of air pollution exposure. One goal of the CARE program is to identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution (BAAQMD 2022). The proposed project is located in the 2013 Cumulative Impact Area and therefore a CARE community. However, since its overall CalEnviroScreen 4.0 percentile score is 60 (less than 70), the proposed project is not located in an overburdened community (BAAQMD 2021).

CalEnviroScreen - More Information About an EJ Population

CalEnviroScreen is a science-based mapping tool used by CalEPA to identify disadvantaged communities[2] pursuant to Health and Safety Code section 39711 as enacted by Senate Bill (SB) 535 (De León, Stats. 2012 Ch. 830). As required by state law, disadvantaged communities are identified based on geographic, socioeconomic, public health, and environmental hazard criteria. CalEnviroScreen identifies impacted communities by taking into consideration pollution exposure and its effects, as well as health and socioeconomic status, at the census-tract level (OEHHA 2021, pg. 8).

The CalEnviroScreen model consists of four components in two broad categories. The Exposure and Environmental Effects components comprise a Pollution Burden category, and the Sensitive Populations and Socioeconomic Factors components comprise a Population Characteristic category. The four components are made up of environmental, health, and socioeconomic data from 21 indictors.

The CalEnviroScreen score presents a relative, rather than an absolute, evaluation of pollution burdens and vulnerabilities in California communities by providing a relative ranking of communities across the state (OEHHA 2021, pg. 8). Calculating the CalEnviroScreen scores begins by assigning percentile scores to the 21 statewide indicators, which fall into two categories of Pollution Burden and Population

2 The California Environmental Protection Agency, for purposes of its Cap-and-Trade Program, defines communities in terms of census tracts and identifies four types of geographic areas as disadvantaged: (1) census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0; (2) census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores; (3) census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; (4) and areas under the control of federally recognized Tribes (CalEPA 2022a).

Characteristics. The percentiles are averaged for the set of indicators in each of the four components (Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors). These four components in turn, are combined to yield an overall CalEnviroScreen score (Cal/EPA 2022a, pg. 5-6). Each category has a maximum score of 10, and, thus, when multiplied the maximum CalEnviroScreen score is 100. Based on these scores, census tracts across California are ranked relative to one another. Values for the various components are shown as percentiles, which indicate the percent of all census tracts with a lower score. A higher percentile indicates a higher potential relative burden. A percentile does not describe the magnitude of the difference between two tracts, but rather it simply tells the percentage of tracts with lower values for that indicator (OEHHA 2021, pg. 20).

Table 4.21-1 lists the indicators that go into the Pollution Burden score and the Population Characteristics score to form the final CalEnviroScreen score. These indicators are used to measure factors that affect the potential for pollution impacts in communities.

TABLE 4.21-1 COMPONENTS THAT FORM THE CALENVIROSCREEN 4.0 SCORE

Pollution Burden	
Exposure Indicators	**Environmental Effects Indicators**
Children's lead risk from housing	Cleanup sites
Diesel particulate matter (PM) emissions	Groundwater threats
Drinking water contaminants	Hazardous waste
Ozone concentrations	Impaired water bodies
PM 2.5 concentrations	Solid waste sites and facilities
Pesticide use	
Toxic releases from facilities	
Traffic density	
Population Characteristics	
Sensitive Populations Indicators	**Socioeconomic Factors Indicators**
Asthma emergency department	Educational attainment
Cardiovascular disease (emergency department visits for heart attacks)	Housing burdened low-income households
Low birth-weight infants	Linguistic isolation
	Poverty
	Unemployment

Notes: PM= particulate matter. PM 2.5= fine particulate matter 2.5 microns or less.
Source: OEHHA 2021

Part of the CEC staff's (staff) assessment of how, or if, the project would impact an EJ population includes a review of CalEnviroScreen data for the project area. There are three technical areas that could have project impacts that could combine with the indicators in CalEnviroScreen: Air Quality, Hydrology and Water Quality, and Utilities and Service Systems.

The CalEnviroScreen indicators relevant to each of the three technical areas are:

- For air quality, these indicators are asthma, cardiovascular disease, diesel particulate matter (PM) emissions, low birth-weight infants, ozone concentrations, pesticide use,

PM with diameters of 2.5 micrometers or smaller (PM2.5) concentrations, toxic releases from facilities, and traffic density.

- For hydrology and water quality, these indicators are drinking water contaminants, groundwater threats, and impaired water bodies.
- For utilities and service systems, these indicators are cleanup sites, hazardous waste, and solid waste sites and facilities.

When these technical areas have identified a potential project impact where an EJ population is present, CalEnviroScreen is used to better understand the characteristics of the areas where the impact would occur and ensure that disadvantaged communities in the vicinity of the proposed project have not been missed when screened by race/ethnicity and low income.

Note that CalEnviroScreen is not intended to:

- substitute for a cumulative impact analysis under the California Environmental Quality Act (CEQA),
- restrict the authority of government agencies in permit and land use decisions; or,
- guide all public policy decisions.

Project Outreach

As a part of the U.S. EPA's definition of EJ, meaningful involvement is an important part of the siting process. Meaningful involvement occurs when:

- those whose environment or health would be potentially affected by the decision on the proposed activity have an appropriate opportunity to participate in the decision,
- the population's contribution can influence the decision; and,
- the concerns of all participants involved are considered in the decision-making process.

The Office of the Public Advisor, Energy Equity and Tribal Affairs outreach consists of emails to state and local elected officials, environmental justice organizations, local chambers of commerce, schools and school districts, labor unions and trade associations, community centers, daycare centers, park departments, and religious organizations within a six- and twelve-mile radius of the proposed project.

The staff docketed and mailed to the project mail list, including EJ organizations and similar interest groups, a Notice of Receipt of the Lafayette Backup Generating Facility (or project) Small Power Plant Exemption Application on June 25, 2020. Based on current U.S. Census English fluency data for the population residing in the cities and communities within a six-mile radius of the project site, translation of project notices was deemed appropriate. U.S. Census data also showed that of those who report they "Speak English less than very well", the predominant language spoken was Chinese. Mandarin Chinese was the more commonly spoken dialect. Public notices for the project in English and

Chinese (Mandarin) were published in local newspapers on July 31, 2020, and July 29, 2020, respectively. A Notice of Preparation was issued to responsible and trustee agencies on August 4, 2021.

Staff conducted outreach and consultation with regional tribal governments as described in **Section 4.5 Cultural and Tribal Cultural Resources**.

As described in **Section 2 Introduction**, staff exceeded the noticing requirements under CEQA Guidelines section 15087 by mailing the Notice of Availability of the Draft EIR to all owners and occupants not just contiguous to the project site but also to property owners within 1,000 feet of the project site and 500 feet of project linears.

Environmental Justice Project Screening

Figure 4.21-1 shows 2020 census blocks in a six-mile radius of the project with a minority population greater than or equal to 50 percent (U.S. Census 2020). The population in these census blocks represents an EJ population based on race and ethnicity as defined in the U.S. EPA's *Guidance on Considering Environmental Justice During the Development of Regulatory Actions* (U.S. EPA 2015).

Based on California Department of Education data in **Table 4.21-2** and presented in **Figure 4.21-2**, staff concludes that the percentage of those living in the school districts of Campbell Union Elementary, Luther Burbank Elementary, Orchard Elementary and San Jose Unified school districts (in a six-mile radius of the project site) are enrolled in the free or reduced-price meal program is larger than those in the reference geography (Santa Clara County). Thus, the populations in these school districts are considered an EJ population based on a low-income population as defined in *Guidance on Considering Environmental Justice During the Development of Regulatory Actions*.

TABLE 4.21-2 LOW INCOME DATA WITHIN THE PROJECT AREA

School Districts in a Six-Mile Radius of the Project Site	Enrollment Used for Meals	Free or Reduced Price Meals	
Berryessa Union Elementary	6,258	1,751	28.0%
Campbell Union Elementary	**6,230**	**2,445**	**39.2%**
Fremont Union High	10,296	1,134	11.0%
Luther Burbank Elementary	**437**	**364**	**83.3%**
Milpitas Unified	10,072	2,883	28.6%
Moreland Elementary	4,043	1,244	30.8%
Orchard Elementary	**765**	**319**	**41.7%**
Santa Clara Unified	14,028	3,645	26.0%
San Jose Unified	**26,901**	**10,087**	**37.5%**
Reference Geography			
Santa Clara County	241,326	79,000	32.7%

Bold indicates school districts considered having an EJ population based on low income.
Source: CDE 2022.

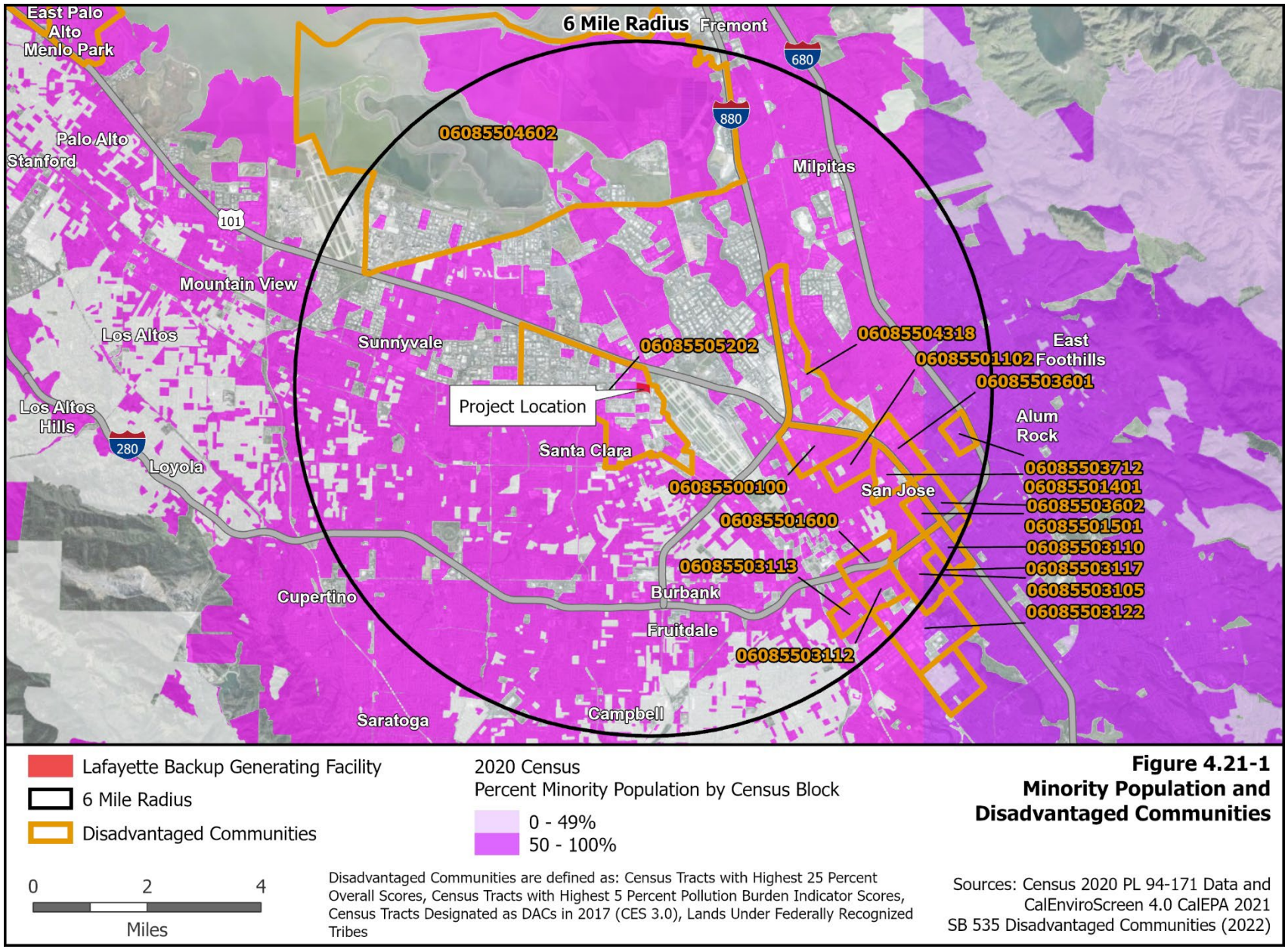
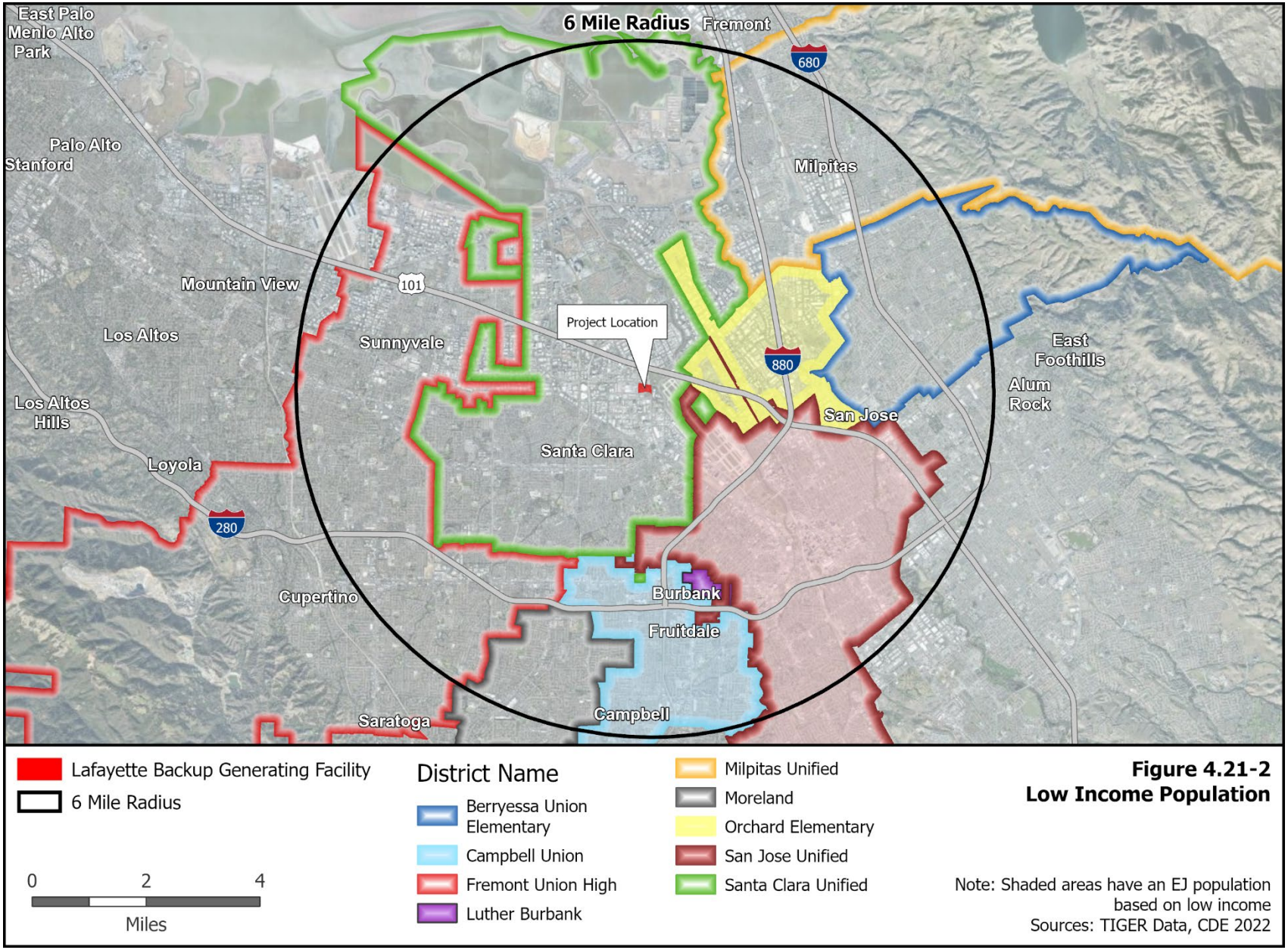


Figure 4.21-1
Minority Population and Disadvantaged Communities


East Palo Menlo Alto Park
6 Mile Radius
Fremont
680
Palo Alto
Stanford
Milpitas
Mountain View
101
Project Location
Los Altos
Sunnyvale
880
East Foothills
Alum Rock
Los Altos Hills
San Jose
Santa Clara
Loyola
280
Cupertino
Burbank
Fruitdale
Campbell
Saratoga
Lafayette Backup Generating Facility
6 Mile Radius
0
2
4
Miles
District Name
Berryessa Union Elementary
Campbell Union
Fremont Union High
Luther Burbank
Milpitas Unified
Moreland
Orchard Elementary
San Jose Unified
Santa Clara Unified
Figure 4.21-2
Low Income Population
Note: Shaded areas have an EJ population based on low income
Sources: TIGER Data, CDE 2022

CalEnviroScreen - Disadvantaged Communities

CalEnviroScreen 4.0 was used to gather additional information about the population potentially impacted by the proposed project. The CalEnviroScreen indicators (see **Figure 4.21-1**) are used to measure factors that affect the potential[3] for pollution impacts in communities. Staff used CalEnviroScreen to identify disadvantaged communities[4] in the vicinity of the proposed project and better understand the characteristics of the areas where impacts would occur.

Table 4.21-3 presents the CalEnviroScreen overall scores and DAC category for the disadvantaged communities within a six-mile radius of the project site. The location of each of these census tracts is shown on **Figure 4.21-1.**

TABLE 4.21-3 CALENVIROSCREEN SCORES FOR DISADVANTAGED COMMUNITIES

Census Tract No.	Total Population	CES 4.0 Percentile	Pollution Burden Percentile	Population Characteristics Percentile	DAC Category
06085504602	2,355	66.97	82.46	49.76	CES 3.0 DAC Only
06085505202	6,936	59.53	86.86	37.92	CES 3.0 DAC Only
06085500100	8,306	71.19	89.77	50.16	CES 3.0 DAC Only
06085501600	7,716	85.01	77.80	81.48	CES 4.0 top 25%
06085503113	5,052	67.75	62.85	63.46	CES 3.0 DAC Only
06085503112	4,141	77.50	75.68	70.34	CES 4.0 top 25%
06085504318	6,095	80.06	88.82	63.28	CES 4.0 top 25%
06085501102	4,305	71.32	79.53	57.83	CES 3.0 DAC Only
06085503601	3,383	85.36	84.12	76.94	CES 4.0 top 25%
06085503712	4,484	75.77	40.05	94.52	CES 4.0 top 25%
06085501401	3,226	71.72	67.98	66.69	CES 3.0 DAC Only
06085503602	5,602	75.71	49.27	87.28	CES 4.0 top 25%
06085501501	4,623	71.03	49.88	79.37	CES 3.0 DAC Only
06085503110	4,917	77.17	50.57	88.65	CES 4.0 top 25%
06085503117	3,071	59.32	27.54	79.53	CES 3.0 DAC Only
06085503105	2,460	78.97	70.19	76.61	CES 4.0 top 25%
06085503122	3,602	69.25	67.59	61.68	CES 3.0 DAC Only

3 It is important to note that CalEnviroScreen is not an expression of health risk and does not provide quantitative information on increases of impacts for specific sites or project. CalEnviroScreen uses the criteria of "proximity" to a hazardous waste site, a leaking underground tank, contaminated soil, an emission stack (industry, power plant, etc.) to determine that a population is "impacted". It does not address general principles of toxicology: dose/response and exposure pathways. For certain toxic chemicals to pose a risk to the public, offsite migration pathways must exist (through ingestion, inhalation, dermal contact, etc.) and contact to a certain amount – not just any amount – must exist.

4 The CalEPA, for purposes of its Cap-and-Trade Program, has defines communities in terms of census tracts and identifies four types of geographic areas as disadvantaged: (1) census tracts receiving the highest 25 percent of overall scores in CalEnviroScreen 4.0; (2) census tracts lacking overall scores in CalEnviroScreen 4.0 due to data gaps, but receiving the highest 5 percent of CalEnviroScreen 4.0 cumulative pollution burden scores; (3) census tracts identified in the 2017 DAC designation as disadvantaged, regardless of their scores in CalEnviroScreen 4.0; (4) and areas under the control of federally recognized Tribes. (CalEPA 2022a).

Notes: Disadvantaged communities by census tract in the project's 6-mile radius.
Shaded row indicates census tract where project is located.
Source: CalEPA 2022b

Table 4.21-4 presents the CalEnviroScreen percentiles for the indicators that make up the pollution burden percentile. **Table 4.21-5** presents the CalEnviroScreen percentiles for the indicators that make up the population characteristics.

TABLE 4.21-4 CALENVIROSCREEN INDICATOR PERCENTILES FOR POLLUTION BURDEN FOR DISADVANTAGED COMMUNITIES

Census Tract No.		Percentiles												
	Pollution Burden	Ozone	PM2.5	Diesel PM	Drinking Water	Lead	Pesticides	Toxic Release	Traffic	Cleanup Sites	Groundwater Threats	Hazardous Waste	Impaired Water Bodies	Solid Waste
06085504602	82.46	15.05	19.43	29.00	39.04	50.59	0.00	30.32	94.13	99.38	94.17	93.21	91.87	99.95
06085505202	86.86	17.65	22.50	79.33	50.17	56.66	1.97	37.85	82.46	99.85	98.41	98.37	33.16	95.01
06085500100	89.77	20.85	37.86	89.71	22.74	70.23	3.59	35.00	81.73	98.11	96.26	98.99	43.78	97.87
06085501600	77.80	20.85	37.13	95.13	22.74	83.20	0.79	32.10	79.25	50.56	91.57	65.18	43.78	77.96
06085503113	62.85	20.85	32.20	79.96	22.74	88.75	0.00	32.12	77.06	33.87	92.98	35.98	33.16	70.42
06085503112	75.68	22.19	35.54	89.82	22.74	57.69	0.00	31.56	62.36	72.81	93.52	77.02	43.78	91.04
06085504318	88.82	20.85	33.71	90.49	22.74	52.73	4.97	39.48	94.31	99.74	96.73	99.85	33.16	99.77
06085501102	79.53	20.85	36.85	63.71	22.74	91.30	0.41	33.76	68.21	83.85	88.01	86.45	33.16	91.43
06085503601	84.12	20.85	35.76	91.50	22.74	93.48	0.00	33.02	91.00	81.02	62.49	91.36	33.16	84.74
06085503712	40.05	20.85	34.18	87.99	22.74	58.49	0.00	31.16	95.96	0.00	43.85	88.48	12.45	0.00
06085501401	67.98	20.85	37.19	78.38	22.74	83.02	0.00	33.03	87.66	62.04	73.75	28.30	33.16	85.22
06085503602	49.27	22.19	41.56	95.30	22.74	75.97	0.00	31.20	94.83	0.00	62.73	78.98	12.45	0.00
06085501501	49.88	20.85	38.97	94.82	22.74	77.82	0.00	31.41	98.70	0.00	66.45	11.08	33.16	44.31
06085503110	50.57	22.19	38.56	96.17	22.74	60.89	0.00	30.83	99.54	0.00	63.71	24.71	33.16	54.85
06085503117	27.54	22.19	37.62	44.54	22.74	52.79	0.00	30.66	58.18	18.70	47.43	16.64	33.16	64.40
06085503105	70.19	22.19	38.77	83.48	22.74	24.39	0.00	30.98	91.53	70.42	82.32	75.96	33.16	94.57
06085503122	67.58	22.19	33.20	80.29	22.74	29.12	0.00	30.31	53.55	80.37	94.89	87.65	33.16	98.79

Notes: Disadvantaged communities by census tract in the project's 6-mile radius. Shaded row indicates census tract where project is located.
Source: CalEPA 2022b

TABLE 4.21-5 CALENVIROSCREEN INDICATOR PERCENTILES FOR POPULATION CHARACTERISTICS FOR DISADVANTAGED COMMUNITIES

Census Tract No.	Percentiles								
	Population Characteristics	Asthma	Low Birth Weight	Cardiovascular Disease	Education	Linguistic Isolation	Poverty	Unemployment	Housing Burden
06085504602	49.76	37.96	98.85	40.00	73.42	NA	27.85	36.44	23.80
06085505202	37.92	28.61	54.62	47.52	55.80	15.64	35.15	4.89	89.21
06085500100	50.16	66.59	54.12	42.40	66.31	76.64	40.80	17.11	26.17
06085501600	81.48	72.98	91.34	39.71	63.76	67.45	80.28	64.51	94.47
06085503113	63.46	53.23	49.62	17.24	91.09	63.04	82.54	57.25	92.84
06085503112	70.34	54.97	73.76	25.87	75.22	86.13	72.40	66.61	73.41
06085504318	63.28	36.05	71.79	28.12	78.63	95.72	59.52	78.97	46.02
06085501102	57.83	69.65	61.41	45.03	65.20	67.72	34.70	52.52	37.48
06085503601	76.94	73.54	77.05	53.39	79.42	95.03	78.45	21.11	63.26
06085503712	94.52	88.43	93.65	71.62	83.23	97.48	64.90	56.19	95.67
06085501401	66.69	60.99	73.33	31.68	79.73	93.80	65.93	29.41	62.42
06085503602	87.28	88.33	44.47	71.54	90.36	96.21	71.42	72.53	83.94
06085501501	79.37	81.90	30.59	59.88	89.52	95.21	69.16	81.69	71.15
06085503110	88.65	79.21	53.85	66.05	96.71	95.99	87.39	69.13	83.94
06085503117	79.53	79.47	33.95	66.44	90.94	98.06	79.55	49.86	77.21
06085503105	76.61	62.33	55.85	39.46	86.36	99.49	69.35	76.05	81.32
06085503122	62.68	44.14	65.36	16.65	81.70	95.29	87.50	15.84	91.46

Notes: Disadvantaged communities by census tract in the project's 6-mile radius. Shaded row indicates census tract where project is located.
Source: CalEPA 2022b

4.21.2 Environmental Impacts and Mitigation Measures

The following technical areas discuss impacts to EJ populations: Aesthetics, Air Quality[5] Cultural and Tribal Cultural Resources, Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use and Planning, Noise, Population and Housing, Transportation, and Utilities and Service Systems.

Part of staff's assessment of how, or if, the project would impact an EJ population includes a review of CalEnviroScreen data for the project area. There are three technical areas that could have project impacts that could combine with the indicators in CalEnviroScreen: Air Quality, Hydrology and Water Quality, and Utilities and Service Systems. When these technical areas have identified a potential impact where an EJ population is present, CalEnviroScreen is used to better understand the characteristics of the areas where the impact would occur and ensure that disadvantaged communities in the vicinity of the proposed project have not been missed when screened by race/ethnicity and low income.

Aesthetics

Less Than Significant Impact. A disproportionate impact pertaining to Aesthetics to an EJ population may occur if a project is in proximity to an EJ population and the following:

- The project, if in an "urbanized area" per Public Resources Code section 21071, conflicts with applicable zoning and other regulations governing scenic quality.
- The project, if in a non-urbanized area, substantially degrades the existing visual character or quality of the public view of the site and its surroundings.
- The project creates a new source of substantial light and glare that adversely affects day or nighttime views in the area.

As discussed in **Section 4.1 Aesthetics** the project is in an urbanized area. The project conforms to the applicable city zoning and other regulations governing scenic quality.

Staff viewed aerial, surface and street imagery, topographic and other maps in addition to **Figures 4.21-1** and **4.21-2** and concludes the nearest EJ population would have none to restricted public views of the project due to the existence of aboveground landscape components (buildings, structures, earthworks, trees, etc.). Proposed project landscaping would add to the obstructing or obscuring.

The project design includes directional and shielded light fixtures to keep lighting onsite. The project design includes installing LED lighting throughout the project site. Project components would have no to low reflectivity offsite.

For these reasons, the project would have a less than significant effect on aesthetics and would not have a disproportionate effect to an EJ population.

5 Public Health concern discussed under Air Quality

Air Quality

Less Than Significant Impact. **Table 4.21-4** and **Table 4.21-5** include indicators that relate to both air quality and public health. The indicators that are associated with criteria pollutants such as ozone and PM2.5 are indicators related to air quality. Indicators that are associated with protecting public health are: Diesel PM, Pesticide Use, Toxic Release from Facilities, Traffic Density, Asthma, Low Birth Weight Infants, and Cardiovascular Disease. Each of these air quality and public health indicators are summarized under this Air Quality subsection.

Ambient air quality standards (AAQS) are established to protect the health of even the most sensitive individuals in our communities, which includes the EJ population, by defining the maximum amount of a pollutant that can be present in outdoor air without harm to the public's health. Both CARB and the U.S. EPA are authorized to set AAQS.

Staff identified the potential air quality impacts (i.e., ozone and PM2.5) that could affect the EJ population represented in **Figures 4.21-1** and **4.21-2**. Staff also examined individual contributions of indicators in CalEnviroScreen that are relevant to air quality (see **Table 4.21-4**).

Staff identified the potential public health impacts (i.e., cancer and non-cancer health effects) that could affect the EJ population represented in **Figures 4.21-1** and **4.21-2**. These potential public health risks were evaluated quantitatively based on the most sensitive population, which includes the EJ population, by conducting a health risk assessment (HRA). The results were presented by levels of risk. The potential construction and emergency backup generator (gensets) readiness testing and maintenance risks are associated with exposure to diesel PM.

In **Section 4.3 Air Quality**, staff concludes that, with the implementation of mitigation measure **AQ-1**, the project would not have a significant impact on air quality or public health. Criteria pollutants would not cause or contribute to exceedances of health-based ambient standards and the project's toxic air emissions would not exceed health risk limits. Therefore, no mitigation is required. Likewise, the project would not cause disproportionate air quality or public health impacts on sensitive populations, such as the EJ population represented in **Figures 4.21-1** and **4.21-2**.

The text below addresses each of the air quality and public health indicators included in **Tables 4.21-4** and **4.21-5**.

Ozone Impacts

Ozone is known to cause numerous health effects, which can potentially affect EJ communities as follows:

- lung irritation, inflammation and exacerbation of existing chronic conditions, even at low exposures (Alexis et al. 2010, Fann et al. 2012, Zanobetti and Schwartz 2011),

- increased risk of asthma among children under 2 years of age, young males, and African American children (Lin et al. 2008, Burnett et al. 2001); and,
- higher mortality, particularly in the elderly, women and African Americans (Medina-Ramón and Schwartz 2008).

Even though ozone is not directly emitted from emission sources such as the gensets, precursor pollutants that create ozone, such as NOx and VOCs, would be emitted. The NOx emissions of the gensets during readiness testing and maintenance would be required to be fully offset through the permitting process with the Bay Area Air Quality Management District (BAAQMD). See more detailed discussion in **Section 4.3 Air Quality**.

For CalEnviroScreen, the air monitoring data used in this indicator have been updated to reflect ozone measurements for the years 2017 to 2019. CalEnviroScreen 4.0 uses the mean of the daily maximum 8-hour ozone concentration (ppm) for the summer months (May-October), averaged over three years (2017-2019). According to CalEnviroScreen data, census tracts are ordered by ozone concentration values, and then are assigned a percentile based on the statewide distribution of values.

Results for ozone are included in **Table 4.21-4**. Ozone levels in all the census tracts within six-mile radius of the project site are relatively low, with percentiles at or below 22. Another way to look at the data is that approximately 78 percent of all California census tracts have higher ozone levels than these census tracts near the project. For ozone, the census tracts within a six-mile radius of the proposed project's site are not exposed to high ozone concentrations compared to the rest of the state.

The project would not contribute significantly to regional air quality as it relates to ozone. The project would be required to comply with air quality emission rate significance thresholds for NOx and VOCs, which are precursor pollutants that create ozone during the construction and testing and maintenance phases. The project would use best management practices (BMPs) during construction, which would reduce NOx and VOCs. The project's impacts would not cause exceedance of AAQS during readiness testing and maintenance. NOx emissions resulting from readiness testing and maintenance would need to be fully offset to reduce net impacts to levels below the BAAQMD's CEQA threshold. VOC emissions would be below the BAAQMD's threshold of significance and the applicant would not be required to offset them. Therefore, the project would not contribute significantly to regional ozone concentrations, relative to baseline conditions.

Staff concludes that the project would not expose sensitive receptors to substantial ozone precursor concentrations. The project's ozone and ozone precursor air quality impacts would be less than significant for the local EJ community and the general population. Additionally, as NOx emissions of the gensets would be fully offset, the project would not result in a cumulatively considerable net increase of secondary pollutants such as ozone in the air basin.

PM2.5 Impacts

PM is a complex mixture of aerosolized solid and liquid particles including such substances as organic chemicals, dust, allergens, and metals. These particles can come from many sources, including cars and trucks, industrial processes, wood burning, or other activities involving combustion. The composition of PM depends on the local and regional sources, time of year, location, and weather.

PM2.5 refers to particles that have a diameter less than or equal to 2.5 micrometers. PM2.5 is known to cause numerous health effects, which can potentially affect EJ communities. Particles in this size range can have adverse effects on the heart and lungs, including lung irritation, exacerbation of existing respiratory disease, and cardiovascular effects.

For CalEnviroScreen, the indicator PM2.5 is determined by the annual mean concentration of PM2.5 (weighted average of measured monitor concentrations and satellite observations, $\mu g/m^3$), averaged over three years (2015-2017). According to CalEnviroScreen data, census tracts are ordered by PM2.5 concentration values, and then are assigned a percentile based on the statewide distribution of values and are shown in **Table 4.21-4**. All the census tracts within the six-mile radius of the project site range from the lowest of 19.43 percentile for census tract 6085504602 to the highest of 41.56 percentile for census tract 6085503602 in the PM2.5 indicator (see **Table 4.21-4**). This indicates that the highest PM concentrations in census tract 6085503602 are higher than 41.56 percent of tracts statewide. This means that these communities are exposed to below average PM2.5 concentrations compared to the rest of the state.

The project would not contribute significantly to the regional air quality related to PM2.5. The project would not expose sensitive receptors to substantial pollutant concentrations of PM2.5 during construction or readiness testing and maintenance of the gensets. The project would use BMPs during construction, which would reduce PM emissions. The gensets would be equipped with diesel PM filters, which would reduce PM emissions from the engines. Therefore, the project would not contribute significantly to regional PM2.5 concentrations, relative to baseline conditions.

The project's PM2.5 air quality impacts would be less than significant for the local EJ community and the general population. Additionally, as NOx emissions of the gensets would be fully offset, the project would not result in cumulatively considerable net increase of secondary pollutants such as PM in the air basin.

Diesel Particulate Matter (Diesel PM)

This indicator represents how much diesel PM is emitted into the air within and near the census tract. The data are from 2016 California Air Resources Board's emission data from on-road vehicles (trucks and buses) and off-road sources (ships and trains, for example). This is the most recent data available with which to make the necessary comparisons.

Table 4.21-4 shows that among these census tracts, six are higher than the 90th percentile. They are 95.13, 90.49, 91.5, 95.3, 94.82 and 96.17 (in census tracts 06085501600, 06085504318, 06085503601, 06085503602, 06085501501, and 06085503110, respectively), meaning they are higher than 95.13, 90.49, 91.5, 95.3, 94.82 and 96.17 percent of the census tracts in California.

However, according to the results of the HRA conducted for this project in **Section 4.3 Air Quality**, impacts associated with diesel PM from the proposed project construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM levels in the disadvantaged communities. Therefore, the project's diesel PM impacts would be less than significant for the local EJ community and the general population.

Pesticide Use

Specific pesticides included in the Pesticide Use indicator were narrowed from the list of all registered pesticides in use in California to focus on a subset of 132 selected active pesticide ingredients that are filtered for hazard and volatility for the years 2017-2019 collected by the California Department of Pesticide Regulation. Only pesticides used on agricultural commodities are included in the indicator.

Table 4.21-4 shows that none of these census tracts are higher than the 90th percentile. in the Pesticide Use indicator. The highest percentile is from census tract 6085504318, indicating that pesticide use in this census tract (6085504318) is only higher than 4.97 percent of tracts statewide. This also indicates that pesticide use in these census tracts are below the statewide average in terms of pesticide use and that these communities are not exposed to high pesticide concentrations as compared to the rest of the state. Therefore, the pesticide use in the project's census tract would be less than significant for the local EJ community and the general population.

Toxic Releases from Facilities

This indicator represents modeled toxicity-weighted concentrations of chemical releases to air from facility emissions and off-site incineration in and near the census tract. The U.S. EPA provides public information on the amount of chemicals released into the environment from many facilities. This indicator uses the modeled air concentration and toxicity of the chemical to determine the toxic release score. The data are from 2017-2019.

Table 4.21-4 shows that none of these census tracts are higher than the 90th percentile. The highest percentile is from census tract 6085505202, indicating that toxic release from facilities threats in this census tract (6085505202) is higher than 37.85 percent of tracts statewide. This also indicates that these communities are lower than the state average for exposure to toxic releases. This also indicates that these communities are not exposed to high toxic releases from facilities as compared to the rest of the state.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with toxic releases from construction and operation activities (diesel-fueled equipment) would be less than significant. The project would not have a significant cumulative contribution to toxic releases. Therefore, the project's toxics emissions would be less than significant for the local EJ community and the general population.

Traffic Density

This indicator represents the sum of traffic volumes adjusted by road segment length. It is calculated as sum of traffic volumes adjusted by road segment length (vehicle-kilometers per hour) divided by total road length (kilometers) within 150 meters of the census tract. It is not a measure of level of service on roadways. The data are from 2017.

Table 4.21-4 shows that among these census tracts, eight are higher than the 90th percentile. The highest percentiles are 99.54 and 98.7 (in census tracts 06085503110 and 06085501501, respectively), meaning these two are higher than 99.54 and 98.7 percent of the census tracts in California. Traffic volume impacts are related to the diesel PM emitted from diesel-fueled vehicles.

The proposed project would generate few vehicle trips to the site during normal operation of the proposed project. These trips include workers, material, and equipment deliveries. It is unlikely that the addition of vehicle trips from the project would result in a significant contribution to the traffic density on any roadway in the vicinity of the project site. However, according to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with diesel PM from the proposed project construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to the diesel PM-related traffic density in the disadvantaged communities. Therefore, the project's traffic volume impact would not have a significant cumulative contribution to the traffic density for the local EJ community and the general population.

Asthma

This indicator is a representation of an asthma rate. It measures the number of emergency department (ED) visits for asthma per 10,000 people over the years 2015 to 2017. The California Office of Statewide Health Planning and Development (OSHPD) collected the information.

Table 4.21-5 shows that none of these census tracts are higher than the 90th percentile in the asthma indicator. The highest percentile is from census tract 6085503712 (88.43 percent). This indicates the number of emergency department visits for asthma per 10,000 people over the years 2015 to 2017 are higher than 88.43 percent of tracts statewide. Census tract 06085503602 was slightly lower, at the 88.33 percentile. This indicates that these two communities have the above average numbers of emergency room visits due to asthma compared to the rest of the state.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to asthma ER visits. Therefore, the project's emissions would not have a significant cumulative contribution to asthma ER visits for the local EJ community and the general population.

Low Birth Weight Infants

This indicator measures the percentage of babies born weighing less than 2500 grams (about 5.5 pounds) out of the total number of live births over the years 2009 to 2015. The information was collected by the California Department of Public Health (CDPH).

Table 4.21-5 shows that among these census tracts, three of them are higher than the 90th percentile. They are 98.85, 91.34 and 93.65 (in census tracts 06085504602, 06085501600, and 06085503712, respectively), meaning they are higher than 98.85, 91.34 and 93.65 percent of the census tracts in California. This indicates that these three communities are higher than the state average of low birth-weight infants.

The HRA of the project in **Section 4.3 Air Quality** was based on a highly conservative health-protective methodology that accounts for impacts on the most sensitive individuals in a population. According to the results of the assessment, the risks at the maximally exposed sensitive receptors (i.e., the point of maximum impact [PMI], the maximally exposed individual resident [MEIR], the maximally exposed individual worker [MEIW], and the maximally exposed individual sensitive receptor [MEIS]) would be below health-based thresholds. Therefore, the toxic emissions from the project would not cause significant health effects for the low birth-weight infants in these disadvantaged communities or have a significant cumulative contribution to these disadvantaged communities. The project's emissions would not have a significant cumulative contribution to low birth-weight infant births for the local EJ community and the general population.

Cardiovascular Disease

This indicator represents the rate of heart attacks. It measures the number of emergency department (ED) visits for acute myocardial infarction (AMI) (or heart attack) per 10,000 people over the years 2015 to 2017.

Table 4.21-5 shows that none of these census tracts are higher than the 90th percentile in the cardiovascular disease indicator. The highest percentile is from census tract 6085503712. It indicates the number of emergency department visits for acute myocardial infarction (or heart attack) per 10,000 people over the years 2015 to 2017 is higher than 71.62 percent of tracts statewide. This also indicates that this community is about the average number of emergency department visits for acute heart attack compared to the rest of the state.

According to the results of the HRA conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from construction and operation activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to cardiovascular disease. The project's emissions would not have a significant cumulative contribution to cardiovascular disease for the local EJ community and the general population.

Cultural and Tribal Cultural Resources

No Impact. Staff considered EJ populations in its analysis of the project. Staff did not identify any Native American EJ populations that either reside within 6 miles of the project or that rely on any subsistence resources that could be impacted by the proposed project.

Hazards and Hazardous Materials

Less Than Significant Impact. EJ populations may experience disproportionate hazards and hazardous materials impacts if the storage and use of hazardous materials within or near EJ communities occur to a greater extent than within the community at large. A disproportionate impact upon the EJ population resulting from the planned storage and use of hazardous materials on the site is extremely low. The greatest quantity of hazardous material on site would be the diesel fuel to run the gensets. The total quantity of diesel would be stored in many separate double-walled fuel tanks (one for each generator) with proper spill controls. Therefore, the likelihood of a spill of sufficient quantity to impact the surrounding community and EJ population would be very unlikely, thus the impact on the EJ community would be less than significant.

Hydrology and Water Quality

Less Than Significant Impact. A disproportionate hydrologic or water quality impact on an EJ population could occur if the project would contribute to impairment of drinking water, exacerbate groundwater contamination threats, or contribute pollutants to impaired water bodies.

Since the overall CalEnviroScreen score reflects the collective impacts of multiple pollutants and factors, staff examined the individual contributions to indicators as they relate to hydrology and water quality. The pollutants of concern in this analysis are those from construction and operational activities. The CalEnviroScreen scores for the disadvantaged community census tracts in a 6-mile radius of the project (see **Figure 4.21-1**) are presented in **Table 4.21-4** for each of the following environmental stressors that relate to hydrology and water quality: Drinking Water Contaminants, Groundwater Threat, and Impaired Water Bodies. The percentile for each disadvantaged census tract reflects its relative ranking among all of California's census tracts. A disproportionate hydrology or water quality impact on an EJ population could occur if a project introduces an additional pollutant burden to a disadvantaged community.

CalEnviroScreen assigns a score to each type of stressor. To assess the impact of a stressor on population within a census tract, the score is assigned a weighting factor

that decreases with distance from the census tract. For stationary stressors related to hydrology or water quality, the weighting factor diminishes to zero for distances larger than 1,000 meters (0.6 mile). As **Figure 4.21-1** shows, all but one of the assessed census tracts are more than 1,000 meters away from the project. The only census tract that is within 1,000 meters of the proposed project site is tract 6085505202—the tract in which the project would be located. Therefore, this analysis focuses on that census tract.

Drinking Water Contaminants

Low income and rural communities, particularly those served by small community water systems, can be disproportionately exposed to contaminants in their drinking water. CalEnviroscreen aggregates drinking water quality data from the California Department of Public Health, the U. S. EPA, and the California State Water Resources Control Board (SWRCB). The score provided by the Drinking Water Contaminant metric calculation is intended to rank water supplies relative to their history or likelihood to provide water that exceeds drinking water standards.

Census tract 6085505202 scored 50 percent in the Drinking Water Contaminants indicator (see **Table 4.21-4**). This indicates that drinking water contamination threat in this census tracts is low, and that this community does not have a significant level of exposure to contaminants through drinking water.

The project would not contribute significantly to drinking water source degradation. The project would be required to comply with the Clean Water Act (CWA) by controlling the discharge of pollutants during its construction and operation phases. The project would implement modern operational phase storm water and containment controls that would improve upon the site's potential to release contaminants to the environment. The project would therefore provide a long-term drinking water quality benefit relative to baseline conditions. The project's hydrology and water quality impacts would be reduced to less than significant for the census tract of concern and the general population.

Groundwater Threats

Common groundwater pollutants found at leaking underground storage tank and cleanup sites in California include gasoline and diesel fuels, chlorinated solvents and other volatile organic compounds such as benzene, toluene, and methyl tert-butyl ether; heavy metals such as lead, chromium and arsenic; polycyclic aromatic hydrocarbons; persistent organic pollutants like polychlorinated biphenyls; Dichlorodiphenyl-trichloroethane and other insecticides; and perchlorate. CalEnviroscreen aggregates data from the SWRCB's GeoTracker website about groundwater threats. The score provided by the Groundwater Threat metric calculation is intended to rank the relative risk of environmental contamination by groundwater contamination, within each census tract.

Census tract 6085505202 scored 98 percent in the Groundwater Threat indicator (see **Table 4.21-4**). This indicates that groundwater contamination threats in this census tract is within the top 10 percent of tracts statewide. This indicates that this community is located alongside a high relative proportion of groundwater threats.

The project would not contribute significantly to groundwater degradation, relative to existing conditions. The project would be required to comply with the CWA by controlling the discharge of pollutants during its construction and operation phases. The project would implement modern operational phase storm water and containment controls that would improve upon the site's potential to release contaminants to groundwater. The project would therefore provide a long-term drinking groundwater quality benefit relative to baseline conditions. The project's hydrology and water quality impacts would be reduced to less than significant for the census tract of concern and the general population.

Impaired Water Bodies

Rivers, lakes, estuaries and marine waters in California are important for many different uses. Water bodies used for recreation may also be important to the quality of life of nearby residents if subsistence fishing is critical to their livelihood. Water bodies also support abundant flora and fauna. Changes in aquatic environments can affect biological diversity and overall health of ecosystems. Aquatic species important to local economies may be impaired if the habitats where they seek food and reproduce are changed. Additionally, communities of color, low-income communities, and tribes generally depend on the fish, aquatic plants, and wildlife provided by nearby surface waters to a greater extent than the general population. CalEnviroscreen aggregates data from the SWRCB's Final 2012 California Integrated Report (CWA Section 303(d) List / 305(b) Report). The score provided by the Impaired Water Bodies metric calculation is intended to rank the relative risk of impaired water bodies, within each census tract.

Census tract 6085505202 scored 33 percent in the Impaired Water Bodies indicator (see **Table 4.21-4**). This indicates that impaired water bodies in these census tracts are below the statewide average in terms of relative abundance. This indicates that these communities are not expected to contain a high abundance of impaired water bodies.

The project would not contribute significantly to the impairment of local or regional water bodies. The project would be required to comply with the CWA by controlling the discharge of pollutants during its construction and operation phases. Also, the project would implement modern operational phase storm water and containment controls that would improve upon the site's potential to release contaminants to the environment. The project would therefore provide a long-term benefit to local and regional water bodies, relative to baseline conditions. The project's hydrology and water quality impacts would be reduced to less than significant for the census tract of concern and the general population.

Land Use and Planning

Less Than Significant Impact. A land use impact could occur if a project would cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Staff assessed consistency of the proposed project with relevant policies and regulatory requirements contained in the Santa Clara County Comprehensive Land Use Plan (CLUP) for the Norman Y. Mineta San Jose International Airport, City of Santa Clara 2010–2035 General Plan (General Plan), and the Santa Clara Zoning Code. The General Plan land use designation for the site is Light Industrial, which accommodates uses that include data centers. The proposed project would comply with the Santa Clara Zoning Code requirements for building and site design in the MH, Heavy Industrial zoning district. (See **Section 4.11 Land Use and Planning** for the analysis details.) The proposed project would not involve uses that could cause unmitigated hazardous conditions or nuisance impacts. (See also sections **4.3 Air Quality**, **4.9 Hazards and Hazardous Materials**, and **4.17 Transportation** of this EIR.)

Staff evaluated the proposed project's conformance with applicable policies in the CLUP and concluded that the project would not cause hazards to airport operations or aircraft in flight. The Santa Clara County Airport Land Use Commission (ALUC) will review the project, including this environmental document, prior to issuing a final consistency determination letter listing conditions that the project owner must satisfy. With its conditions met, the ALUC could find the proposed project to be consistent with the CLUP. Staff anticipates including a discussion of ALUC requirements in the final EIR for the project.

Construction and operation of the project would not conflict with land use plans or policies such that a significant environmental impact would occur. Therefore, land use impacts would be less than significant, including potential disproportionate impacts on an EJ population.

Noise

Less Than Significant Impact. EJ populations may experience disproportionate noise impacts if the siting of unmitigated industrial facilities occurs within or near EJ communities to a greater extent than within the community at large. The project site is within an area having an EJ population. Because the area surrounding the site is primarily industrial and commercial uses, and the nearest residences are approximately 0.7-mile away from the project site, potential impacts would not be disproportionate.

Construction activities would increase existing noise levels at the adjacent commercial and industrial land uses, but they would be temporary and intermittent. In addition, construction activities would not occur on Sundays and holidays, in compliance with the Santa Clara City Code, Section 9.10.230. Also, the loudest noise levels from construction and demolition activities are not expected to be higher than the existing ambient noise levels at the closest residential area. Therefore, potential noise effects related to project

construction would not result in a significant noise impact on the area's population, including the EJ population.

The operational noise levels would comply with the city's noise limits and would not elevate the existing ambient noise levels at the nearest residences. Thus, the impacts would be less than significant for all the area's population, including the EJ population.

Population and Housing

Less Than Significant Impact. The study area used to analyze the population influx and housing supply impacts includes Campbell, Cupertino, Milpitas, San Jose, Sunnyvale, and Santa Clara County. Staff considered the project's population and housing impacts on the EJ population living in these geographic areas.

The potential for population and housing impacts is predominantly driven by the temporary influx of non-local construction workers seeking lodging closer to a project site. For the project, the construction workers would be drawn from the greater Bay Area and thus would not likely seek temporary lodging closer to the project site. The operations workers are also anticipated to be drawn from the greater Bay Area and would not likely seek housing closer to the project site. If some operations workers were to relocate closer to the project site, there would be sufficient housing in the project area.

A population and housing impact could disproportionately affect an EJ population if the project were to displace minority or low income residents from where they live, causing them to find housing elsewhere. If this occurs, an EJ population may have a more difficult time finding replacement housing due to racial biases and possible financial constraints. As the project would not displace any residents or remove any housing, there would be no disproportionate impact to EJ populations from this project.

Transportation

Less Than Significant Impact. Reductions in transportation options may significantly impact EJ populations. An impact to bus transit, pedestrian facilities, or bicycle facilities could cause disproportionate impacts to low-income communities, as low-income residents more often use these modes of transportation. However, as concluded in section **5.17 Transportation**, temporary construction activities associated with the project's interconnection to existing water, sewer, fiber, gas and electrial services along Central Expressway and Lafayette Street would not interfere with alternative transportation, including pedestrian, bicycle or transit routes, as none exist on the affected portions of these roads. Impacts would be less than significant, and therefore would cause less than significant impacts to EJ populations. Likewise, transportation impacts would not be disproportionate.

Utilities and System Services

Less Than Significant Impact. A disproportionate utilities and system services impact on an EJ population could occur if the project would contribute to or exacerbate the effects of cleanup sites, hazardous waste generators and facilities, and solid waste facilities.

Since the overall CalEnviroScreen score reflects the collective impacts of multiple pollutants and factors, staff examined the individual contributions to indicators as they relate to wastes addressed under utilities and system services. The wastes of concern in this analysis are those from construction and operational activities. The handling and disposal of each type of waste depends on the hazardous ranking of its constituent materials. Existing laws, ordinances, regulations, and standards ensure the desired handling and disposal of waste materials without potential public or environmental health impacts. The CalEnviroScreen scores for the disadvantaged community census tracts in a 6-mile radius of the project (see **Figure 4.21-1**) are presented in **Table 4.21-4** for each of the following environmental stressors that relate to waste management: cleanup sites, hazardous waste generators and facilities, and solid waste facilities. The percentile for each disadvantaged census tract reflects its relative ranking among all of California's census tracts. A disproportionate waste management impact on an EJ population could occur if project wastes impacted the disadvantaged community.

CalEnviroScreen assigns a score to each indicator of stressors. To assess the impact of a stressor on population within a census tract, the score is assigned a weighting factor that decreases with distance from the census tract. For stationery stressors, the weighting factor diminishes to zero for distances larger than 1,000 meters (0.6 mile). As **Figure 4.21-1** shows, all but one of the assessed census tracts are more than 1,000 meters away from the project. The only tract that is within 1,000 meters of the proposed project site is tract 6085505202—the tract in which the project would be located. Therefore, this analysis focuses on that tract.

Cleanup Sites

This indicator is calculated by considering the number of cleanup sites including Superfund sites on the National Priorities List (NPL), the weight of each site, and the distance to the census tract. Sites undergoing cleanup actions by governmental authorities, or by property owners, have suffered environmental degradation due to presence of hazardous substances. Of primary concern is the potential for people to contact with these substances.

The percentile score in the cleanup sites indicator for the only census tract within 1,000 meters of the project site (tract 6085505202) is 99.85 (see Table **Table 4.21-4**). The interpretation is that contamination threats due to the presence of cleanup sites in that census tract are among the highest of all tracts statewide. This is an indication that the communities within that tract are located alongside a high relative proportion of cleanup sites.

If there is any existing contamination at the project site, it would be remediated by the current owner in accordance with regulatory requirements that would ensure there would be no impacts to on- or off-site receptors. In addition, the project owner would have to comply with appropriate laws, ordinances, regulations, and standards that would require additional cleanup of contaminated soils and groundwater that might be encountered during construction and operation activities. Therefore, the project would not contribute significantly to effects from cleanup sites for the relevant census tract and for the general population.

Hazardous Waste Generators and Facilities

This indicator is calculated by considering the number of permitted treatment, storage, and disposal facilities (TSDFs) or generators of hazardous waste, the weighting factor of each generator or site, and the distance to the census tract. Most hazardous waste must be transported from hazardous waste generators to permitted TSDFs by registered hazardous waste transporters. Most shipments must be accompanied by a hazardous waste manifest. There are widespread concerns for both human health and the environment from sites that serve for the processing and disposal of hazardous waste. Newer facilities are designed to prevent the contamination of air, water, and soil with hazardous material. However, even newer facilities may negatively affect perceptions of surrounding areas in ways that have economic, social, and health impacts.

The percentile score in the hazardous waste generators and facilities indicator for the only census tract within 1,000 meters of the project site is 99.11. The interpretation is that threats related to hazardous waste generation and facilities in this census tract is among the worst of all tracts statewide, meaning that the communities in that tract are located alongside sites with a high relative proportion of hazardous waste generators and facilities.

The project would not contribute significantly to hazardous waste generation or to the number or size of facilities handling hazardous waste processing. Further, the project would be required to comply with appropriate laws, ordinances, regulations, and standards to control storage and disposal of hazardous waste during its construction and operation phases. The project would implement modern operational phase controls to prevent or reduce the generation of hazardous wastes and to dispose of them in a manner that would minimize impacts to the environment both during project construction and operation. The project's impacts related to hazardous waste generation and disposal would be reduced to less than significant for the relevant census tract and the general population.

Solid Waste Facilities

This indicator is calculated by considering the number of solid waste facilities including illegal sites, the weighting factor of each, and the distance to a census tract. Newer solid waste landfills are designed to prevent the contamination of air, water, and soil with hazardous materials. However, older sites that are out of compliance with current standards or illegal solid waste sites may degrade environmental conditions in the

surrounding area and pose a risk of exposure. Other types of facilities, such as composting, treatment, and recycling facilities may raise concerns about odors, vermin, and increased traffic.

The percentile score in the solid waste facilities indicator for the only assessed census tract within 1,000 meters is 95 (see **Table 4.21-4**). The interpretation is that the number and type of facilities within or nearby this census tract is in the upper 10 percent of the census tracts in California. This also indicates that environmental deterioration due to the presence of solid waste facilities in that census tract is within the top 10 percent of tracts statewide.

Solid waste generated during construction and operation of the project would be segregated, where practical, for recycling, and disposed where there is adequate capacity for disposal of nonhazardous waste. Also, the project would be required to develop and implement plans that would ensure proper disposal of nonhazardous waste at appropriately licensed facilities. The project owner would use solid wastes sites or facilities that are verified to comply with current laws, ordinances, regulations, and standards. In addition, there would be no increase of solid waste generators and facilities in the area due to project construction or operation because there is adequate space for disposal of waste from the project. Therefore, there would be no impact due to solid waste facilities that would disproportionately impact an EJ community in the relevant census tract.

List of Preparers and Contributors

The following are a list of preparers and contributors to **Section 4.21 Environmental Justice**:

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Abdel-Karim Abulaban	Hydrology and Water Quality, Noise, and Utilities and Service Systems impact analyses
Jeanine Hinde	Land Use and Planning impact analysis
Ashley Guiterrez	Transportation impact analysis

4.21.3 Mitigation Measures

None.

4.21.4 References

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Section 5

Alternatives

5 Alternatives

5.1 Introduction

This section evaluates a reasonable range of potentially feasible alternatives to the Lafayette Data Center and Lafayette Backup Generating Facility (LDC and LBGF). Both together are known as the LDC or the project. Alternatives initially considered but dismissed for full analysis due to concerns about feasibility or reliability include an alternative site, biodiesel fuel, fuel cells, and battery energy storage systems. Alternatives selected for more detailed analysis were limited to the "No Project/No Build Alternative," as required by the California Environmental Quality Act (CEQA), and those that could potentially feasibly attain most of the proposed project's basic objectives while reducing or avoiding any of its significant effects. The alternatives selected for detailed analysis were:

- Alternative 1: No Project/No Build Alternative
- Alternative 2: Natural Gas Internal Combustion Engines

5.2 CEQA Requirements

CEQA requires that an environmental impact report (EIR) "consider a reasonable range of potentially feasible alternatives (to the project) that will foster informed decision making and public participation" (Cal. Code Regs., tit. 14, § 15126.6, subd. (a)). Section 15126.6 of the CEQA Guidelines provides that the alternatives analysis must include all the following:

- Description of a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project,
- Evaluation of the comparative merits of the alternatives,
- A focus on alternatives that would avoid or substantially lessen any significant effects of the project, even if these alternatives would impede to some degree attainment of the project objectives, or would be more costly; and
- Description of the rationale for selecting alternatives to be discussed and identification of alternatives that were initially considered but then rejected from further evaluation.

Alternatives may be eliminated from detailed consideration by the lead agency if they fail to meet most of the basic project objectives, are infeasible, or could not avoid any significant environmental effects (Cal. Code Regs., tit. 14, § 15126.6, subd. (c)). In addressing the feasibility of alternatives, factors that may be taken into account are: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and whether the project proponent can reasonably acquire, control, or otherwise have access to the alternative site (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(1)).

The range of potentially feasible alternatives selected for analysis is governed by a "rule of reason," requiring the evaluation of only those alternatives "necessary to permit a reasoned choice" (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)). Also, an EIR "need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(3)).

The lead agency is also required to evaluate the impacts of the "No Project" alternative. Analyzing a "No Project" alternative allows decision makers to compare the impacts of approving the proposed project with the impacts of not approving the proposed project (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(1)). Section 15126.6 of the CEQA Guidelines states: "The 'no project' analysis shall discuss the existing conditions at the time the notice of preparation is published…as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(2)).

5.3 Project Objectives and Alternatives Screening

The ideal process to select alternatives to include in the analysis begins with the establishment of project objectives. Section 15124 of the CEQA Guidelines addresses the requirement for an EIR to contain a statement of objectives, as follows:

A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project and may discuss the project benefits.

The applicant's project objectives for the LDC are to develop a data center with the following characteristics:

- Commercial availability and feasibility: The data center must use proven technology currently in use. The technology must allow for the project to be operational within a reasonable timeframe where permits and approvals are required.
- Industry standard: The data center must be considered industry standard or best practice.
- Technical feasibility: The data center must use technology systems that are compatible with one another.
- Reliability: The data center must use technology that is reliable in the case of an emergency.

5.4 Reliability and Risk Factors for Data Centers

Reliability is essential for data centers. Crucial services, such as 911, offices of emergency management, and utilities, are increasingly using data centers for their operation. Data center customers demand the most reliable data storage service available, and data center insurers are willing to underwrite only proven technologies with an extremely low probability of operational failure. The selected backup electric generation technology for the LDC must be extremely reliable in the case of an emergency loss of electricity from the utility provider. Any alternative backup generation technology would be measured against proven available technologies, including the diesel-fired emergency backup generator (genset) technology proposed for the LDC. Alternative backup generating technologies less reliable than the proposed diesel-fired genset technology would not be considered viable alternatives.

Risk factors that affect the reliable operation of gensets include the following: failure to start; failure to run due to various technical issues; and failure to run due to a lack of fuel supply (NREL 2019). Sufficiently reducing or eliminating these risks would ensure that data center operation is not interrupted during a utility power failure. Any viable alternative technology must minimize these risks and have proven operational hours, a reliable source of fuel supply, and redundancy capabilities.

5.5 Environmental Impacts of the Proposed Project

The Alternatives section evaluates potential alternatives that could avoid or minimize environmental impacts from the proposed project. For the proposed project, environmental impacts would be less than significant with the following proposed mitigation measures:

- **Air Quality** – The mitigation measure **AQ-1** would reduce air quality impacts during project construction. This measure requires incorporation of the Bay Area Air Quality Management District's (BAAQMD's) recommended construction best management practices (BMPs) to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. With the implementation of **AQ-1**, PM10 and PM2.5 emissions during construction would be reduced to a level that would not result in a considerable increase of these pollutants.

  During readiness testing and maintenance, the oxides of nitrogen (NOx) emissions of the gensets are estimated to exceed the BAAQMD significance threshold of 10 tons per year. All other pollutants would have estimated emissions rates below BAAQMD significance thresholds. The NOx emissions from the emergency backup generator readiness testing and maintenance would be required to be fully offset through the BAAQMD permitting process.
- **Biological Resources** – Implementation of **BIO-1** would reduce potential construction impacts to protected raptors and other migratory birds to less than significant. **BIO-1** includes the following requirements: tree removal outside the nesting period if possible; nesting bird surveys prior to the initiation of any

construction activities during the nesting period; buffers to avoid the disturbance of nesting birds if active nests are detected; and consultation between the surveying ornithologist and California Department of Fish and Wildlife (CDFW) on the extent of modifications to construction-free buffer zones. In addition, **BIO-1** specifies that tree removal shall not occur in any tree with an active nest until the ornithologist has determined that the young have fledged, or the nest is no longer active.

Implementation of mitigation measure **BIO-2** would ensure less than significant construction impacts to trees covered by City of Santa Clara 2010-2035 General Plan (General Plan) policies 5.10.1-P4 and 5.3.1-P10 (Santa Clara 2010). **BIO-2** requires the project owner to implement any tree replacement and tree protection measures included as part of approval of the final design package by the City of Santa Clara Community Development Department.

With implementation of **BIO-1** and **BIO-2**, construction of the project would not have a substantial adverse effect on biological resources.

- **Cultural and Tribal Cultural Resources** – Proposed mitigation measure **CUL-1** would require a qualified archaeologist and a Native American cultural resources monitor to monitor the grading of native soil once the demolition of existing structures and pavement is complete. **CUL-1** also would require: Worker Environmental Awareness Training for identification of potential cultural and tribal cultural resources; procedures for avoidance of any discovered resources; and procedures for assessing and handling any discovered resources. This mitigation measure would reduce impacts to any discovered historical resources and unique archaeological resources to a less than significant level. In addition to mitigation measure **CUL-1**, mitigation measure **CUL-2** would require specific notification protocols to address the handling of any inadvertently discovered human remains. Combined, mitigation measures **CUL-1** and **CUL-2** would ensure any potential impacts to human remains would be less than significant.

  Although there are no known tribal cultural resources on or directly adjacent to the proposed site, ground disturbance associated with the proposed project could result in the exposure and/or destruction of buried, as-yet-unknown prehistoric archaeological resources that could qualify as tribal cultural resources. If these resources were to be exposed or destroyed, it would be a significant impact. The implementation of **CUL-1** and **CUL-2** would reduce potential impacts to buried tribal cultural resources to a less than significant level.

- **Geology and Soils** – Implementation of mitigation measure **GEO-1** would ensure less than significant impacts to paleontological resources from construction. **GEO-1** includes protocols for worker training to identify potential fossil finds, notification of a qualified paleontologist to assess any finds, and if the resource is considered to be significant, development by the paleontologist of a plan for preservation and mitigation, with the city ensuring implementation of the paleontologist's plans.

- **Greenhouse Gas Emissions** – The LDC would have a less than significant impact on greenhouse gas (GHG) emissions with the implementation of mitigation measures **GHG-1** and **GHG-2**. **GHG-1** would require the applicant to use renewable diesel as fuel for the gensets, as proposed by the applicant. CEC staff (staff) also proposes mitigation measure **GHG-2** to require the applicant to participate in Silicon Valley Power's Large Customer Renewable Energy (LCRE) program or other renewable energy program that accomplishes the same objective as Silicon Valley Power's LCRE program for 100 percent carbon-free electricity or purchase renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. The implementation of **GHG-1** and **GHG-2** would ensure the project complies with the BAAQMD CEQA GHG threshold, the City of Santa Clara Climate Action Plan, and other applicable regulatory programs and policies. Accordingly, staff concludes that with the implementation of **GHG-1** and **GHG-2**, the project's GHG emissions would not have a significant direct or indirect impact on the environment. With the implementation of **GHG-1** and **GHG-2**, impacts related to GHG emissions would be less than significant.
- **Hazards and Hazardous Materials** – With the implementation of **HAZ-1**, construction of the project would result in less than significant impacts to the public and the environment from hazards and hazardous materials. **HAZ-1** would require the preparation of a Site Management Plan (SMP), which would establish procedures for handling any contaminated soil found during construction to minimize health risks. With the implementation of **HAZ-1**, construction of the project would create a less than significant impact to the public or the environment.
- **Hydrology and Water Quality** – Staff proposes mitigation measure **HYD-1**, which would require implementation of BMPs included in the Storm Water Pollution Prevention Plan (SWPPP) during construction. With implementation of **HYD-1**, the project would not be expected to violate water quality standards or waste discharge requirements during construction and operation, and impacts would be less than significant.
- **Noise** – The implementation of **NOI-1** would require a noise complaint and redress process to ensure construction noise impacts as perceived by the community would be less than significant.
- **Transportation** – The operation of the project would generate vehicle miles traveled (VMT) that would exceed the city's thresholds of environmental significance. **TRANS-1** would require the implementation of a Transportation Demand Management (TDM) program requiring a 4-40 workweek (40 hours in 4 days) to reduce the project VMT to a level below the city's threshold. This would ensure that VMT generated by the project would be less than significant.

5.6 Alternatives Considered and Not Evaluated Further

This section discusses alternatives initially considered but ultimately not evaluated further due to infeasibility or failure to meet the project objectives. As a result, these alternatives were not evaluated from an environmental impact perspective or compared with the proposed project. The alternatives considered but not evaluated further include an alternative project site and biodiesel fuel, fuel cell, and battery energy storage alternatives.

5.6.1 Alternative Project Site

Although the impacts of the proposed project would be less than significant with mitigation, staff evaluated whether an alternative site location should be identified as a potentially feasible alternative to avoid or reduce potentially significant impacts. However, most of the project's impacts are the type that would not be avoided or lessened by proposing the project at another location, as some of the impacts are an inherent part of the project (e.g., air quality, GHG, and construction noise impacts) or would be similar at another location in the Santa Clara region (e.g., cultural and tribal cultural resources impacts and geology and soils impacts [including paleontology]). Other sites further away from the San Jose International Airport may not require coordination with the San Jose Airport Department or the Federal Aviation Administration. However, with project modifications and issuance by the San Jose Airport Department of a revised avigation easement, the project would not cause impacts to aircraft and would be consistent with airport policies. (See Sections **4.9 Hazards and Hazardous Materials**, **4.11 Land Use and Planning**, and **4.17 Transportation** for more details.)

Furthermore, the applicant has already acquired the project site, located close to existing operational data centers, and with a General Plan land use and zoning designation appropriate for the proposed use. Acquiring an alternative site might be costly and infeasible if a suitable site (with needed infrastructure and a land use designation consistent with data center uses) is not available for sale or lease within a reasonable timeframe, resulting in the project not meeting its project objectives. Finally, no alternative locations where environmental impacts would likely be avoided or substantially reduced compared to the project have been identified by the City of Santa Clara, public agencies, or members of the public.

For these reasons, further consideration of an alternative project site is not necessary. Staff concludes that further exploration of properties beyond the project site is unlikely to yield a different location for the project that could feasibly be developed as an alternative to the project that would reduce or avoid potentially significant impacts.

5.6.2 Biodiesel Fuel Alternative

Another alternative initially considered but ultimately not evaluated is biodiesel fuel technology. Biodiesel, or Fatty Acid Methyl Ester (FAME), is a domestically produced renewable fuel. Like renewable diesel, FAME can be manufactured from a variety of biomasses, such as vegetable oils, animal fats, and grease. However, FAME is not the

same as renewable diesel. Biodiesel has different fuel properties than renewable diesel and must meet certain specifications given by the American Society for Testing and Materials (ASTM) D6751. Also, it is produced through transesterification, which is a chemical process that converts fats and oils into fatty acid methyl esters (U.S. EIA 2022). Biodiesel is generally blended with conventional diesel at a 5 percent to 20 percent ratio (Government Fleet 2016). Its physical properties approximate conventional diesel, proposed for use by the applicant, but it is a cleaner burning fuel than conventional diesel. Biodiesel is compatible as an alternative fuel for diesel-fired gensets.

Potential Feasibility Issues

Biodiesel fuel currently suffers from technical problems, making it an unsuitable substitution for the conventional diesel proposed for use by the project. Biodiesel fuel can be problematic for the genset's fuel system. It is harmful to rubber material, such as the hoses that transfer fuel and the associated O-rings and seals that prevent fuel leaks. Additionally, this fuel suffers from stability issues when stored for long periods of time. Biodiesel is more hygroscopic than renewable diesel, meaning that it attracts more water (Farm Energy 2019). Water can accumulate in biodiesel fuel during transportation and storage, and moisture, if allowed to accumulate for a long time, will alter the fuel's chemical structure. Moreover, in cold weather conditions, the fuel thickens sooner than renewable diesel. Both conditions affect the function of the fuel filter, pump, and injectors in the fuel system of an engine, increasing project costs and the number of engine maintenance cycles. These issues could also result in voided engine warranties.

In addition to these technical problems, the production of biodiesel from plant material could have environmental impacts of its own; it is a water-intensive operation, as 2,500 liters of water would be needed to produce 1.0 liter of biodiesel fuel (UNESCO 2009). Biodiesel is also expensive, and to date, the operating hours for biodiesel fuel use are minimal, so it is not an industry standard.

Due to technical feasibility issues and potential additional environmental impacts, biodiesel fuel as an alternative was eliminated from further analysis.

5.6.3 Fuel Cell Alternatives

Another alternative considered but dismissed from further evaluation is fuel cell technology. Fuel cells convert chemical energy into electrical energy. There are several types of fuel cells, which vary according to the types of electrochemical reactions that take place in the cells, the types of catalysts required, the operating temperature ranges, the fuel requirements, and other factors affecting the applications suitable for the fuel cells.

The most promising types of fuel cells for powering data centers are solid oxide fuel cells (SOFCs) and polymer electrolyte membrane or proton exchange membrane (PEM) fuel cells (Microsoft 2014).

Solid Oxide Fuel Cells (SOFCs) Alternative

SOFCs are electrochemical devices that convert the chemical energy of a fuel and oxidant directly into electrical energy. They operate at high temperatures, as high as 2,100 degrees Fahrenheit. Operating at high temperatures enables the SOFCs to use a variety of fuels to produce hydrogen. SOFCs most commonly use natural gas as fuel but can also use biogas and gases made from coal as fuel (U.S. DOE 2022a). Carbon monoxide (CO) is a product of the chemical reaction created by the fuel and steam molecules. SOFCs are resilient and not susceptible to CO poisoning, which affects the voltage output of other types of fuel cells, such as PEM fuel cells. Due to their resiliency against CO poisoning and because they operate at extremely high temperatures, SOFCs can reform fuel internally. This reduces the cost associated with adding a reformer to the system.

Potential Feasibility Issues

SOFCs are typically configured and more suitable to serve as a prime base load power. To date, eBay's data center in Utah is using 30 200-kilowatt (kW) SOFCs to provide continuous base load power to its information technology (IT) load of 6 megawatts (MW), 24 hours a day, all year, with the electric grid as its backup power supply. Additionally, some data centers (i.e., Apple and Equinix) have supplemented their base load power demand (for IT and cooling systems) with SOFCs but rely on the electric grid to support other loads, while retaining traditional uninterruptible power supply (UPS) and generators for emergency power (Data Center Knowledge 2013). However, SOFCs providing power for 100 percent base load demand are not yet industry standard for large-scale data centers.

Because it takes time to reach critical operating temperatures, SOFCs have slow startup times, sometimes up to 60 minutes (GenCell 2022). Data centers must have a constant electricity supply, with even a momentary outage risking the loss of data; therefore, they require fast startup from their backup power generators. SOFCs also have a slow response to electricity demand (GenCell 2022). This can pose a problem for data centers, as their IT and cooling load demands constantly fluctuate. Cooling must be able to keep the internal temperature of the data center buildings steady for the IT servers' optimal performance and must be able to respond quickly to changes in environmental conditions (such as ambient air temperature and humidity). The rapid changes in electricity demand could outpace the SOFCs' ability to provide the needed power supply to the data center.

Another constraint of SOFCs is that due to high operating temperatures, they require the use of costly durable materials. Also, the lack of a sufficient supply of fuel cell components is a concern for potential big users of SOFCs, such as data centers. According to the Clean Energy Institute, there is currently a limited production of SOFC components to meet the needs of major users (ZDNet 2021).

SOFCs would utilize the underground natural gas pipeline system for fuel. At least one pipeline connection would be needed to supply the project with natural gas. A second, independent pipeline connection may be needed for redundancy. The project site has two nearby independent gas distribution lines available for connection.

PEM Fuel Cells Alternative

Another potentially suitable fuel cell technology for backup energy generation is PEM fuel cell technology (U.S. DOE 2022a). PEM fuel cells are typically used for low-power applications that require intermittent backup power, such as mobile services or small stationary applications, like backup generators for communication towers. Their power capacity ranges between 10 and 125 kW. However, the technology has expanded to data center applications with fuel cell capacity of up to 1.0 MW delivered in the size of a 40-foot International Organization for Standardization (ISO) container (GenSureHP 2021). For a 100-MW backup generation system, which is approximately the capacity needed for the LDC, the footprint required for the backup generation system itself would be approximately 32,000 square feet, or 0.73 acre. Should onsite fuel storage be needed, which would be likely, the footprint would further increase. (See the next section "Potential Feasibility Issues" for more discussion.)

PEM fuel cells operate at low temperatures and require fuels that are carbon-free and rich in hydrogen content, preferably pure hydrogen, for maximum voltage output and quick start-up times that a data center genset requires. Hydrogen can either be piped into the site or made onsite from a methane source, such as natural gas, or from water through electrolysis. These options are discussed in more detail below. Unlike SOFCs, CO poisoning is an important issue for PEM fuel cells because they cannot tolerate large amounts of CO (Fuel Cell Store 2019).

Potential Feasibility Issues

There are potential feasibility issues in using PEM fuel cells for LDC backup generation. Issues involving onsite fuel storage, the current pipeline infrastructure, and onsite generation of hydrogen would make it difficult to provide fuel to the PEM fuel cells, as discussed below.

Onsite Fuel Storage. A 1-MW PEM fuel cell consumes approximately 65 kilograms (kg) of hydrogen fuel per hour (Ballard 2022). The proposed project would need fuel for a backup duration of up to 24 hours. The amount of hydrogen needed per 1-MW fuel cell for 24 hours of operation would be approximately 1,560 kg.[1] Thus, the project would need approximately 156,000 kg of hydrogen for 100 MW of fuel cells to operate for 24 hours (not including redundant fuel cells).

The simplest way to store large volumes of hydrogen would be to compress it. Hydrogen can be compressed to less than 0.42 percent of its gas volume at atmospheric pressure. The gauge pressure of hydrogen stored as a high-pressure gas is approximately 3600 pounds per square inch (U.S. DOE 2001). Compressed hydrogen could be transported and stored onsite on a Type IV trailer, which is approximately 53 feet long, 8.5 feet wide, and 13 feet tall and would support eight 25-foot-long hydrogen cylinders with a total capacity of 1,152 kg (Catec 2022). The project would need approximately 136 trailers

1 Hydrogen fuel calculation: 65 kg per hour x 24 hours = 1,560 kg of hydrogen per 1-MW fuel cell

and 62,000 square feet, or 1.5 acres, of space onsite to store fuel for 100 MW of fuel cells for up to 24 hours of operation.

Alternatively, the project could construct a storage system that includes one to several pressure vessels to store such a large amount of compressed hydrogen. The project site would need storage for approximately 300,000 cubic feet,[2] or over 7 acre-feet of compressed hydrogen for 100 MW of fuel cells (not including redundant fuel cells). However, due to the amount of compressed hydrogen needed, the storage space required for this amount of compressed hydrogen is not available on the project site.

Hydrogen can also be stored in liquid form, known as liquid hydrogen gas (LHG), to reduce its volume and thus its storage footprint. LHG storage requires a smaller footprint than compressed hydrogen gas for the same hydrogen fuel capacity. LHG could be transported and stored on the same trailer type as compressed hydrogen. However, LHG would have a larger volume of hydrogen capacity, approximately 4,451 kg, stored in a single hydrogen cylinder (Cryogenic 2022). To store the fuel needed for 100 MW of fuel cell capacity for 24 hours of operation, the project would need approximately 36 trailers for LHG storage, which would require 17,000 square feet, or 0.5 acre, of space onsite. This amount of space may not be available on the project site.

Alternatively, as mentioned above, the project could construct a storage system that includes one to several pressure vessels to store a large amount of LHG. The project would need approximately 80,000 cubic feet, or 2 acre-feet, of liquid hydrogen gas (LHG) for 100 MW of fuel cells (as compared to 300,000 cubic feet, or over 7 acre-feet, for compressed hydrogen gas). However, this amount of space may not be available on the project site.

Although LHG has the benefit of requiring a smaller footprint than compressed hydrogen, problems exist with storing the liquid. LHG would need to be stored and distributed in specialized equipment, including insulated storage tanks, to keep the fuel in liquid state at atmospheric pressure, which requires a temperature of minus 423 degrees Fahrenheit. For LHG to remain at a constant temperature and pressure, it must allow for natural evaporation known as boil-off gas (BOG). BOG is a loss of stored fuel that occurs when the ambient temperature heats the insulated tanks. LHG must release this gas to maintain its liquid state. The release in gas occurs at a rate of approximately 1 percent per day (Army Logistician 2000).

Other constraints exist for both compressed and liquified hydrogen storage systems. Safely managing these systems would require special expertise and equipment, which would add to the cost and complexity of the proposed project. Fuel storage equipment must comply with the standards specified by the National Fire Protection Association along with the Santa Clara City Code (City Code) to protect against hazardous material release, fire, and explosions during natural disasters and as the result of accidents.

2 Compressed Hydrogen fuel conversion calculation: 65 kg per hour x 24 hours x 1/240 compression ratio x 423.3 cubic feet per kg x 100 MW = 275,100 cubic feet for 100 MW fuel cell

Additionally, permits for the storage of hazardous materials would be needed pursuant to the City Code. The presence of such storage systems would also likely raise concerns of public safety (for example, due to the flammability of hydrogen) and introduce new impacts not found in the proposed project.

Pipeline Infrastructure. Supplying hydrogen to the project through pipelines is another possible way of providing fuel for the PEM fuel cells alternative. For large applications, such as the proposed project, hydrogen would need to be supplied through multiple pipelines to mitigate onsite storage challenges and increase reliability. However, according to the U.S. Department of Energy (U.S. DOE 2022b), with approximately 1,600 miles of hydrogen pipeline currently operating in the United States, there are technical concerns related to pipeline transmission, including: the potential for hydrogen to embrittle the steel and welds used in the pipelines; the need to control hydrogen permeation and leaks; and the need for lower cost, more reliable, and more durable hydrogen compression technology.

On-site Generation (Reforming and Electrolysis). Alternatively, hydrogen for PEM fuel cells can be supplied using other methods, such as reforming and electrolysis.

Reforming

Reforming is a process that uses existing fuels with hydrogen content to react with water, which produces hydrogen and carbon oxides as products.

Steam-methane reforming (SMR) is a type of reforming. It is a thermal process, combining steam with a methane source, such as natural gas, to produce hydrogen and carbon oxides. The project currently has access to two natural gas pipelines that could be used for SMR. Although SMR is typically used in SOFCs because of the resiliency of the SOFCs' interior components to high levels of CO, it is not suitable for PEM fuel cells. The CO can poison the PEM fuel cells' platinum on the electrode, which leads to lower voltage at a given electrical current density (Fuel Cell 2022). SMR could produce the desired hydrogen content for PEM fuel cells should further processing to remove undesired levels of CO be performed, or by using a larger PEM fuel cell where the same amount of CO would be spread over a larger electrode.

Methanol reforming, however, is the leading reforming technology candidate for PEM fuel cells because of its high efficiency and energy density (Fuel Cell Store 2019). Methanol is a liquid, like conventional diesel, and can be stored onsite. Methanol is reformed with water to produce hydrogen and carbon oxides.

Both SMR and methanol reforming consume energy during hydrogen production and produce carbon dioxide (CO_2), which is a greenhouse gas emission, that may be released into the atmosphere, leading to GHG impacts. Also, additional equipment for both types of reforming would increase project costs.

Electrolysis

Electrolysis can also be used to produce the hydrogen needed for PEM fuel cells. It is a promising option for carbon-free hydrogen production, using electricity to cause the chemical reaction of splitting water into hydrogen and oxygen. The reaction takes place in a unit called an electrolyzer. Like fuel cells, electrolyzers consist of an anode and a cathode separated by an electrolyte. There are different types of electrolyzers mainly due to the different electrolyte materials, such as PEM, alkaline, and solid oxide, but their function is essentially the same—generating hydrogen (U.S. DOE 2022c).

A 1.0-MW PEM electrolyzer, the size of a 40-foot ISO container[3], can generate 18 kg of hydrogen per hour. For a 100-MW system, the footprint required for the system would be 32,000 square feet, or approximately 0.73 acre. For every one kg of hydrogen produced, the electrolyzer would need 10 kg of water and 49.9 kWh of energy (GenFuel 2021). During a grid outage, energy for the electrolyzer to generate hydrogen fuel may not be available, rendering the fuel cell inoperable and the data center without power. Therefore, hydrogen may need to be produced and stored onsite for future use during emergency generation. As discussed earlier under "Onsite Fuel Storage", onsite storage of hydrogen has feasibility issues including storage space, the need for specialized equipment, BOG, and concerns about public safety.

SOFC and PEM Fuel Cells Feasibility Conclusion. In summary, fuel cells for large-scale backup generation are not fully proven and have various feasibility constraints, including storage space, BOG, the need for specialized equipment, concerns about public safety, and undetermined reliability. Data center customers demand the most reliable data storage service available, as reflected in the applicant's project objectives, which include the development of a highly reliable data center. Furthermore, data center insurers are not willing to provide insurance coverage unless data centers use proven technologies with an extremely low probability of operational failure. Securing fuel for the cells and storing it is a challenge requiring specialized expertise and increased costs for installing and maintaining systems that are expected to be used only infrequently. Because of the limitations described above, fuel cell technology is not currently a viable alternative to the LDC's proposed use of diesel-powered gensets.

5.6.4 Battery Energy Storage Alternatives

Standalone Battery Energy Storage Alternative

Batteries store chemical energy and convert it to electrical energy. They are used to supply power for many applications. Batteries come in many different shapes and sizes, and different battery types can have different chemical properties. Lithium-ion batteries in huge battery banks provide standby or emergency power and almost instantaneous

3 An ISO container is a container which has been built in accordance with the International Organization for Standardization regulations.

startup times and are therefore considered suitable for backup power for data centers. These large battery banks are called battery energy storage systems (BESS).

Data centers currently use smaller UPS systems consisting of batteries to ensure a smooth transition from the grid to the gensets while the gensets synchronize to the data centers' electrical busbars[4]. The UPS system proposed for the project is designed to provide up to five minutes of backup power at 100 percent load. UPS systems are proven and reliable to support genset start up, but they are currently limited in power supply duration. A BESS would provide higher capacity and support longer outages for data center projects. A BESS can be designed to provide up to approximately 100 MWs of backup power and provides the quick start times that a data center requires.

A standalone BESS (used as a single and primary backup generation system during grid outages) for a data center's load demands would require ample onsite storage space for long outage durations. To date, a 400-MW/1600 megawatt-hours (MWh) (supplying 400 MW continuously for 4 hours) BESS is the largest one successfully deployed (Energy Storage 2022). Until recently, the operational duration of battery systems has been in the range of four to six hours, not necessarily because battery systems do not have the potential to operate longer, but because a longer duration has not been demonstrated in large-scale data center applications requiring long-duration backup power. Staff is aware that there was a proposal, the Gilroy Backup Generating Facility, for two BESS facilities, each with a capacity of 50 MW and discharge capacity of 640 MWh for a total capacity of approximately 100 MW and a discharge duration of approximately 13 hours (GBGF 2021). The design of this proposal included diesel-fired gensets to support the data center when the batteries are fully discharged and further backup generation is needed, prior to the electrical grid being restored. However, this project has since been canceled and the application has been withdrawn from the CEC proceedings.

Potential Feasibility Issues

The employment of a standalone BESS for the project would be the first application of this technology for a project of this magnitude for long durations. The project proposes storing fuel onsite for approximately 24 hours of backup generation. A 6-MWh battery storage container requires approximately 380 square feet of space. To supply approximately 100 MW of uninterruptable power in case of 24 hours of grid outage, the project would need a 2,400-MWh battery system, assuming a 100-percent charging and discharging scenario. This translates to approximately 3.5 acres of battery storage space needed. The storage space could double or triple for the project to meet its reliability and backup generation duration requirements. This footprint could be reduced by stacking the batteries on top of each other; however, the stacked height would be limited. The stacked containers would need to be constructed such that they could be readily accessible for maintenance and potential fire response, while mitigating seismic concerns. Alternatively, the batteries could be stored in buildings to reduce their footprint, but they

4 In electric power distribution, a busbar is a metallic strip or bar used to connect high voltage equipment at electrical switchyards, and low voltage equipment in battery banks.

would then be subject to stricter building code fire protection requirements. Reducing the footprint would also increase the project cost.

Whether the batteries are single-stacked, double-stacked in containers, or stored in a building, the risk of fires, typically caused by thermal runaway, is possible and has happened in some large-scale applications. Thermal runaway begins when the heat generated within a battery exceeds the amount of heat dissipated to its surroundings. If the cause of the excessive heat generated is not remedied through heat transfer, the condition will worsen. The internal battery temperature will continue to rise, causing the battery current to rise, thereby creating a domino effect. The rise in temperature in a single battery will begin to affect other batteries in its proximity, and the pattern will continue, thus the term "runaway" (Mitsubishi 2022). There are extensive mitigations, codes and standards, and a comprehensive regulatory framework in place that apply to battery storage to ensure a standard level of reliability for facility operations. However, even with these mitigations in place, risks such as thermal runaway could affect the reliability of the data center and increase the chance that data could be lost. Loss of data would be very disruptive for an operation whose topmost goal is protecting data against loss and guaranteeing continuous and uninterruptable access to data. Furthermore, if a single cell or cluster of the battery system fails, the entire project may be shut down for investigation.

Another constraint of a standalone BESS is that once discharged, the batteries would require power to recharge. Further design considerations would be needed to make this happen. Finally, batteries have a lifetime of about 10 years. If the project's lifespan is 20 years, the batteries would have to be replaced at least once, adding to the project cost. If the project were expected to continue beyond 20 years, which is conceivable, additional replacements may be necessary.

Tandem Battery Storage Alternative

Staff considered a battery energy storage system in tandem (tandem BESS) with the proposed project's diesel-fired gensets. A tandem solution proposal would not be the first of its kind for a data center application, as previously mentioned. Such an option would allow the batteries to act as primary backup power for short outage durations, while the project's 44 diesel-fired gensets would provide backup power when outages are longer in duration and the batteries have been discharged.

For this project, the hypothetical tandem solution would include an approximately 100-MW-capacity BESS with a discharge capacity of 1370 MWh (for a discharge duration of approximately 13 hours) along with the 45 gensets. The battery system would supply backup power for a duration of approximately 13 hours and once the batteries have been discharged, the 44 gensets would serve to back up the battery system until the electrical grid is restored. However, having a tandem solution would not reduce the number of gensets required for the project; again, the gensets would need to be sufficient to support data center load demands for longer outages if necessary. The battery system for a tandem BESS would require approximately 6,300 square feet of storage space.

Potential Feasibility Issues

The project site does not provide sufficient room for the proposed project and the tandem BESS' 6,300 square feet of battery storage, as battery storage would not allow enough space around the building for an access road. Also, project cost would increase significantly with a 1370-MWh BESS configuration. Between 2015 and 2018, the average cost of utility-scale battery storage in the United States rapidly decreased from $2,152 to $625 per kWh. However, in 2019, the average cost of battery storage in California was higher than the national average, costing $1,522 per kWh (U.S. EIA 2020). In addition, the required reliability of the tandem BESS would need to be ensured. The electrical and electronic interface between the batteries and gensets would need to be tested to ensure operational reliability, with many large-scale data centers requiring at least 99.999 percent reliability.

As previously mentioned, after the batteries are discharged for backup power, they need to be recharged when grid service is restored. Because the proposed gensets would not be connected to the grid, to be able to recharge the batteries from the grid would require a redesign of the project's electrical connections. Alternatively, the batteries could be recharged using separate gensets designated for battery charging. This method is undesirable as it would require additional gensets onsite and fuel use, defeating the purpose of deploying batteries to reduce gensets and fuel consumption.

Additionally, although the 2022 update to the California Energy Code (California Code of Regulations, Title 24, Part 6, Building Energy Efficiency Standards, Nonresidential Photovoltaic and Battery Storage) requires battery storage systems when photovoltaic (PV) systems are required, this does not apply to data centers. The use of battery systems set forth in the California Energy Code update through its goals and primary functions is much different than that of large-scale data centers. Appendix JA12 of the updated code states that the primary function of the battery storage system is daily cycling for the purpose of load shifting, maximized solar self-utilization, and grid harmonization. The measure predicts that 100 MW of batteries will be installed in new nonresidential buildings in 2023 (CEC 2021, Section 3.2.2). Given this prediction, it is assumed that many small capacity batteries would be installed across many buildings with PV generation to reduce peak demand for a few hours.

The goal and primary function of battery systems for large-scale data centers with large capacity demand (99 MW) is not daily cycling, but rather, providing backup power during a grid electrical outage that may last many hours. The daily cycling of battery systems reduces the overall lifespan of the battery system, increases wear and tear, and may reduce battery system reliability. Also, the reliability requirements of small capacity batteries used for peak demand relief for limited duration is different than large capacity batteries used as a backup power solution in large-scale data centers. Should a battery system of a building used for peak demand relief fail for any reason, the grid would still provide power to support the building's load. In contrast, if a single cell in a backup battery system fails, the whole system would be rendered inoperable and the battery system would need to be taken offline and inspected. Again, for a data center, such as

the proposed project, the only backup energy in the event of a grid outage would be from its backup power source. The reliability of the project's backup power source is of utmost importance to ensure customers' data is not lost.

5.6.5 Decision to Eliminate These Alternatives from Further Consideration

The applicant's objectives are to develop a data center using proven technology currently in use, that is considered industry standard or best practice, is technically feasible for the project, and is reliable. An alternative project site, biodiesel fuel, fuel cells, and battery storage alternatives were eliminated from further consideration as alternatives to the proposed project based on their infeasibility and/or lack of a sufficient level of proven reliability. Data center customers need the most reliable data storage service available, and data center insurers are willing to provide coverage only for proven technologies with an extremely low probability of operational failure.

5.7 Alternatives Selected for Analysis and Comparison to the Proposed Project

The following alternatives were selected for full evaluation in this EIR:

- Alternative 1: No Project/No Build Alternative
- Alternative 2: Natural Gas Internal Combustion Engines

The No Project/No Build Alternative is required for analysis for every project according to CEQA Guidelines section 15126.6(e). The other project alternative listed above is one that appeared more feasible than the dismissed alternatives (discussed earlier) that could avoid or reduce the proposed project's potentially significant impacts. The following analysis includes a comparative analysis of the impacts of each alternative, as well as an assessment of each alternative's feasibility and ability to meet the project objectives. It is assumed that the project site location would remain the same under these alternatives.

The comparative analysis below is centered on impacts to air quality, public health, and GHG emissions. **Table 5-1**, below, compares the proposed project's impacts in each of these topic areas to those of each alternative. Impacts in other topic areas are not discussed, as staff found essentially no differences in other topic areas between the impacts identified under the proposed project and the impacts associated with Alternative 2.

5.7.1 Alternative 1: No Project/No Build Alternative

The project site is comprised of two parcels. The main project parcel is currently developed with two 2-story office buildings, totaling 326,000 square feet, and paving for parking and loading. The second project parcel, where the project's substation is proposed for location, has an existing data center that is not part of the project. Under the No Project/No Build Alternative, development of the project site would not occur, and current conditions would continue at the site for an unknown period.

As discussed in **Section 4.11 Land Use and Planning** of this EIR, the project site has a General Plan land use designation of Heavy Industrial, which "allows primary manufacturing, refining and similar activities…(and) also accommodates warehousing and distribution, as well as data centers"(Santa Clara 2010). The project site is also zoned Heavy Industrial, which allows any manufacturing, processing, assembling, research, wholesale, or storage uses that do not result in objectionable hazards or nuisances (Santa Clara 2022). The Heavy Industrial zoning district also allows any land uses permitted in the Planned Industrial and Light Industrial zoning districts, including a variety of office, laboratory, testing, and repair facilities. The site could eventually be approved for such uses should the project not move forward. Although a different project would likely be proposed at the site in the future, no development plan exists to allow a comparison with the LDC, and it would be speculative to assume the characteristics of such an alternative.

The No Project/No Build Alternative would avoid the proposed project's potentially significant impacts identified in this EIR (*no impact* compared to the proposed project). However, if the project is not constructed, the applicant's objective of developing a data center would not be attained.

5.7.2 Alternative 2: Natural Gas Internal Combustion Engines

Natural gas internal combustion engines (ICEs) are fueled by natural gas, while the proposed engines for the project would use renewable diesel. Natural gas ICEs are available in capacities of up to 18 MW each. Their physical dimensions vary in size depending on their MW capacity. For example, one of the natural gas ICEs from manufacturer Power Solution International (PSI) has a capacity of 445 kW and a nominal height of 12 feet. One of the natural gas ICEs manufactured by Innio has a capacity of 3 MW with a height for the genset assembly of 23 feet. As a point of reference, the height of the proposed diesel genset assembly for the project is 30.2 feet.

Under this alternative, the footprint of the natural gas ICEs may not be the same as for the proposed diesel gensets. The number of engines and associated equipment, height, fuel delivery, and onsite fuel storage would be different. However, it is assumed under this alternative that the massing and locations of the data center buildings would be essentially the same as for the proposed project.

Data centers require a power generating solution with quick start times. The time it takes a natural gas ICE to begin carrying data center load from its power-off position (the moment the engine synchronizes to the bus bar) varies depending on the natural gas ICE's size and capacity. In the meantime, the UPS system can provide power to the data center while the ICEs start up. The startup time for the PSI natural gas ICEs and the Innio natural gas ICEs are fast enough that the proposed project's UPS system would not need to be redesigned.

Air Quality and Public Health

Staff compared criteria air pollutant emissions and CO_2 emissions of natural gas ICEs against the proposed renewable diesel-fired engines for the LDC. The proposed project's

44 3.0-MW engines and one 1.0 MW engine would be equipped with SCR (selective catalytic reduction) and DPFs (diesel particulate filters) to achieve compliance with Tier 4 emission standards. However, it takes time for the SCR to reach the activation temperature and become fully effective in controlling NOx emissions. Depending on load, the SCR would be expected to kick on within 15 minutes.

For the Natural Gas ICE Alternative, information is primarily based on the data provided for the San José Data Center (SJDC) application (Jacobs 2021a) (Docket #19-SPPE-04). (The CEC adopted an order approving the small power plant exemption for the SJDC on July 13, 2022.) The natural gas ICEs for the SJDC will be equipped with a 3-way catalyst system to reduce emissions of NOx, CO, volatile organic compounds (VOCs), and air toxics. The applicant for the SJDC also assumed 15 minutes of operation with uncontrolled emissions and 45 minutes of operation with controlled emissions to estimate hourly emissions (Jacobs 2021b).

Staff compared the emission factors in pounds per megawatt-hour (lbs/MWe-hr) for diesel-fired engines similar to those proposed for the LDC and the natural gas ICEs proposed at the SJDC. Staff assumed the same 15-minute warm-up period for the SCRs of the diesel engines and the 3-way catalyst system of the natural gas ICEs. As shown in **Table C-3** of **Appendix C**, compared to diesel-fired engines, the emission factors in lbs/MWe-hr for natural gas ICEs would decrease by: more than 98 percent for NOx emissions; more than 79 percent for PM emissions; approximately 82 percent for VOC emissions; approximately 79 percent for CO emissions; and approximately 46 percent sulfur dioxide (SO_2) emissions.

It should be noted that the emission factors for the diesel-fired engines shown in **Table C-1** of **Appendix C** are based on the use of petroleum-based diesel. However, for the LDC, the applicant has proposed to use renewable diesel as the primary fuel for the engines, with ultra-low sulfur, petroleum-based diesel serving as a secondary fuel to be used only when renewable diesel is unavailable. The California Air Resources Board (CARB) 2021 testing report shows that for diesel engines with SCR and DPF, there are no statistically significant differences in NOx, PM, and total hydrocarbon emissions using renewable diesel when compared to ultra-low sulfur, petroleum-based diesel (CARB 2021). For CO emissions, depending on the testing cycle used, there are either no statistically significant differences (or emissions were already below background levels) between renewable diesel and ultra-low sulfur, petroleum-based diesel, or there are 5 to 44 percent decreases using renewable diesel compared to ultra-low sulfur, petroleum-based diesel. Ideally, this should be confirmed with testing under controlled conditions using the same size of engine proposed for this facility and employing the same test cycle used for engine certification. With this currently available information, staff expects the comparison of criteria air pollutant emissions from use of natural gas as fuel versus ultra-low sulfur, petroleum-based diesel as fuel, as shown in **Table C-1** of **Appendix C**, to be similar to the comparison of natural gas versus renewable diesel, as proposed for this project. However, the exact percent reduction in CO emissions using renewable diesel

versus ultra-low sulfur, petroleum-based diesel would be different depending on the testing cycle used.

Staff is unable to find data comparing air toxics emissions of natural gas ICEs with those for diesel-fired engines; however, these are expected to be reduced for the proposed renewable diesel engines due to the reductions reported for VOCs and PM.

Staff acknowledges that the operational profile may be different for the natural gas ICEs than for the proposed project, and annual emissions for the natural gas ICEs may be higher because they may operate more based on other project applications, such as providing grid support services to offset cost differences. However, staff is not able to predict the exact number of operation hours and the associated emissions for the natural gas ICEs in such a scenario since it is unknown how much grid support service would be provided. Therefore, staff assumes a similar operating profile when comparing the emission factors in lbs/Mwe-hour for the natural gas ICEs and those for the renewable diesel-fired engines for the proposed project. While staff does not assume any additional operational cost of the natural gas ICEs, the capital cost of natural gas ICEs may be more expensive.

Air quality impacts using natural gas ICEs are expected to be *much less* than those that would occur with the proposed renewable diesel-fired engines for the project. Public health impacts from toxic air contaminants using natural gas ICEs are *likely less* than those that would occur with the proposed renewable diesel-fired engines. These conclusions would remain the same regardless of whether the fuel used for the project was renewable diesel or conventional ultra-low sulfur, petroleum-based diesel.

Greenhouse Gas Emissions

As shown in **Table C-1** of **Appendix C**, natural gas-fueled ICEs would reduce GHG emissions by approximately 8 percent from conventional diesel-fired engines. However, the applicant has proposed to use renewable diesel as primary fuel in the proposed engines. Mitigation measure **GHG-1** would require the applicant to use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or a disruption in obtaining renewable diesel. CARB's 2021 testing report (CARB 2021) shows that the tailpipe CO_2 emissions would reduce about 3 to 4 percent using renewable diesel compared to ultra-low sulfur, petroleum-based diesel. Therefore, the tailpipe CO_2 emissions of natural gas ICEs would only be about 4 to 5 percent lower than those for the proposed engines using renewable diesel.

To have a more complete understanding of the impact of replacing diesel with natural gas, it is necessary to examine the full fuel-cycle of each fuel from origin to use. This is because GHGs have a global impact rather than a local impact. As shown in **Table C-2** of **Appendix C**, when extending to the full fuel cycle, GHG emissions from natural gas ICEs fueled with pipeline natural gas produced from fossil feedstocks would be about 20 percent lower than those from conventional diesel as indicated by the carbon intensity

values. Moreover, natural gas feedstocks from some renewable feedstocks may have a much lower carbon intensity. The carbon intensity values of most renewable feedstocks are even negative, reflecting a net reduction in fuel cycle carbon emissions. However, **Table C-2** of **Appendix C** also shows that there are 61 to 83 percent reductions in carbon intensity values using renewable diesel in place of ultra-low sulfur, petroleum-based diesel. Therefore, for the natural gas ICEs to remain an environmentally superior alternative to the proposed diesel engines using renewable diesel, they would be required to use a certain percentage of renewable natural gas to reduce the fuel cycle GHG emissions. Since there are uncertainties regarding how much renewable natural gas would be used, the comparative impact is *likely similar* under this alternative.

Fossil natural gas and some forms of renewable natural gas still have some carbon associated with the fuel cycle. These show up in the table for those fuels with a carbon intensity that is greater than zero. In these cases, additional measures could be needed before an alternative fueled by natural gas would be considered a carbon-free facility.

Potential Feasibility Issues and Attaining the Project Objectives

Natural gas ICEs are cleaner burning due to the type of fuel; however, the technology is not without feasibility issues. The project would employ 45 total backup gensets (including the life safety genset that would serve administrative and emergency response functions). Depending upon the MW size of the natural gas ICE engine, more engines may or may not be needed. There are two potential fuel supply methods: onsite storage and pipeline connection.

Onsite Fuel Storage. Onsite storage would require redesigning the project and would suffer from some feasibility issues. The project would need approximately 201 million gallons of natural gas storage to provide 24 hours of backup natural gas ICE operation, the same backup duration as the current proposal. Liquefied natural gas (LNG)[5] would minimize the storage space, but the needed storage volume would still be substantially larger than that of diesel fuel.[6,7] LNG would also need to be stored and distributed with specialized equipment, including storage in insulated tanks to keep the fuel in a liquid state at minus 260 degrees Fahrenheit. For LNG to remain at a constant temperature and pressure, it must allow for natural evaporation known as BOG. To mitigate the loss of fuel and gas release into the atmosphere allowing the LNG to maintain its liquid state, BOG can be re-liquefied and put back into the LNG tank or used as fuel in certain marine applications, steam turbines, or in a gasification unit for creating alternative fuels. LNG would also need to undergo a regasification process for the fuel to be used in natural gas

5 Natural gas can be liquefied to 600 cubic meters times smaller than its volume in its gas state.

6 LNG calculated as: Approximate ICE Fuel Consumption 9,500 cubic feet per megawatt-hour x 118 MW (includes redundant engines) x 24 hours of backup duration = 26,904,000 cubic feet of natural gas = 201 million gallons
Conversion Cubic feet gas to liquid gallons: 26,904,000 cubic feet x 0.0283168 cubic meter gas x (1 cubic meter LNG / 600 cubic meter gas) x 264.172 liquid gallons = 335,426 gallons

7 Diesel volume for current proposal: Genset Fuel Consumption 207 gallons per hour x 44 gensets x 24 hours = 218,592 gallons

ICEs. Both reliquefication and regasification would result in additional processes, equipment, and footprint.

In addition, fuel storage, reliquefication, and regasification equipment must comply with standards specified by the National Fire Protection Association and the City Code to protect against hazardous material release, fire, and explosions during natural disasters and as the result of accidents. Also, permits for the storage of hazardous materials would be needed pursuant to the City Code.

Pipeline Infrastructure. The preferred, most feasible method to supply fuel for the natural gas ICEs would be by pipeline through Pacific Gas and Electric's underground natural gas transmission system. Based on PG&E's gas transmission pipeline map, the two closest locations for independent natural gas pipeline connections are one adjacent to the project site on Lafayette Street and one approximately 2.6 miles west of the project site on the Lawrence Expressway.[8] Under the pipeline infrastructure scenario, the project's primary pipeline would connect to the nearby gas line on Lafayette Street. Another pipeline connecting to the gas line at Lawrence Expressway could also be installed to provide added reliability. Convention dictates that new pipelines would be constructed along existing roadway rights-of-way and utility corridors. The natural gas pipeline trenches would be approximately 6 feet deep and 4 to 6 feet wide, with a minimum cover depth of 36 inches.

Pipelines are susceptible to natural disasters (e.g., earthquakes) as well as accidents. This can potentially cut off fuel supply to the project during a grid outage. Access to the secondary pipeline 2.6 miles west of the project site on Lawrence Expressway would increase fuel supply reliability. The natural gas ICE alternative could potentially be feasible and attain the project objectives using the underground natural gas pipeline system.

The installation of natural gas pipelines could cause temporary impacts during construction. Staff assumes that implementation of the same mitigation and project design measures for the project would apply to pipeline construction impacts under this alternative (e.g., measures to reduce impacts in the areas of Air Quality, Biological Resources, Cultural and Tribal Cultural Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Transportation). These mitigation and project design measures would reduce any potential impacts from gas pipeline construction to less than significant levels.

However, for the LDC to provide the same level of reliability with ICEs as it would with diesel gensets, or a 99.999 percent availability factor, the ICE fuel delivery system must not be susceptible to any disruptions. Although two natural gas pipelines are available for the LDC and PG&E has verified that the project can connect to both pipelines, due to the pipelines' susceptibility to natural disasters (e.g., earthquakes) as well as accidents, the ICE fuel delivery and storage system may provide a slightly lower level of reliability than

8 Along Central Expressway to Lawrence Expressway.

has been demonstrated by the diesel fuel delivery and storage system for many data centers.

The CEC recently issued a Small Power Plant Exemption for the SJDC, mentioned earlier in this section. This project, which is owned by Microsoft but not yet in operation, will use natural gas ICEs for backup generation during grid outages and will be used for its own Microsoft-affiliated clients (Jacobs 2021b). The SJDC site contained two separate natural gas pipelines providing the necessary redundancy without the need for constructing a long pipeline as would be the case with the LDC. Therefore, the ICE technology for the LDC may be rendered infeasible due to the requirement for construction of a 2.6-mile gas pipeline through Santa Clara to support backup generators that would be infrequently used.

5.8 Environmentally Superior Alternative

CEQA requires that if the environmentally superior alternative is the "No Project" alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives (Cal. Code Regs., tit. 14, § 15126.6, subd. (e)(2)). Alternative 1, the No Project/No Build Alternative, is the environmentally superior alternative for the LDC because it would avoid the potentially significant impacts of the proposed project. However, Alternative 1 would not meet any of the project objectives.

Staff compared Alternative 2 to the proposed project and determined that it has some advantages in terms of reducing impacts. Staff also examined the potential for Alternative 2 to meet the project's basic objectives. Staff's conclusions are summarized below.

5.8.1 Alternative 2: Natural Gas Internal Combustion Engines

Criteria air pollutant emissions, and therefore Air Quality impacts, using natural gas ICEs are expected to be *much less* than those that would occur with the project's gensets. Staff is not able to find data comparing the air toxics emissions of natural gas ICEs with those for diesel engines, but these are expected to be reduced due to the reductions reported for VOCs and PM. Therefore, Public Health impacts using natural gas ICEs would *likely be less* than those that would occur with the project's diesel engines. The GHG impacts of this alternative would *likely be similar* to those of the LDC due to uncertainties regarding how much renewable natural gas would be used.

Staff considers Alternative 2 to be *environmentally superior* to the proposed project due to its deep reductions in criteria air pollutants. Redesigning the project with natural gas ICE technology could increase the number of engines onsite depending upon the MW sizing and physical dimensions. As discussed earlier, two gas pipeline connections are available and are likely needed if the ICE technology is implemented for LDC. Permitting and construction of the new pipelines would take time to complete, and natural gas would not factor as reliable as conventional diesel fuel due to the gas pipelines' susceptibility to natural disasters and accidents.

Table 5-1 (below) summarizes the environmental impacts of each alternative compared to the proposed project for the topics of Air Quality, Public Health, and GHG emissions. As discussed above, staff's comparative analyses for the other topics covered in this EIR show essentially no differences between the impacts identified under the proposed project and the alternative selected for analysis (Alternative 2).

TABLE 5-1 SUMMARY COMPARISON OF IMPACTS OF THE PROPOSED PROJECT TO THE ALTERNATIVES

Environmental Topics and Impacts	Proposed Project	No Project/No Build	Natural Gas ICEs
Criteria air pollutants	LTS with Mitigation	No Impact	LTS with Mitigation (Much Less)
Toxic Air Contaminants (TACs)	LTS	No Impact	LTS (Likely Less)
GHG emissions	LTS with Mitigation	No Impact	LTS with Mitigation (Likely Similar)

Notes: Impact conclusions for the proposed project and the alternatives in **Table 5-1** are shown using these abbreviations:
No Impact = the proposed project or an alternative has no potential to affect the resource
LTS = less than significant impact, no mitigation required
LTS with Mitigation = mitigation measure(s) required to reduce a potentially significant impact to less than significant
The comparisons of impacts to the proposed project in **Table 5-1** are conveyed using these abbreviations (staff identified no impacts that would be greater than the proposed project):

- Much Less
- Less
- Likely Less (conclusion that is estimated and cannot be fully verified with available data)
- Likely Similar (conclusion that is estimated and cannot be fully verified with available data)

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Section 6

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6 Authors and Reviewers

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Section 7

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM

Lafayette Data Center
20-SPPE-02
April 2023

PREFACE

Public Resources Code section 21081.6 of the California Environmental Quality Act (CEQA) requires a Lead Agency to adopt a Mitigation Monitoring and Reporting Program (MMRP) whenever it approves a project for which measures have been required to mitigate or avoid significant effects on the environment. The purpose of the monitoring and reporting program is to ensure compliance with the mitigation measures during project implementation.

The Final Environmental Impact Report prepared for the Lafayette Backup Generating Facility project concluded that the implementation of the project would not result in significant effects on the environment with the incorporation of mitigation measures. This MMRP addresses those measures in terms of how and when they will be implemented.

This document does *not* discuss those subjects for which the Final Environmental Impact Report concluded that the impacts from the implementation of the project would be less than significant.

I, _____, the applicant, on the behalf of _____, hereby agree to fully implement the Mitigation Measures described below, which have been developed in conjunction with the preparation of an EIR for my proposed project. I understand that these mitigation measures or substantially similar measures will be adopted as conditions of approval with my development permit request to avoid or significantly reduce potential environmental impacts to a less than significant level.

Project Applicant's Signature _____

Date_____

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
AIR QUALITY					
Impact 4.3-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? Impact 4.3-c Expose sensitive receptors to substantial pollutant concentrations?					
AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement BAAQMD-recommended Best Management Practices (BMPs) during the construction phase. The project owner also 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 require the project owner to do or ensure the following: • 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	Implement the BAAQMD's recommended BMPs to control fugitive dust and additional measures to control exhaust emissions	During construction phase	Director of Community Development or director's designee of the City of Santa Clara	Receive and approve the fugitive dust control measures and exhaust control measures during construction	Prior to the issuance of any demolition, grading, and/or building permits (whichever occurs earliest)

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
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. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the Lead Agency and the on-site job superintendent dust complaints. • Install vegetative ground cover in disturbed areas as soon as possible and water appropriately until vegetation is established.					

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
• 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 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. • As a condition of contract, require all on-road heavy-duty trucks to be zero emissions or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, as available. Use grid power for construction activities whenever possible; if grid power is not available, use alternative power such as battery storage, hydrogen fuel cells, or renewable fuels. If no other options are available, use Final Tier 4 diesel generators. • Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed construction areas. Wind breaks should have at maximum 50 percent air porosity. • Sandbags or other erosion control measures shall be installed to prevent silt runoff to public					

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
roadways from sites with a slope greater than one percent. • All contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines. 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.					
BIOLOGICAL RESOURCES					
Impact 4.4-a Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?					
BIO-1, The project will incorporate the following to reduce impacts to nesting birds: • If possible, construction activities, including removal of trees and vegetation clearing shall take place between September and January. If construction activities, including tree removal and vegetation clearing, must occur during the nesting season (February 1 through August 31) a preconstruction survey for nesting raptors and other protected native or migratory birds shall be conducted by a qualified ornithologist, approved by the City of Santa Clara, to identify active nests that may be disturbed during project implementation. Between February 1 through August 31 (inclusive) pre-construction surveys shall be conducted no more than 14 days prior to the initiation of construction activities, including tree removal or vegetation clearing. Surveys will be repeated if project	Avoidance of construction activities during nesting season. If construction activities occur between January and September, a pre-construction nesting bird survey shall be conducted by a qualified ornithologist in consultation with the California Department of Fish and Wildlife, and a construction-free buffer zone shall be designed around any discovered nest	Prior to issuance of any permits for tree removal, demolition, or grading activities	Director of Community Development or director's designee of the City of Santa Clara (Director of Community Development)	Confirm that construction activities are scheduled outside of the nesting season	Prior to issuance of any permits for tree removal, demolition, or grading activity

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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activities are suspended or delayed for more than 14 days during the nesting season. The surveying ornithologist shall inspect all trees in and immediately adjacent to the construction area to be disturbed by these activities, and the ornithologist shall, in consultation with the State of California, Department of Fish and Wildlife (CDFW), designate a construction-free buffer zone around the nest. The size of all buffer zones will initially be a 250-foot radius around the nest of non-raptors and a 500-foot radius around the nest for raptors. Any changes to a buffer zone must be approved by the City of Santa Clara in consultation with CDFW. The nests and buffers will be field checked weekly by the approved ornithologist. The approved buffer zone will be marked in the field with exclusion fencing, within which no construction, tree removal, or vegetation clearing will commence until the ornithologist and the City of Santa Clara, in consultation with CDFW, verify that the nest(s) are no longer active. If an active bird nest is discovered during construction, then a buffer zone shall be established under the guidelines specified.					
• The ornithologist shall submit a copy of the pre-construction nest survey report(s) indicating the results of the survey and any designated buffer zones to the City of Santa Clara's Director of Community Development prior to the start of construction activities or the issuance of permit (s) for tree removal, demolition or grading. The report(s) will contain maps showing the location of all nests,	The ornithologist shall submit a report indicating the results of the survey and any designated buffer zones to the Director of Community Development or director's designee of the City of Santa Clara	Prior to issuance of any tree removal permit by the city arborist	Director of Community Development	The ornithologist shall inspect all potentially affected trees and designate a buffer-free zone around nest until the end of the nesting activity	Prior to issuance of any permits for tree removal, demolition, or grading

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species nesting, status of the nest (e.g. incubation of eggs, feeding of young, near fledging), and the buffer size around each nest (including reasoning behind any alterations to the initial buffer size). The report will be provided within 10 days of completing a pre-construction nest survey.					
Impact 4.4-e Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?					
BIO-2: Avoid and Minimize impacts to trees through the following: • Remove trees #1-25, 30-32, 42-97, 99-273,275-313, 316-328, 330-332, 335-354, 411, 414, 420-433, 440-442, 446-448, 450-453, 456-470, 475, and 476 upon approval from the city of Santa Clara. • Remove deadwood from remaining Callery pears and Raywood ashes. This will benefit both tree health and worker safety. • All tree work must be completed by trained tree care personnel under the direction of an International Society of Arboriculture Certified Arborist. • The Applicant shall alert the Project Arborist when new drawings are available showing grading, utilities, retention area details, or material changes to project features. • Tree protection fencing shall be installed prior to any demolition equipment entering the site. ○ Fencing shall be installed at or outside the tree protection areas of all trees to be retained.	Obtain tree removal permits from the City's department of Community Development Follow the tree protection measures outlined by the City Arborist or other arborist retained by the city for trees that are to remain in place	Prior to the removal of any trees To coincide with demolition activities	Director of Community Development Director of Community Development	Approved permits, including tabulation of final tree mitigation numbers Retain final tally of trees retained and indicate said trees on final landscape plans	Prior to tree removal work At the conclusion of construction

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○ Where existing pavement is within tree protection zones, install tree protection fencing at the edge of pavement. After demolition, relocate tree protection fencing to the edge of the tree protection area. ○ Install tree protection fencing at the edge of the project features. ○ For areas where no construction will occur, tree protection fencing will be installed at the perimeter of the area instead of around each tree individually. ○ Spread wood chips at least four inches thick within tree protection fencing. • For existing hardscape to be demolished within tree protection zones: ○ Demolish the area nearest the tree first and work outwards. ○ Do not operate machinery on unpaved areas within tree protection zones. ○ Upon completion of demolition, relocate tree protection fencing to at or outside the tree protection area. • Minimize grading near trees. Do not complete any grading inside tree protection fencing. • If live roots over one inch in diameter are encountered at any time, in any location, they must be pruned with a sharp saw or bypass pruners, as close to the edge of the excavation as possible. If roots over three inches in diameter are encountered, do not prune, but					

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instead contact the Project Arborist to determine the best course of action. • Irrigate all trees to be retained on a monthly basis with potable water, in the absence of heavy rain. ○ Irrigate using a soaker hose placed as close to the tree driplines as practical. Irrigate for 2-4 hours at a very low flow. If this causes runoff, reduce the flow rate. If this is impractical for any tree for any reason, contact the Project Arborist.					
CULTURAL RESOURCES					
Impact 4.5-a Cause a substantial adverse change in the significance of a historical resource pursuant to California Code of Regulations, title 14, §15064.5? Impact 4.5-b Cause a substantial adverse change in the significance of a unique archaeological resources pursuant to California Code of Regulations, title 14, §15064.5? Impact 4.5-e, (Tribal), A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.					
CUL-1: The following project-specific measures would be implemented during construction to avoid significant impacts to unknown subsurface cultural resources: • A Secretary of the Interior-qualified archaeologist and a Native American cultural resources monitor shall be on site to monitor grading of native soil once all pavement is removed from the project site. The project applicant shall submit the name and qualifications of the selected archaeologist and Native American Monitor to the Director of Planning and Inspection prior to the issuance of a grading permit. Preference in selecting	Submit the name and qualifications of the selected archaeologist and Native American monitor with a signed letter of commitment or agreement to monitor	Before a grading permit is issued	Director of Community Development or director's designee of the City of Santa Clara (Director of Community Development)	Review and approve the archaeologist and Native American monitor's qualifications	Before issuance of permits for any ground disturbing activities (trenching, grading, excavation)

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Native American monitors shall be given to Native Americans with: o Traditional ties to the area being monitored. o Knowledge of local historic and prehistoric Native American village sites. o Knowledge and understanding of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq. o Ability to effectively communicate the requirements of Health and Safety Code, Section 7050.5 and Public Resources Code, Section 5097.9 et seq. o Ability to work with law enforcement officials and the Native American Heritage Commission to ensure the return of all associated grave goods taken from a Native American grave during excavation. o Ability to travel to project sites within traditional tribal territory. o Knowledge and understanding of Title 14, California Code of Regulations, Section 15064.5. o Ability to advocate for the preservation in place of Native American cultural features through knowledge and understanding CEQA mitigation provisions. o Ability to read a topographical map and be able to locate site and reburial locations for future inclusions in the Native American					

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Heritage Commission's Sacred Lands Inventory. o Knowledge and understanding of archaeological practices, including the phases of archaeological investigation.					
• After removal of pavement and prior to grading, the archaeologist shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. The archaeologist will monitor full-time all grading and ground disturbing activities in native soils associated with construction of the proposed project. If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, then a letter report detailing the rationale for making such a reduction and summarizing the monitoring results shall be provided to the Director of Planning and Inspection. Department of Recreation 523 forms shall be submitted along with the report for any cultural resources encountered over 50 years old.	The archaeologist is to perform survey and presence/absence testing with a Native American monitor present	After the demolition of the existing building and pavement and prior to grading	Director of Community Development	Review the results and approve next steps	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)
	If testing determines that cultural resources are present and significant, a treatment plan shall be prepared. If Native American cultural materials are present, the treatment plan shall be prepared in collaboration with the Native American monitor	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)	Director of Community Development	Review and approve the treatment plan	Prior to issuance of permits for any ground disturbing activities (trenching, grading, excavation)
• In the event that prehistoric or historic resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Planning and Inspection shall be notified, and a Secretary of the Interior-qualified archaeologist shall examine the find and record the site, including field notes, measurements, and photography for a	The archaeologist and California Native American monitor will monitor full-time all grading and ground disturbing activities and	During grading and ground disturbing activities	Director of Community Development; Secretary of the Interior-qualified archaeologist	Review monitoring logs as needed	During grading and ground disturbing activities

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Department of Parks and Recreation 523 Primary Record form. The archaeologist shall make a recommendation regarding eligibility for the California Register of Historical Resources, data recovery, curation, or other appropriate mitigation. Ground disturbance within the 50-foot radius can resume once these steps are taken and the Director of Planning and Inspection has concurred with the recommendations. Within 30 days of the completion of construction or cultural resources monitoring, whichever comes first, a report of findings documenting any cultural resource finds, recommendations, data recovery efforts, and other pertinent information gleaned during cultural resources monitoring shall then be submitted to the Director of Planning and Inspection. Once finalized, this report shall be submitted to the Northwest Information Center at Sonoma State University.	maintain a daily monitoring log Request for reduction in monitoring based on results Work shall be stopped if cultural resources are encountered within a 50' radius Examination of the find and recordation on DPR 523 forms along with a determination of eligibility and recommendation for data recovery or curation A final report shall summarize the findings documenting any cultural resources found during construction Submittal of the final report to the NWIC	During ground disturbing activities During ground disturbing activities While ground disturbing activities are halted and prior to returning to work Within 30 days of completion of construction or cultural resources monitoring Upon finalization of the report	Director of Community Development Director of Community Development Secretary of the Interior-qualified archaeologist Director of Community Development Director of Community Development	Review and approve request to reduce monitoring Review and approve work stoppage Record on DPR forms with eligibility and curation recommendations Review and approve final report Obtain proof of submittal to NWIC	During grading and ground disturbing activities During grading and ground disturbing activities During grading and ground disturbing activities Within 30 days of completion of construction or cultural resources monitoring Upon finalization of the report
• Prior to and for the duration of ground disturbance, the project owner shall provide Worker Environmental Awareness Program training to all existing and any new employees. This training should include: a discussion of applicable laws and penalties under the laws; samples or visual aids of artifacts that could be encountered in the project vicinity, including what those artifacts may look like partially buried, or wholly buried and freshly exposed; and instructions to halt work in the vicinity of any potential cultural resources discovery, and	WEAP training shall be provided for all existing and new employees	Prior to and during ground disturbing activities	Secretary of the Interior-qualified archaeologist	Review and approve WEAP submitted by archaeologist and	Prior to and during ground disturbing activities

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notify the city-approved archaeologist and Native American cultural resources monitor.				Native American monitor	
Impact 4.5-b Cause a substantial adverse change in the significance of a unique archaeological resources pursuant to California Code of Regulations, title 14, §15064.5? Impact 4.5-c, Disturb any human remains, including those interred outside of dedicated cemeteries? Impact 4.5-e, (Tribal), A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.					
CUL-2: The project proposes to implement the following measure to ensure the project's impacts to human remains are less than significant: • In the event that human remains are discovered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped. The Santa Clara County Coroner shall be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner shall notify the Native American Heritage Commission. All actions taken under this mitigation measure shall comply with Health and Human Safety Code, section 7050.5(b).	The contractor shall stop work within a 50-foot radius of the find and notify the Santa Clara County Coroner and the Director of Planning or director's designee of the City of Santa Clara Community Development Department (Director of Community Development)	Immediately upon discovery of human remains	Director of Community Development	The coroner shall contact the NAHC if human remains are found and are believed to be Native American	Upon discovery of human remains
GEOLOGY AND SOILS (PALEONTOLOGY)					
Impact 4.7-f Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?					
GEO-1: The project proposes to implement the following measures to ensure impacts to paleontological resources are reduced to less than significant.	The contractor shall require training in recognition of fossils/artifacts. The contractor shall stop work	Prior to any subsurface excavations	Director of Community Development or director's designee of the	Receive copy of excavation and salvage plan AND final paleontological	First, if and when fossils are discovered AND second, following

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• Prior to the start of any subsurface excavations that would extend beyond previously disturbed soils, all construction forepersons and field supervisors shall receive training by a qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology, who is experienced in teaching non-specialists, to ensure they can recognize fossil materials and shall follow proper notification procedures in the event any are uncovered during construction. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist, who shall evaluate its significance. • If a fossil is found and determined by the qualified paleontologist to be significant and avoidance is not feasible, the paleontologist shall develop and implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in these areas shall be halted or diverted to allow preparation of the plan and recovery of fossil remains in a timely manner. Fossil remains collected during the monitoring and salvage portion of the mitigation program shall be cleaned, repaired, sorted, and cataloged. Prepared fossils, along with copies of all pertinent field notes, photos, and maps, shall then be deposited in a scientific institution with paleontological collections. A final Paleontological Mitigation Plan Report that outlines the results of the mitigation program shall be prepared and	within a 50-foot radius of the find and notify the Santa Clara County Coroner and the Director of Community Development or director's designee of the City of Santa Clara		City of Santa Clara	mitigation plan/report Review and approve final plans/reports and ensure the findings of the report are integrated into the final recommendations	completion of construction

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submitted to the Director or Director's designee with the City of Santa Clara Community Development Department at the conclusion of construction. The Director or Director's Designee with the Santa Clara Community Development shall be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.					
GREENHOUSE GAS EMISSIONS					
Impact 4.8-a Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment? Impact 4.8-b Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?					
GHG-1: The project owner shall use renewable diesel for 100 percent of total energy use by the gensets, and only use ultra-low sulfur diesel (ULSD) as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. The City of Santa Clara Community Development Department (CDD) may grant temporary relief from the 100 percent renewable diesel requirement if the project owner can demonstrate a good faith effort to comply with the requirement and that compliance is not practicable. The project owner shall provide an annual report of the status of procuring and using renewable diesel to the director, or director's designee, of the City of Santa Clara CDD demonstrating compliance with the mitigation measure.	Use renewable diesel as the primary fuel and ULSD as a secondary fuel in the event of supply challenges or disruptions	During project operation	Director of Electric Utility Department	The project owner shall provide an annual report of renewable diesel supply and distribution	Annually
GHG-2: The project owner shall participate in SVP's Large Customer Renewable Energy (LCRE) Program or other renewable energy program that accomplishes the same objective as SVP's LCRE	Ensure that 100 percent of the renewable electricity purchased is	Prior to local approval of project entitlements and	Director of Electric Utility Department	The project owner shall provide proof of enrollment in SVP's LCRE or	Annual or other proof of recurring enrollment

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Program for 100 percent carbon-free electricity, or (2) purchase renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. During Operation, the project owner shall provide documentation to the director, or director's designee, of the city of Santa Clara Electric Utility Department of initial enrollment and shall submit annual reporting to the director, or director's designee, of the city of Santa Clara Electric Utility Department documenting either continued participation in SVP's LCRE Program of documentation that alternative measures continue to provide 100 percent carbon-free electricity as verified by an independent third-party auditor specializing in greenhouse gas emissions.	covered by carbon-free resources	during the operational phase		other acceptable instrument and annual report, with verification by a qualified third-party auditor specializing in greenhouse gas emissions	
HAZARDS AND HAZARDOUS MATERIALS					
Impact 4.9-b Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public of the environment?					
HAZ-1: The project will implement the following measures to reduce potentially significant soil and or groundwater impacts to construction workers to a less than significant level. • Prior to the issuance of grading permits, shallow soil samples shall be taken in areas where soil disturbance is anticipated to determine if contaminated soils with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. The soil sampling plan must be reviewed and approved by the Santa Clara Fire Department Fire	The project owner shall 1) take soil samples in accordance with an approved soil sampling plan, 2) document the results of the sampling, and 3) develop a Site Management Plan to establish handling and management practices	Prior to the issuance of grading permits	Santa Clara Fire Department Fire Prevention and Hazardous Materials Division	Report findings of soil studies to Santa Clara Fire Department Fire Prevention and Hazardous Materials Division	Prior to the issuance of grading permits

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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Prevention and Hazardous Materials Division prior to initiation of work. Once the soil sampling analysis is complete, a report of the findings will be provided to the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division and other applicable city staff for review. • Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable environmental screening levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements. • Documentation of the results of the soil sampling shall be submitted to and reviewed by the City of Santa Clara prior to the issuance of a grading permit. Any soil with concentrations above applicable Environmental Screening Levels or hazardous waste limits would be characterized, removed, and disposed of off-site at an appropriate landfill according to all state and federal requirements: • A Site Management Plan (SMP) will be prepared to establish management practices for handling impacted groundwater and/or soil material that may be encountered during site development and soil-disturbing activities. Components of the SMP will include: 1) a detailed discussion of the site background,					

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2) a summary of the analytical results, 3) a Health and Safety Plan prepared by an industrial hygienist, 4) protocols for conducting earthwork activities in areas where impacted soil and/or groundwater are present or suspected, 5) a description of worker training requirements, health and safety measures and soil handing procedures, 6) protocols to characterize/profile soil suspected of being contaminated so that appropriate mitigation, disposal or reuse alternatives, if necessary, can be implemented, 7) a notification procedure if previously undiscovered significantly impacted soil or groundwater is encountered during construction, 8) a notification procedure if previously unidentified hazardous materials, hazardous waste, or underground storage tanks are encountered during construction, 9) on-site soil reuse guidelines; 10) sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility, 11) soil stockpiling protocols; and,					

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12) protocols to manage groundwater that may be encountered during trenching and/or subsurface excavation activities. Prior to issuance of grading permits, a copy of the SMP must be approved by the Santa Clara County Environmental Health Department, and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division. • If contaminated soils are found in concentrations above risk-based thresholds pursuant to the terms of the SMP, remedial actions and/or mitigation measures will be taken to reduce concentrations of contaminants to levels deemed appropriate by the selected regulatory oversight agency for ongoing site uses. Any contaminated soils found in concentrations above thresholds to be determined in coordination with regulatory agencies shall be either 1) managed or treated in place, if deemed appropriate by the oversight agency or 2) removed and disposed of at an appropriate disposal facility according to California Hazardous Waste Regulations (CCR, tit. 22, div. 4.5) and applicable local, state, and federal laws.					
HYDROLOGY AND WATER QUALITY					
Impact 4.10-a Violate water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?					
HYD-1: The Lafayette Data Center will incorporate the following into the design and these measures should be treated as mitigation incorporated into the project. The following will reduce construction-related water quality impacts.	The project owner shall determine the level of existing contamination on site via testing of water samples (and soil as	Prior to the issuance of demolition permits	Director of Community Development or director's designee of the	Submit summary of placement of material/measure, amounts of water applied, and a list of plantings	At commencement of demolition and throughout until completion of construction

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
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• Burlap bags filled with drain rock shall be installed around storm drains to route sediment and other debris away from the drains. • Earthmoving or other dust-producing activities shall be suspended during periods of high winds. • All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary. • Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered. • All trucks hauling soil, sand, and other loose materials shall be required to cover all trucks or maintain at least two feet of freeboard. • All paved access roads, parking areas, and staging areas adjacent to the construction sites shall be swept daily (with water sweepers). • Vegetation in disturbed areas shall be replanted as quickly as possible.	necessary), establishing a baseline		city of Santa Clara		
NOISE					
Impact 4.13-a Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?					
NOI-1: The project shall implement the following measures to reduce temporary construction noise to less than significant levels. • Construction is not permitted during the hours of 6 p.m. to 7 a.m. Monday through Friday between 6 p.m. to 9 a.m. on Saturday, and prohibited on Sundays and holidays.	Implement the City's municipal code and measures to reduce noise levels. Use best available noise control technologies.	During the construction phase Prior to the start of demolition and	Director of Community Development or director's designee of the City of Santa Clara (Director of Community Development)	Confirm the code and measures have been implemented Review and approve the schedule of	During the construction phase Prior to the start of demolition and

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• Prior to the start of construction, identify a noise control disturbance coordinator. The disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The disturbance coordinator shall determine the cause of any noise complaint received (e.g. starting too early, bad muffler, etc.) and shall ensure that reasonable measures warranted to correct the problem are implemented as soon as possible. If the project coordinator and complainant cannot reach consensus on a noise complaint, the project coordinator shall notify the City's Director of Planning or director's designee of the Santa Clara Department of Planning, Building and Code Enforcement. • Prior to the start of construction, establish a telephone number for the disturbance coordinator, and post it in a conspicuous location on the construction site. • Prior to the start of construction, notify, in writing, the residents within 800 feet from the center of the project site of the construction schedule and provide a written schedule of "noisy" construction activities to the adjacent land uses. • Include the telephone number for the disturbance coordinator construction of the site in the above notice regarding the construction schedule sent to the community. • The project owner shall orient construction equipment and locate construction staging	Notify all adjacent business and other noise-sensitive land uses of the construction schedule, in writing, and provide a written schedule of "noisy" construction activities to the adjacent land uses and to the City's Community Development Department	construction activities		"noisy" construction activities	construction activities

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areas within the project site away from its neighbors as much as practicable. Equip all construction-related internal combustion engine-driven equipment with the best available noise control equipment (including mufflers, intake silencers, ducts, engine enclosures, and acoustically attenuating shields or shrouds) and use best noise control practices to minimize noise levels from construction activities.					
TRANSPORTATION					
Impact 4.17-b Conflict or be inconsistent with CEQA Guidelines [California Code of Regulations, title 14,] section 15064.3, subdivision (b)?					
TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles traveled (VMT) associated with the project would be reduced to 14.14 or less per employee. The TDM program shall include, but is not limited to, the following measure, which has been determined to be a feasible method for achieving the required VMT reduction: • The operations workforce at the project shall work a 4-40 work schedule (40 hours in 4 days). Prior to the issuance of an occupancy permit, the TDM program shall be submitted and approved by the Director of Community Development and shall be monitored annually to gauge its effectiveness in meeting the required VMT reduction. The TDM program shall establish an appropriate estimate of initial vehicle trips generated by the occupant of the proposed project and shall include the conducting of driveway traffic counts annually to	Adopt a transportation demand management program to reduce project-related vehicle miles traveled to 14.14 or less per employee	Prior to the issuance an occupancy permit	Director of Community Development or director's designee of the City of Santa Clara	Receive approval of the TDM program based on traffic counts; the program shall be updated as necessary based on new traffic counts	Annually by the Director of Planning

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
measure peak-hour entering and exiting vehicle volumes. The volumes shall be compared to trip thresholds established in the TDM program to determine whether the required reduction in vehicle trips is being met. The results of annual vehicle counts shall be reported in writing to the Director of Community Development. If TDM program monitoring results show that the trip reduction targets are not being met, the TDM program shall be updated to identify replacement and/or additional feasible TDM measures to be implemented. The updated TDM program shall be subject to the same approvals and monitoring requirements listed above.					
MANDATORY FINDINGS OF SIGNIFICANCE					
Impact 4.20-a Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?					
BIO-1, **BIO-2, CUL-1**, **CUL-2**, **GEO-1** See impact 4.4-a, 4.4-e, 4.5-a, 4.5-b, 4.5-c, 4.5-e, and 4.7-f					
Impact 4.20-b Does the project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)					
AQ-1, **BIO-1, BIO-2, BIO-4, CUL-1**, **CUL-2, GEO-1, GHG-1, GHG-2**, **HAZ-1**, **NOI-1, TRANS-1**. See impact 4.3-b, 4.3-c, 4.4-a, 4.4-e, 4.5-a, 4.5-b, 4.5-c, 4.7-f, 4.8-a, 4.8-b, 4.9-b, 4.13-a., and 4.17-b					
4.20-c Does the project have environmental effects which will cause substantial adverse effects on human beings either directly or indirectly?					

MITIGATIONS	MONITORING AND REPORTING PROGRAM				
	Documentation of Compliance [Project Applicant/Proponent Responsibility]		Documentation of Compliance [Lead Agency Responsibility]		
	Method of Compliance Or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
AQ-1, **GEO-1, HAZ-1, HYD-1, NOI-1** See impact 4.3-b, 4.3-c, 4.7-f, 4.9-b, 4.10-a, and 4.13-a					

Source: California Energy Commission. Draft Environmental Impact Report for Lafayette Data Center/Backup Generating Facility. April 2023.

Appendix A

Project's Jurisdictional and Generating Capacity Analysis

Appendix A: Project's Jurisdictional and Generating Capacity Analysis

The Lafayette Backup Generating Facility and Data Center (LDC or project) proposed by Digital Realty would include 45 diesel-fueled standby emergency backup generators (gensets) that would provide emergency backup power supply for the project only during interruptions of electric service delivered by Silicon Valley Power, via Pacific Gas and Electric transmission lines. The gensets would be electrically isolated from the PG&E electrical transmission system with no means to deliver electricity offsite of LDC (the distribution line would only allow power to flow in one direction—from PG&E electrical transmission line to the project.

There are other Digital Realty-owned data centers in the city of Santa Clara. The nearest one is located approximately four miles from the LDC project site. There would be no common facilities between LDC and any other Digital Realty's data center. Therefore, the project is considered an independent data center for the purpose of jurisdictional determination.

Forty-four gensets would have a nameplate output capacity of 3.0 megawatt (MW) and continuous steady-state output capacity of 2.25 MW. In addition, one life safety genset would have a capacity of 800-kilowatts. The maximum total facility load requirements would not exceed 99.8 MW. This includes the critical information technology (IT) load of the servers and server bays, the cooling load of the IT servers and bays, and the facility's ancillary electrical and telecommunications equipment operating loads to support the data customers and campus.

The California Energy Commission (CEC) is responsible for reviewing, and ultimately approving or denying, all applications for thermal electric power plants that are 50 MW and greater being proposed for construction in California. (Pub. Resources Code, § 25500.) The CEC has a regulatory process, referred to as the Small Power Plant Exemption (SPPE) process, that allows applicants with projects between 50 and 100 MW to obtain an exemption from the CEC's jurisdiction and from obtaining a CEC certificate and instead proceed with local approval if the CEC finds that the proposed project would not create a substantial adverse impact on the environment or energy resources. (Pub. Resources Code, § 25541.)

CEC staff (staff) calculated a net deliverable or useable electricity capacity of more than 50 MW and less than 100 MW from LDC gensets, qualifying it for a SPPE under the capacity criterion. The following provides a summary of the factors supporting this conclusion, with a more detailed discussion of these factors following after:

1. The diesel-fueled reciprocating engine gensets use a thermal energy source.
2. The gensets and the associated project equipment that they would support would all be located on a common property under common ownership sharing common utilities,

and the 45 gensets should be aggregated and considered as one thermal power generating facility with a generation capacity of greater than 50 MW.

3. While the project has an apparent installed generation capacity greater than 100 MW (44 gensets, each with 3.0 MW peak capacity, and one 0.8 MW admin/life safety genset), the "extra" MW installed are redundant. In no case would the maximum facility-wide load demand exceed 99.8 MW due to physical constraints built into the project.
4. Jurisdictional analyses are based on the net MWs that can be delivered for "use" (i.e., to a data center facility or the electricity grid), not the gross or nameplate rating. Unlike a traditional power plant supplying electricity to the grid, for a data center, the maximum load being served is determinative and not the combined net capacity of the installed gensets. Here, the maximum facility wide LDC load requirement would be 99.8 MW.
5. The gensets would be exclusively connected to the LDC buildings and would not be capable of delivering electricity to any off-site user or to the electrical transmission grid. The proposed redundancies built into the design of the facility are to ensure performance reliability, not to generate and supply the LDC facility with more than 99.8 MW of electricity.
6. The restriction on the facility's load demand is hardwired through various control systems. It would be physically impossible for the gensets to generate more electricity than the buildings require. Excess electricity would damage components or at a minimum, isolate the project loads from the gensets.

To make a jurisdictional recommendation, staff assessed the generating capacity of the project, using the following:

1. LDC is a thermal power plant under the statutory definition.

The Warren-Alquist State Energy Resources Conservation and Development Act (Public Resources Code, section 25000 et. seq) defines a thermal power plant "as any stationary or floating electrical generating facility using any source of thermal energy, with a generating capacity of 50 megawatts or more, and any facilities appurtenant thereto." (Pub. Resources Code, § 25120.) LDC's generation yard would be made up of gensets that use petroleum-based diesel engines to convert the thermal energy in the diesel fuel[1] into electricity via a rotating generator, and, thus, each genset is an electrical generating device that uses a source of thermal energy. The facility proposes to use 44 such gensets to service LDC.

LDC's 45 gensets, and the associated data center that they would support, would all be located on a common property under common ownership sharing common utilities. The

1 Diesel fuel is composed of a mixture of hydrocarbons, containing chemical energy. When ignited, this chemical energy is converted to thermal energy.

gensets would operate to provide backup electricity to the project when its connection to the grid is lost. The gensets system includes a 4-to-make-3 design configuration, meaning that for every three gensets that would support load in the event of a utility failure, there is one redundant genset. The 45 gensets would never operate simultaneously at 100 percent capacity. However, any genset can function either as a back-up to the grid or a back-up to the grid back-up gensets, so there is not a functional difference in the type of engine or generator between each genset. All the gensets at the project would share a common trigger for operation during an emergency: the transfer switch isolating LDC from the grid. Thus, because the project is stationary, under common ownership sharing common utilities, uses a fuel source to generate thermal energy, and has a generating capacity of 99.8 MW, the project meets the statutory definition of a thermal power plant.

2. *California Code of Regulations, Title 20, section 2003 requires the generating capacity to be the net generating capacity.*

For LDC, the data center would be installed during the initial construction of the project by the project owner, but there is no specific timeline proposed for when data center would need the full capacity of gensets; the exact timing of individual leases that fill server bay space is subject to the market decisions of disparate customers. Therefore, it may be years before the data center is at full load. Nevertheless, for purposes of this analysis, staff assumes full load will eventually be reached.

California Code of Regulations, Title 20, section 2003 specifies how the CEC calculates "generating capacity" for jurisdictional determinations, including the 50 MW threshold for the definition of a thermal power plant under Public Resources Code, section 25120. However, section 2003, which uses nameplate capacity in addition to consideration of other factors, only addresses steam and combustion turbines, not diesel-fueled gensets as used in the LDC, and is, therefore, not controlling here. There are also other reasons to conclude that simply focusing on nameplate capacity here is not appropriate.

For a typical power plant, outside the factors identified in California Code of Regulations, Title 20, section 2003, there is almost no limit on what might be generated and provided to the grid, so the approach outlined in that provision identifies the potential maximum generating capacity and is reasonable for those facilities. This is not the case with data centers, where producing electricity more than what the data center requires would be economically wasteful and likely result in damage to the facility.

In traditional turbine-based power plants, parasitic loads (fans, pumps, and heaters) are external to the turbine. Thus, the generating capacity is the total net MWs at the switchyard bus; that is, gross MWs less parasitic loads. If the grid "demands" more, the power plant cannot deliver more electricity unless it burns fuel at a higher rate or reduces parasitic loads. Even then, equipment would have to have the physical capacity to burn more fuel and convert thermal energy into rotational energy, and then operate the generator at a higher output. The calculations assume normal conditions, where generation would be under average operating conditions, and assumes the onsite loads (often called parasitic loads) are also average (e.g., a filter backwash pumping load would

not be included if that operation only occurs monthly or annually). Typically, at a traditional power plant, no redundant generating equipment is installed.[2] Generating capacity at a traditional power plant is determined based on the net capacity of all generators proposed to be installed and connected to the grid because there is almost no limitation on the amount of MWs the grid can "take" from the facility.

Typically, emergency backup generating facilities serving data centers are not physically able to send excess electricity to the grid, and all electricity generated must be absorbed by the data center itself. Data centers are designed with precise loads, assuming full build-out, and providing electricity more than these loads is not only economically wasteful (burning fuel for no benefit or reason) but can result in damage to the sensitive components located inside these data centers as well as to the heating, ventilation, air conditioning (HVAC) unit and other systems serving the buildings. Therefore, for purposes of evaluating the capacity of emergency backup generating facilities serving data centers, it is reasonable for staff to consider building loads to be the controlling factor in determining generating capacity.

3. *Data centers are analyzed differently than conventional power plant facilities for several reasons.*

To determine the net generating capacity of a collection of gensets[3] for data centers, the approach is slightly different but consistent with that used on a traditional power plant. The differences are: 1) the end user is the building and data servers, not the grid, and 2) extra gensets or generating capacity are installed to provide electricity not only for building and data server loads but to provide redundancy that achieves a statistical reliability that can be marketed to data customers.

Staff's approach is consistent with widely practiced standards. For example, ASHRAE's (American Society of Heating, Refrigerating and Air-Conditioning Engineers) Energy Standards for Data Centers do not use the nameplate or gross capacity but the net generating capacity of data centers, or the actual cooling and IT server loads.[4] These ASHRAE standards are performance-based as opposed to prescriptive standards,

2 At modern power plants, some equipment design includes 50 to 100 percent redundancy. The redundant equipment is generally limited to certain critical components like transformers, which are often custom items with long lead times for fabrication, or boiler water feed pumps, which are intended to protect the steam boiler components from damage from too much heat if circulating water flow is interrupted.

3 Backup generators, by definition, generally have the following characteristics: reliable starts, fast starting to full load, cheap to maintain as they sit idle most of the time, use cheap and stable fuel as the fuel sits unused most of the time, and use high-density fuels to limit storage volumes onsite so the project can operate if "islanded."

4 American National Standards Institute (ANSI)/ASHRAE Standard 90.4-2016, www.ashrae.org.

advocating the determination of load requirements be based on project-specific operational characteristics.

Staff's approach to calculating generating capacity has also been devised based on the International Organization for Standardization (ISO), which sets standards for different industries including the energy industry. The ISO standards are widely accepted by, and used throughout, the energy industry. Consistent with staff's method, the ISO specifies that generating capacity should be the net capacity at average annual ambient conditions.[5]

In the case of LDC, the load served acts as a limit to the generation levels from the gensets. This factor is not present in a capacity generation determination for a typical power plant feeding to the grid because the grid does not act in the same way the "LDC grid" does. If the breakers between the LDC data center building and the gensets were to trip due to excess generation, the data center would be isolated from the gensets, with the servers and building cooling forced to shut down. This subverts the intention of using the gensets to maintain reliable and high-quality electricity. Excess electricity would damage components or, at a minimum, isolate the load from the gensets. If the building cooling load were to increase (e.g., the day gets warmer), the gensets would open the engine fuel throttle to increase generation output and match demand but would still not exceed the combined 99.8 MW IT and building demand.

4. LDC's capacity would not exceed 99.8 MW.

The exact number of gensets that could operate in an emergency depends on actual cooling and IT server loads and the reliability and performance of the gensets. In no case would the combined output of gensets exceed the prescribed maximum load of 99.8 MW. As explained above, it would be physically impossible for the gensets to generate more electricity than the buildings require. For purposes of testing and maintenance, only one genset would operate at any given time.

The maximum demand of 99.8 MW would be fixed by the specification and installation of electrical buses and panels, switchyard, and breakers that would have an upper electrical capacity limit. The cooling equipment's maximum demand would also be fixed by the specification and installation of equipment that have an upper physical limit of cooling capacity and would include some redundant cooling equipment. Such redundant equipment could only be operated if a primary component fails and could not be operated in addition to the primary components because that would damage the LDC data center. The LDC data center would be served from the grid or from the gensets with electricity that matches and does not exceed demand for the operations of the data server bays and buildings.

5 ISO 3046-1 Reciprocating Internal Combustion Engines – Performance, www.iso.org/standards.

The heat rejected by the IT servers must be removed from each server bay or else the server equipment and data would be damaged. Any attempt to add more servers to a bay would result in direct, immediate, and dire consequences because the building and equipment would have been designed for an upper critical IT load. It is important to note that the maximum combined facility load of 99.8 MW is based on 100 percent critical IT load with maximum cooling on the hottest day. In actuality, the critical IT load and related cooling load would typically be less than this worst-case scenario.

In recent years, the power and energy industries have advanced in terms of software development and hardwired digital control to permanently limit generation capacity. The generation by LDC would be regulated by each building and each bay in that building. Software would be used to operate the gensets in a manner that meets the bay and building demand. If the demand decreases (i.e., less mechanical load for cooling, etc.), the gensets sets would automatically adjust the loading and corresponding electrical output. If a genset or the software were to malfunction and attempt to generate more electricity than the building demand, individual electrical gensets controllers would shut down. LDC would employ physical electronic devices and software technology that limit and monitor the facility's electrical load.

For the maximum generating capacity to increase, the project would have to be redesigned to physically fit more servers in a server bay or add more bays. The project owner would have to address the unplanned increase in electricity demand for normal operations because the existing electrical equipment would not be sized for the higher electricity throughput. Additionally, the project owner would have to install additional cooling equipment units to address the increased heat rejected by the server bays and buildings, and install additional redundant cooling equipment, additional uninterruptable power supply (UPS) battery units, and additional gensets to maintain the level of backup and reliability to match the new higher levels of load. This is an unlikely outcome because such changes are not trivial and would result in a cascade of design and physical changes to the facility.

When LDC is at full load, its worst-case day combined IT and building load[6] would not exceed 99.8 MW. The project proposes gensets that total more than 99.8 MW for purposes of redundancy. The combined generating capacity of the installed operational gensets is autonomously determined by the electrical equipment in the LDC server bays and building equipment in use at the time of an emergency. LDC has been designed with one generation yard, configured as 11 data center suites or lineups. Each lineup would consist of four gensets, one of which would be redundant. The emergency operation of each of the data center lineups is fully automated. Once LDC loses connection to the local grid, the transfer switch isolates LDC from the local electrical transmission grid, and all the gensets assigned to a server bay set initiate startup. As the gensets start, synchronize,

6 Based on the hottest, most humid day of the year and with all IT servers in use at their full usage rate

and take up load associated with their server bays and building equipment, the UPS system would provide full-load power for up to five minutes[7] to smoothly transition the LDC customers' data servers from the grid to the gensets. If a genset or two fail to start or synchronize, the remaining genset in the 4-to-make-3 server bay or the other gensets in other server bay sets ramp up to higher output levels. The output of the genset assigned to a server bay set match (meet but cannot exceed) the LDC data customers' IT demand in the respective server bay and the server bay's HVAC demand. The combined output of the server bay set is autonomously determined by the electrical equipment in the LDC server bays and building equipment.

Combined output would be limited by sizing the electricity handling equipment to throttle transfer capacity to no more than 99.8 MW, which would prevent damage to IT servers and building equipment. Therefore, it would be physically impossible for the gensets to generate more electricity than what the data center would use, or more than 99.8 MW.

7 The gensets are expected to be on and synchronized within a minute or so, but the UPS can supply up to 5 minutes of power at 100 percent full-load UPS to ensure a complete transition from the grid to the gensets.

Appendix B

Silicon Valley Power's Transmission System, Related Pacific Gas and Electric Company's Transmission System and Emergency Operation

Appendix B: Silicon Valley Power's Transmission System, Related Pacific Gas and Electric Company's Transmission System and Emergency Operation

This appendix includes a discussion of the Silicon Valley Power's (SVP) and Pacific Gas and Electric Company's (PG&E) electrical system reliability (including supporting information) and emergency operations.

Electrical System Reliability

Apart from readiness testing and maintenance, the emergency backup generators (gensets) are designed to operate only when the electric system is unable to provide power to the Lafayette Data Center (LDC). To understand the potential for the gensets to operate during emergencies, one needs to know the conditions under which the electric system is unable to provide power to LDC. There are essentially five conditions that might result in the operation of the gensets:

1. A fault occurs (power supply interruption) or planned maintenance is required on the equipment interconnecting LDC to the SVP 60 kV loop system, and LDC's electricity needs cannot be met.
2. An outage or fault occurs on the utility transmission system, and PG&E is unable to deliver power to SVP system which provides electricity to LDC.
3. A Public Safety Power Shutoff (PSPS) impacts the utility transmission system, and LDC is not able to receive power from SVP.
4. An energy shortage crisis similar to the one in late Summer 2020 where there are electric supply shortages and LDC's operators voluntarily disconnect from the utility and rely on gensets to provide the needed electricity.
5. The Generators could also run when the utility/The California Independent System Operator (California ISO) declared a grid emergency calls for participants in the Emergency Load Reduction Program (ELRP) or Demand Side Grid Support (DSGS) programs to reduce loads.

The SVP 60 kilovolt (kV) loop systems are designed to provide reliable electric service to customers. The looped interconnection allows SVP to provide continuous electricity to customers even under contingency conditions, when one part of the electric network is not functioning. The interconnections for data centers, like LDC, on the SVP 60 kV system are designed with redundant equipment throughout such that there is no single point of failure. It takes at least two contingencies before customers on the 60 kV system lose power and, in the case of data centers, would instead rely on gensets. According to SVP, double outages on the 60 kV loop systems are extremely rare, and the data supports this.

SVP provided a list of the outages on its 60 kV system over the last 12 years. There were

41 outages, only six of which resulted in customers being without power. This means that in 35 of these outages the redundant design of the system prevented customers from being without power; data centers would not be isolated from the grid and would not have relied on their gensets.

Only four outages from January 1, 2009, to June 16, 2021, affected data centers in the SVP service territory. One approximately 7.5-hour outage on May 28, 2016, which was the result of two contingencies (a balloon and a breaker failure), affected two data centers. Another 12-minute outage on December 2, 2016, affected four data centers. Two different outages on August 16, 2020 (both outages due to multiple lightning strikes), with one approximately 2.5 hours and the other one approximately 10.5 hours, affected data centers at various locations on the associated loops.

SVP's root-cause analysis of every outage resulted in changes in maintenance procedures to ensure that breakers are reset before power is restored to a portion of the system that was down for maintenance. Outages would be extremely rare, and the consequences or effects on the fleet of data centers almost negligible.

Wildfire policies could impact SVP's ability to supply power to customers if curtailments on the PG&E system interrupt SVP's access to its remote electricity supplies. A PSPS essentially de-energizes power lines to prevent the lines from causing or being damaged by wildfires. The PSPSs to date have been generally limited to high-fire risk zones and only implemented under special conditions. While the SVP service territory and the SVP's primary PG&E bulk transmission line interconnection points are not in high-risk zones, a line de-energization in one of PG&E's high-risk fire zones to reduce the risk of lines causing a wildfire could reduce the SVP electricity transmission access and supply through PG&E lines.

The future impact of PSPSs on the PG&E system are not currently known. Two broadly implemented PSPSs in the PG&E service territory during the fall of 2020 had no impact on SVP and its customers. As the utilities and regulators try to balance the costs and benefits of PSPSs by finetuning and targeting the implementation, the mostly likely outcome is that future PSPSs will have even fewer potential effects on SVP service territory. SVP has the ability to produce about 200 megawatts (MW) through generators located locally and can adapt to planned outages on the PG&E system just as it has reacted or recovered from unplanned outages in the past to maintain reliable and high-quality electricity supplies to its service territory customers.

Energy shortages, like those that occurred on two occasions in 2020, could prevent a utility from supplying LDC's electricity needs and LDC would then rely on gensets. Recently, the California Public Utilities Commission (CPUC) adopted a new five-year pilot program (D.21-03-056), in effect through 2025, that orders PG&E, Southern California Edison, and San Diego Gas & Electric to administer the Emergency Load Reduction Program (ELRP). Data centers could voluntarily participate in ELRP and, in the event of

an energy shortage emergency, these data centers would disconnect from the grid and use their on-site gensets to supply electricity. The ELRP provides a mechanism for utilities to measure the load reduction and provide financial compensation to the participants.

Similarly, like the ELRP program, data centers may participate in the DSGS Program. The DSGS program offers incentives to electric customers that provide load reduction and backup generation to support the state's electrical grid during extreme events, reducing the risk of blackouts. According to the Energy Commissions website, the DSGS program was created by Assembly Bill (AB) 205 (Ting, Chapter 61, Statutes of 2022) as part of the Strategic Reliability Reserve, the DSGS program would provide incentives to reduce customer net energy load during extreme events with upfront capacity commitments and per-unit reductions in net load (CEC 2023).

The ELRP and DSGS programs do not affect the likelihood of emergency events. The last time an emergency event occurred, like those in 2020, was 2001. Energy emergencies continue to be rare events. In addition, in the text below, California Energy Commission (CEC) staff (staff) discussed that LDC would not be online in time to be part of the first phase of the ELRP, and it is less likely that these types of measures will be necessary beyond the immediate future. Lastly, it is unclear whether the U.S. EPA would consider participation in such a program to be an emergency use and, thus, allowed under federal permit restrictions. For these reasons staff does not consider the existence of the ELRP or DSGS programs to have any effect on the likelihood of the LDC gensets operating outside of testing and maintenance.

Still, staff expects the LDC gensets to be required to supply data center loads only rarely. The gensets would not be used when maintenance is performed on the transmission line or substation. Also, LDC gensets would not be interconnected to the transmission or distribution grid and would not provide power to the grid.

Emergency Operations

Historical Power Outage Frequency

This section provides information on the likelihood of an interruption of SVP's electrical supply that would trigger the emergency operation of the gensets at Digital Realty's Lafayette Backup Generating Facility (LBGF). More than 12 years of historical data of past outages of data centers in the SVP service territory is available. Staff has used it to estimate the frequency and duration of foreseeable, future electrical outages that could trigger emergency operations. Emergency operations would be unplanned and infrequent.

Reliability statistics for all electric customers served by SVP appears within the 2018 Integrated Resource Plan (IRP), and to expand on this information, Staff explored specifically how data centers in SVP's territory have been historically affected by outages.

From the 2018 IRP: "SVP's electric system experiences approximately 0.5 to 1.5 hours of outage time per customer per year. This compares favorably with other utilities in California with reliability factors ranging from 1.0 to 2.5 hours outage per customer per year" (SVP 2018a). The 2018 IRP for SVP reports the Average Service Availability Index (ASAI), defined as the customer-minutes-available divided by the total customer-minutes, expressed as a percentage, and the ASAI has been 99.979% or higher in each recent year, with an average of 99.989 over the past seven years. The SAIFI (interruptions per customer) shows that one or fewer outages have occurred, on average, for all customer types annually (SVP 2018a). This data for all customers is summarized in **Table B-1**.

TABLE B-1 SVP RELIABILITY STATISTICS FOR ALL CUSTOMER TYPES

Year	ASAI (%)	SAIDI (minutes)	SAIFI (interruptions per customer)	Total Outages (number)
2012	99.994	29.34	0.48	67
2013	99.991	47.33	0.49	69
2014	99.989	56.6	0.48	80
2015	99.986	73.96	0.59	123
2016	99.993	36.29	0.5	123
2017	99.979	109.08	1.03	195
2018	99.992	42.61	0.41	132

Notes:
ASAI (%): Average Service Availability Index - (customer minutes available / total customer minutes, as a %).
SAIDI (minutes): System Average Interruption Duration Index - (average minutes interrupted per customer for all customer).
SAIFI (number): System Average Interruption Frequency Index - (number of interruptions per customer for all customers).
Source: SVP 2018a.

The proposed LDC would be a large customer of SVP that would receive better-than-average reliability compared to all SVP customers by including a dedicated onsite substation that would be directly served by SVP's looped 60 kV system. Staff reviewed the frequency and duration of known data center customers' outages, as provided by SVP as part of the proceeding from CA3 (DayZen 2021), to discern how redundant features allow SVP's system to provide greater reliability to data centers when compared with average SVP customers.

Project-specific design factors include the site-specific substation that would connect LDC to the SVP looped 60 kV system, a limited number of commercial customers on the looped 60 kV system, redundant transformers to supply LDC, and LDC's proposed uninterruptible power supply (UPS) battery system to carry critical loads during short-term electric service disruptions or transients.

As mentioned above, there were 41 outages on the SVP 60 kV system over the last 12 years (January 1, 2009, to June 16, 2021), only six of which resulted in customers being without power. Of these outages, only four of them affected data centers in the SVP service territory. These customers are all served by a distribution system that includes "looped" lines that can provide alternate flow paths for power flow to data centers. Thus, in general, it takes more than one 60-kV system path failure to cause a power outage at a data center.

One approximately 7.5-hour outage on May 28, 2016, which was the result of two contingencies (a balloon and a breaker failure), affected two data centers. Another 12-minute outage on December 2, 2016, affected four data centers. Two different outages on August 16, 2020 (both outages due to multiple lightning strikes), with one approximately 2.5 hours and the other one approximately 10.5 hours, affected data centers at various locations on the associated loops.

BAAQMD's Review of Data Center Diesel Genset Engine Operations

Comments as part of the proceeding from CA3 (21-SPPE-01) from the Bay Area Air Quality Management District (BAAQMD) provided a review of data centers that initiated the operation of diesel genset engines for "non-testing/non-maintenance" purposes to inform staff's consideration of scenarios of emergency backup power generation operations beyond routine testing and maintenance (BAAQMD 2021b). BAAQMD's review covers a recent 13-month period (September 1, 2019, to September 30, 2020) that spans different emergency situations across California.

There are 66 data centers under the jurisdiction of BAAQMD with staff at BAAQMD gathering information from 45 of those data center facilities. The attachment to BAAQMD's scoping comments listed 20 facilities that reported some level of "non-testing/non-maintenance" diesel genset engine use in the 13-month period (CEC 2021).

The scope of BAAQMD's review can be summarized as follows:

a. Period covered: 13 months (9,504 hours)
b. Facilities (data centers) under BAAQMD jurisdiction: 66 data centers
c. Facilities from which information was collected: 45 data centers
d. Facilities responding with some "non-testing/non-maintenance" use: 20 data centers
e. Permitted genset engines at the 20 facilities responding: 288 engines
f. Installed generating capacity of genset engines at the 20 facilities responding: 686.5 MW
g. Information was not provided for the 25 facilities that did not report any non-testing/non-maintenance use or the other 21 facilities under BAAQMD's jurisdiction that were not surveyed in this data gathering effort.

BAAQMD normally issues permits for diesel genset engines, and the permit requires each owner or operator to maintain records of the number of operating hours for each "emergency" and the nature of the emergency. The types of events within BAAQMD's review period include a Governor-proclaimed state of emergency, other outages, power quality events, and human errors. The data shows that 75 percent of all genset engine-hours occurred either during the August 2020 Governor-proclaimed state of emergency or the subsequent heat event in September 2020. Staff does not consider this a typical year, and the data is probably not representative or indicative of future years.

For the 20 data centers listed in BAAQMD's review, the total permitted and installed generating capacity of these facilities equals 686.5 MW, across 288 individual genset engines. The total amount of "non-testing/non-maintenance" runtime of all these 288 genset engines amounted to approximately 1,877 engine-hours of operation.

Table B-2 summarizes the runtimes found by BAAQMD's review for each of the 20 data centers. BAAQMD's review identified one data center facility that ran diesel gensets for approximately 400 hours for non-testing/non-maintenance purposes during this time. **Table B-2** shows that this facility has over 40 individual genset engines permitted at the site for an average runtime of about 10 hours per engine. The different data centers within BAAQMD's review showed that nine of the 20 facilities responding had fewer than 50 hours of operating one or more diesel genset engines for non-testing/non-maintenance purposes.

TABLE B-2 BAAQMD'S REVIEW OF NON-TESTING/ NON-MAINTENANCE OPERATION (ENGINE-HOURS)

Data Center	# of Permitted Genset Engines	# of Genset Engines with Non-Testing/ Non-Maintenance Operations	Sum of Non-Testing/ Non-Maintenance Operations (Engine-Hours)	Average Hours of Operations per Genset Engine Used
1	10	10	83	8.3
2	5	5	77	15.3
3	6	6	108	18.0
4	44	44	22	0.5
5	3	2	11	5.5
6	6	6	219	36.5
7	24	24	202	8.4
8	26	24	10	0.4
9	5	5	26	5.2
10	41	40	401	10.0
11	14	11	75	6.8
12	11	11	275	25.0
13	5	5	85	17.0
14	22	8	28	3.4
15	8	7	98	14.0
16	17	4	10	2.4
17	2	2	4	2.0

18	8	6	18	3.0
19	6	6	24	4.0
20	25	17	103	6.0
Total	**288**	**243**	**1,877**	**Max. 36.5**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

From the runtimes of all the genset engines at all facilities in BAAQMD's review, **Table B-2** estimates that the average genset engine ran no more than 36.5 hours over the 13-month period. Staff also found that no single engine within BAAQMD's review ran for more than 50 hours overall for "non-testing/non-maintenance" purposes.

CEC staff used the data in BAAQMD's review (BAAQMD 2021b) and a clarifying email of BAAQMD results (CEC 2021) to estimate the power production during "non-testing/non-maintenance" diesel genset engine use and found that approximately 1,575 MWh was generated during this 13-month (9,504 hour) period. The power generated by these genset engines presumably displaced grid service for the on-site data center facility electrical demand. Based on the installed generating capacity of 686.5 MW partially operating within the 13-month record, the genset engines in BAAQMD's review that did operate would have an extremely low capacity-factor of 0.024 percent [0.024 percent = 1,575 MWh / (686.5 MW * 9,504 hours)]. This capacity factor is only considering the facilities that had genset engines that ran during this 13-month period. Twenty-five of the 45 facilities reporting had zero hours of engine runtime.

Consideration of Extreme Events. California experienced different types of emergency situations within the 13-month period (September 1, 2019, to September 30, 2020) of BAAQMD's review. This period included the expansion of PG&E's PSPS program, severe wildfires, several California Independent System Operator (CAISO) declared emergencies, and winter storms. From August 14, to 19, 2020, California experienced excessive heat. On August 16, 2020, Governor Newsom proclaimed a state of emergency[1] because of the extreme heat wave in California and surrounding western states. This was a one in 30-year weather event that resulted in the first system-wide power outages California had seen in 20 years. In addition to the extreme heat wave in mid-August, high temperatures and high electricity demand occurred over the 2020 Labor Day weekend, especially on Sunday, September 6, and Monday, September 7, 2020 (CAISO 2021). Thus, the data set provided is not necessarily representative of an average 13-month period from which one could extrapolate average genset facility use into the future.

Table B-3 summarizes how these extreme events influenced the runtimes found by BAAQMD's review for each of the 20 data centers.

Table B-3 shows that most "non-testing/non-maintenance" diesel genset engine use identified by BAAQMD's review (over 1,400 engine-hours out of 1,877 engine-hours)

1 https://www.gov.ca.gov/wp-content/uploads/2020/08/8.16.20-Extreme-Heat-Event-proclamation-text.pdf.

occurred either during the August 2020 Governor-proclaimed state of emergency or the subsequent heat event in September. Excluding these extreme events results in 473.7 engine-hours of "non-testing/non-maintenance" diesel genset engine use during other dates, or fewer than two hours per engine for all 288 engines in the review. Out of the 20 data centers that ran genset engines for "non-testing/non-maintenance" purposes, the 473.7 engine-hours of runtime outside of extreme events was spread across 10 data centers out of the 45 data centers covered by BAAQMD's review.

Similarly, staff estimates that over 50 percent of the overall power produced by the genset engines in BAAQMD's review (at least 843 MWh of 1,575 MWh) occurred during the Governor-proclaimed state of emergency, and another 25 percent of the power produced was attributable to unknown days in the period. Staff's analysis of actual power produced during each day of the 13-month record appears in **Table B-4**.

TABLE B-3 EXTREME EVENTS: NON-TESTING/NON-MAINTENANCE OPERATION (ENGINE-HOURS)

Data Center	Operations During August 2020 State of Emergency (Engine-Hours)	Operations During September 2020 Heat Event (Engine-Hours)	Other Dates of Operations (Engine-Hours)	Sum of Non- Testing/ Non-Maintenance Operations (Engine-Hours)
1	82.7			83
2			76.6	77
3	107.8			108
4	21.6			22
5	11.0			11
6	218.8			219
7	88.2	81.2	32.5	202
8			10.3	10
9	26.0			26
10	259.7		141.1	401
11	75.0			75
12	275.3			275
13			85.0	85
14	19.9		7.6	28
15			98.0	98
16			9.6	10
17			4.0	4
18	9.0		9.0	18
19	24.0			24
20	88.4	14.3		103
Total	**1,307.4**	**95.5**	**473.7**	**1,877**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

Across all events, including the extreme event days within the period, **Table B-4** shows that the average genset engine loading in BAAQMD's review was below 40 percent. However, the data does not establish a typical type of operation that could be expected to occur during any emergency or any typical operational characteristics that could be used in representative air quality modeling. For example, some genset engines in the data set ran at no load or with very low loads; one genset engine ran at no load for 41.7 hours while the highest genset engine load in the data set was 70 percent load. The range of genset engine loads and the fact that most genset engines operated at low loads demonstrates the difficulty in predicting the level of facility electrical demands that would need to be served by the genset engines during an emergency. This also demonstrates the difficulty in making an informed prediction of the genset engines' emission rates, which vary depending on load, in the event of an emergency.

TABLE B-4 EXTREME EVENTS: NON-TESTING/NON-MAINTENANCE OPERATION (ENGINE LOADS)

Date of Event Start	Extreme Heat Wave Event?	Non-Testing/Non-Maintenance Operations - @ actual load (MWh - per day)	Average Genset Engine Loading on Event Day
Unknown		418.0	45.3%
11/26/2019		1.1	13.8%
11/27/2019		5.5	17.7%
2/15/2020		0.7	7.0%
7/31/2020		2.9	17.3%
8/14/2020		39.0	48.0%
8/16/2020		25.6	38.4%
8/17/2020	Aug 2020 Emergency	843.1	34.5%
8/18/2020	Aug 2020 Emergency	112.0	31.2%
8/19/2020	Aug 2020 Emergency	14.4	40.0%
8/25/2020		5.4	30.0%
9/6/2020	Sept 2020 Event	90.0	48.6%
9/7/2020	Sept 2020 Event	16.8	39.2%
Total		**1,574.7**	**Average 31.6%**

Sources: BAAQMD 2021b, Energy Commission staff analysis of data from BAAQMD

Frequency of Diesel Genset Engine Emergency Use, Discussion: The BAAQMD scoping comment illustrates that genset engines were used at data centers for "non-testing/non-maintenance" purposes that could occur more frequently than utility service power outages. In Staff's review of prior data center cases that were proposed within the SVP territory, staff found that the likelihood of an outage on SVP's looped 60 kV system that forces the emergency operation of a data center's gensets would be "extremely rare" and a low-probability event. For the prior cases in SVP territory, staff estimated a 1.6 percent probability of any given data center facility experiencing a power outage in a

period of a year based on 10 years of data between 2009 and 2019 (e.g. CEC 2020a, CEC 2020b).

In BAAQMD's review, including the extreme events, 1,877 engine-hours of diesel genset 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). These runtimes occurred due to power outages in response to the heat storm and also for other unspecified situations categorized by the genset engine operators as "emergencies." BAAQMD's review covered 288 individual diesel genset engines that operated over a 13-month record. Data was not provided concerning the number of genset engines at the 25 facilities that did not operate under these circumstances. Because the genset engines were collectively available for over 2.74 million engine-hours during the 13-month period (288 engines * 9,504 hours), and they were used for emergency operations for 1,877 engine-hours, at those facilities where operation occurred, the genset engines entered emergency operations during 0.07 percent of their available time (1,877 / 2.74 million). This confirms that emergency use of the genset engines would be very infrequent. It is important to note that this calculation only takes into consideration those genset engines that BAAQMD found to run during this time; a more comprehensive review would also include the availability of the 25 facilities that had zero hours of genset engine run time, and also conceivably the 21 facilities that were not surveyed at all. If these facilities without genset engine runs were included, the estimated probability that any given genset engine would be likely to run would be lower.

Duration of Diesel Genset Engine Emergency Use, Discussion: The BAAQMD scoping comment shows genset engines were used for "non-testing/non-maintenance" purposes, mostly due to extreme events within the 13-month record. The average runtime for each event in BAAQMD's review was approximately 5.0 hours. This shows that the duration of diesel genset engine use for "non-testing/non-maintenance" purposes, without excluding the extreme events, could involve longer runtimes than for typical utility service power outages. However, again this calculation does not factor in the larger proportion of facilities that did not run at all. In staff's review of prior data center cases, staff found an average of 2.6 hours per outage, based on only two transmission line outages occurred in 10 years (between 2009 and 2019) affecting data centers served by SVP's 60-KV lines (e.g. CEC 2020a, CEC 2020b).

BAAQMD's review of diesel genset engine use considers a wider variety of reasons for running the genset engines than solely an electric power service outage. The listed reasons include: state of emergency load shedding, human error event, utility-inflicted disturbance, lightning strikes to transmission line, utility outage, power outage, system-wide power quality event, equipment failure, power bump, power supplier request, power blips, UPS/board repair, utility sag event, mandatory load transfer, and substation transformer power equipment failure. Many of these explanations are simply

subcategories under the general category of grid reliability analyzed for prior cases. Others like a human error event, equipment failure, and UPS/board repair appear to be exceedingly rare occurrences unlikely to significantly add to the calculation of when emergency operations might occur. Lastly, the category of emergency load shedding/power supplier request/mandatory load transfer all appear related to the heat storm and Governor-proclaimed state of emergency described above and, given the state's efforts to address reliability in response to such events, are unlikely to re-occur with any frequency. The provision of these categories and sub-categories helps to explain why BAAQMD shows more instances of genset engines running than staff found in prior cases and longer durations of runtimes during emergency situations. Although emergency operations could be triggered for a range of situations, including extreme events like those of August and September 2020, this information confirms that regardless of the triggering event, emergency operations of genset engines would be expected to be infrequent and of short duration.

Summary of Staff's Analysis of "Non-testing/Non-maintenance" Genset Engine Use: BAAQMD's review of "non-testing/non-maintenance" genset engine operations expands our understanding of "when, why, and for how long" diesel genset engine use might occur. BAAQMD's 13-month period of review included a Governor-proclaimed state of emergency, other outages, power quality events, and human errors. Accordingly, BAAQMD's review confirms that genset engine use may occur for reasons other than grid outages, though the period is not representative of a typical year due to the rare heat storm events. Many genset engines were used for "non-testing/non-maintenance" purposes in the period reviewed by BAAQMD, but the overall number of hours of operation for the less than half of the facilities in the review that did run was 0.07 percent of the available time. Genset engine loading levels recorded during these times of use were low (average below 40 percent), and the capacity factor of these genset engines was extremely low (0.024 percent). The BAAQMD review confirms that these types of events remain infrequent, irregular, and unlikely, and the resulting emissions are not easily predictable or quantifiable. The BAAQMD review does not show that these facilities operate significantly more than staff previously analyzed in the grid reliability context in prior cases.

CPUC Decision, D.21-03-056, Directing PG&E, Southern California Edison, and San Diego Gas & Electric To Take Actions To Prepare For Potential Extreme Weather In The Summers Of 2021 And 2022

On March 25, 2021, CPUC adopted decision D.21-03-056, which directed the utilities to take specific actions to decrease peak and net peak demand and increase peak and net peak supply to avert the potential need for rotating outages that are similar to the events that occurred in summer 2020 in the summers of 2021 and 2022. On December 2, 2021, CPUC adopted decision D.21-12-015, which is Phase 2 of the proceeding, and focuses on increasing electric supply and reducing demand for 2022 and 2023 (CPUC 2021b).

Addressed in the decisions are the following scoped issues:

1. Flex Alert program authorization and design
2. Modifications to and expansion of Critical Peak Pricing (CPP) Program
3. The development of an Emergency Load Reduction Program (ELRP)
4. Modifications to existing demand response (DR) programs
5. Expedited Integrated Resource Plan (IRP) procurement
6. Modifications to the planning reserve margin (PRM)
7. Parameters for supply side capacity procurement
8. Expanded electric vehicle participation

This menu of options attempts to ensure grid reliability. One of the options, ELRP, allows PG&E, Southern California Edison, San Diego Gas & Electric, and CAISO to access additional load reduction during times of high grid stress and emergencies involving inadequate market resources, with the goal of avoiding rotating outages while minimizing costs to ratepayers.

The CPUC decisions would allow data centers to choose to participate in a program whereby they could be asked to shed load if an extreme heat event similar to the August 2020 event occurs in the summer of 2023. The initial duration of the ELRP pilot program will be five years, 2021-2025, with years 2023-2025 subject to review and revision in the Demand Response Applications proceeding that was started in May 2021 according to the CPUC website. (CPUC 2023a)[2] However, the CPUC decision lays out many options for emergency load reduction to ensure grid reliability that could be utilized before resorting to gensets. The decision explains that the ELRP design aspects that are subject to review and revision as part of the pilot program include minimizing the use of diesel gensets where there are safe, cost-effective, and feasible alternatives (CPUC 2021a, Section 5.2, page 19).

However, it is not expected that LDC would be operational until after the summer of 2023, based on these factors: 1) estimated construction schedule of 24 months to the initial occupancy of the building; 2) estimated completion of CEC exemption proceeding in mid to late 2023; 3) additional time needed for the city and BAAQMD to permit the project. Thus, LDC would not be online in time to be part of the first phase of ELRP. It is less likely that these types of measures will be necessary beyond the immediate future, as longer-term strategies for grid resilience, such as battery facilities to supplement intermittent renewable generation, come online.

2 CPUC Decision 21-12-015 Attachments 1-3. Available Online at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M428/K821/428821668.PDF

Additionally, it is unclear whether the U.S. EPA would consider participation in such a program to be an emergency use and, thus, allowed under federal permit restrictions. For these reasons staff does not consider the existence of the ELRP to have any effect on the likelihood of the Lafayette gensets operating outside of testing and maintenance.

Furthermore, based on the capacity factors and run times for data centers that operated during the 2020 heat events, even if it were necessary to call on data centers to shed load again, it is expected that these facilities would be called on very infrequently and would have very low capacity-factors and run times in any potential future events.

Electrical Reliability Supporting Information

The following questions were directed towards the CA3 Data Center (CA3DC) proceeding but descriptions of the overall SVP system as well as historical outage data would apply to any data centers, including the proposed LDC connecting to the SVP 60 kV system.

A. VDC Supplemental Responses to Data Requests 17-20 – CA3BGF on June 22, 2021 to staff's questions (including a table listing SVP system outages between January 1, 2009 to June 16, 2021)

B. A schematic diagram of the SVP 230 kV, 115 kV and 60 kV transmission system, SVP System Map, and

C. A list of the customers connected to each of the five 60 kV loops in the SVP system.

A. VDC Supplemental Responses to Data Requests 17-20 – CA3BGF on June 22, 2021 to staff's questions (including a table listing SVP system outages between January 1, 2009 to June 16, 2021)

17. Please explain whether the additional load associated with CA3DC would cause overloads on the SVP transmission system that would require upgrades to the existing system.

RESPONSE TO DATA REQUEST 17

SVP provided the following response.

From SVP's initial investigations, the additional load associated with CA3DC will be loadramp restricted until projects to reconfigure the Center Loop and Northwest loop and certain PG&E projects being developed to increase the transmission capacity to theSVP system are completed. To fully understand the impacts of this facility, SVP is conducting a System Impact Study funded by CA3DC and that information will be presented to CA3DC. The System Impact Study is underway. Once the System Impact Study and the SVP and PG&E projects are completed, CA3DC will be allowed to ramp based upon the approved load ramp schedule. Please see attached letter to Vantage from SVP dated 9/24/2020 for additional details related to when load will be able to be served to this facility.

VDC adds that it is proceeding in constructing and operating the CA3DC in phases as described in its SPPE Application pursuant to the 9/24/2020 letter (attached). The SPPE Application has been prepared to accommodate the future load growth and electricity availability but presents the "whole of the action" as required by CEQA for full planned buildout of the CA3DC facility.

18. Please provide for the 60 kV loop on the SVP system that would serve the CA3DC:
    a. A physical description
    b. The interconnection points to SVP service
    c. The breakers and isolation devices and use protocols
    d. A list of other connected loads and type of customers
    e. A written description of the redundant features that allow the system to provide continuous service during maintenance and fault conditions

RESPONSE TO DATA REQUEST 18

The following response was provided by SVP.

a. The loop serving CA3DC is an overhead transmission line comprised of mainly wooden transmission poles, bundled 954 AAC Conductor, serving the Central Clara Area.
b. Interconnection with the SVP system would be in the 60KV Junction Feeder that serves the customer's transformer.
c. SVP utilizes a breaker and half bus design primarily to isolate any faults within each breakers zone of protection, isolating a fault tothe specific location and preventing an extended outage to adjacenttransformers within the substation or to an adjacent substation.
d. Center Loop serves a mix of General Distribution substations and customer dedicated 60kV Junctions for a total of six substations.
e. Loop services are designed to have two sources of power so that inthe event of an unplanned outage, the faulted zone is isolated from the remainder of the loop system, isolating the unplanned outage to the affected zone. In the same manner, a planned outage used to perform maintenance on a section of the transmission line can be performed without having to drop load, by planning the isolation locations around the piece of equipment to be maintained.

19. Please describe any outages or service interruptions on the 60 kV systems that would serve the CA3DC:
    a. How many 60 kV lines serve data centers in SVP, and how many data centers are on each?

b. What is the frequency of these outages and how would they require the use of backup generators?

c. How long were outages and what were their causes?

d. Are there breakers on the 60 kV line or disconnect switch(es) and did they isolate the faults?

e. What was the response to the outage(s) by the existing data centers (i.e., initiated operation of some or all back up generation equipment, data offshoring, data center planned shutdown, etc.)?

RESPONSE TO DATA REQUEST 19

The following responses were provided by SVP.

a. SVP currently has five 60 kV loops plus an internal 60 kV loop at the Scott Receiving Station (SRS) and the Kifer Receiving Station (KRS). The number of Data Centers (DC) on each Loop:

   i. North East Loop – 4 DC

   ii. North West Loop – 5 DC

   iii. East Loop – 8 DC

   iv. Center Loop – 18 DC

   v. South Loop – 5 DC

   vi. SRS Internal Loop – 2 DC

   vii. KRS Internal Loop – 4 DC

b & c. There were four outages between January 1st, 2009 and June 16, 2021 where SVP lost both 60kV feeds into a substation that affected a data center where back-up generators were required to operate. Over this period, this equates to a system reliability of 99.98%.

The outages occurred on May 28th, 2016 (7 hours 23 minutes), December 2nd, 2016 (12 minutes) and two different outages on August 16th, 2020 (one 2 hours 21 minutes and second 10 hours 22 minutes). This is a total outage time affecting data centers of 20 hours and 18 minutes. Only the data centers at various locations on the associated loops were affected, not all data centers.

Since 2009, 60kV outage data is presented in the below table (over 12 years, 5 months of data). The items highlighted in yellow indicate that there was some kind of fault occurred. The items highlighted in blue is when we had a customer out of power as a result. The non-highlighted items are where an outage was taken to correct an observed situation.

d. Each loop has breaker/switches and they operated as expected.

e. SVP does not have knowledge of how each data center reacts to an SVP-caused outage. SVP only know the times we restored service.

20. Please provide the following regarding PSPS events:

a. Would historical PSPS events have resulted in the emergency operationsof the backup generators at the proposed CA3DC?

b. Have there been changes to the SVP and PG&E system around the CA3DC that would affect the likelihood that future PSPS events would result in the operation of emergency generators at the proposed CA3DC?

RESPONSE TO DATA REQUEST 20

SVP provided the following responses.

a. To date, SVP has not had any historical PSPS events. As such there has been no impact to SVP or SVP customers by a PG&E initiated PSPS event in other areas.

b. SVP has not been notified of any changes related to PG&E's transmission system that would change the likelihood of futurePSPS events.

DATE	LINE (S)	CAUSE	DURATION	CUSTOMERS OUT OF POWER
01/29/21	HOM-BRO	Tree Trimming	1 Hour 38 Min	0
12/29/20	ZEN-URA	Tree Trimming	1 Hour 25 Min	0
09/26/20	HOM-BRO	Tree Trimming	2 Hours 55 Min	0
09/22/20	NAJ-PLM	Tree Trimming	1 Hour 36 Min	0
08/16/20	KRS 60KV BUS AND LAF SUB	Multiple Lightning Strikes	2 Hours 21 Min	1273
08/16/20	WAL-FIB, WAL-URA	Multiple Lightning Strikes	10 Hours 22 Min	5438
10/24/19	MIS CB62 (NRS-MIS)	Hot Spot Repair	29 Min	0
10/11/19	WAL-FIB	Balloons close to line	6 Min	0
09/17/16	KRS-PLM	Rotten Pole Replacement	10 Hours 5 Min	0
08/14/19	SRS CB982-(SRS-CEN)	Faulty JMUX Card	4 Min	0
03/30/19	URA-WAL	Bird @ UW43	1 Hour 46Min	0
11/22/18	HOM-SER	Pole Fire HS9 (forceout)	1 Hour 27Min	0
07/5/18	SER-HOM	Force out to remove balloons	9 Min	0
05/5/18	SER-HOM	Force out to remove balloons	11 Min	0
09/1/17	AGN-NAJ	Force out to cut trees	1 hour 5 min	0
08/8/17	URA-ZEN	Force out to remove balloons	20 Min	0
05/25/17	SRS-FRV	Tripped during SCADA commissioning	1 Min	0
05/8/17	NWN-ZEN	Force out to remove bird	50 Min	0
04/29/17	SRS-HOM	Force out to remove balloons	2 hours 22 min	0
03/20/17	JUL-CEN	Third Party got into 60kV	9 hours 55 min	0
01/22/17	SER-BRO	Tree in wires	3 hours 31 min	0
01/22/17	NAJ-PLM	A phase contact guy wire when winds pick up	1 hour 47 min	0
01/19/17	KRS-PLM	Palm frond between phases	41 min	0
01/18/17	NAJ-PLM	A phase contact guy wire when winds pick up	1 Hour 44 min	0

DATE	LINE (S)	CAUSE	DURATION	CUSTOMERS OUT OF POWER
12/02/16	RAY T1 & T2	Dropped both transformers during restoration switching due to relay not reset	12 minutes	257
09/06/16	SRS-CEN	Bird Contact	40 Min	0
06/30/16	WAL-FIB	Bird nest contact	12 hours and 4 min	0
05/28/16	SRS-FRV- NWN-ZEN	Balloons in line and breaker fail	7 hours 23 min	28
02/17/16	SRS-FRV	Palm tree with fire	7 hours	0
11/18/15	SER-BRO	Arcing wires forced	2 hours 59 min	0
11/16/15	SER-BRO	Rotten Pole- forced	22 hours 32 min	0
11/09/15	JUL CB32	Possible lightning	53 min	0
10/29/15	SER-BRO	Roller arcing-forced	3 hours 33 min	0
08/12/15	BRO-DCJ, BRO T1	Squirrel on CB100	3 hours 55 min	2155
06/24/15	CCA CB22	Bad JMUX card	3 hours 23 min	0
05/30/15	SER-BRO	No cause found	3 hours 12 min	0
03/31/15	BRO-DCJ 12KV BUS 1 & 2	Squirrel across 12kv bus tie	3 hours 26 min	2927
01/28/15	Mission CB12	Shorted control cable	6 hours 29 min	0
04/24/14	DCJ CB42	Tripped during relay work. BF wired as TT	1 Hour 30 Min	0
10/14/13	URA_WAL	Sheared Hydrant hit 60kV above	2 hours 26 min	0
12/06/12	Jul CB 32	Tripped due to cabinet vibration	2 min	0

September 24, 2020

Vantage Data Centers
Sam Huckaby, Vice President – Construction
2820 Northwestern Parkway
Santa Clara, CA 95051

Subject: New Data Center at 2590 Walsh

Dear Mr. Huckaby,

The City of Santa Clara's Electric Department, Silicon Valley Power, is the electric utility for the City of Santa Clara. Electric service to the subject project will be provided in accordance with the Rules and Regulations for the utility as approved by the Santa Clara City Council. Silicon Valley Power has reviewed the power needs and commitments at all Vantage sites within the City per the property list below:

- 2820 Northwestern
- 2897 Northwestern
- 737 Mathew
- 2590 Walsh (new proposed project not yet approved – request for 90 MVA)

Based on Vantage's existing and future power needs, Silicon Valley Power should be able to provide the following total power combined for all the sites:

- Up to 126.5 MVA from the current date to the end of Second Quarter of 2022
- Up to 192.5 MVA at Third Quarter of 2022 upon completion of the South Loop Project.
    - If there are delays on the South Loop Project, it will affect the timeline to increase from 126.5 to 192.5.
    - 737 Mathew is limited to 33 MW until the South Loop Project is completed.
- Silicon Valley Power is starting the process for additional transmission capacity to the City. The conceptual timeline for completion is Fourth Quarter of 2025. Upon completion of additional transmission, Vantage can increase from 192.5 MVA to 273 MVA.
- If Vantage has a need to exceed 192.5 MVA prior to these timeframes, the City would be interested in partnering on a battery storage project or other generation facility to serve those needs.

The specific details of this service and SVP system modifications required to provide this capacity for 2590 Walsh will be worked out in a Substation Service Agreement at a future date. The City is also in the process of reviewing and updating its load development fee, which will be applicable for any new project (or above 192.5 MVA). It is also important to note that all appropriate fees will need to be paid, and this letter does not supersede any requirements or

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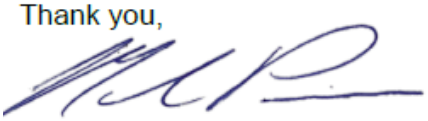
agreements for the already approved sites at 2820 Northwestern, 2897 Northwestern, and 737 Mathew.

Questions can be directed to Wendy Stone at (408) 615-5648.

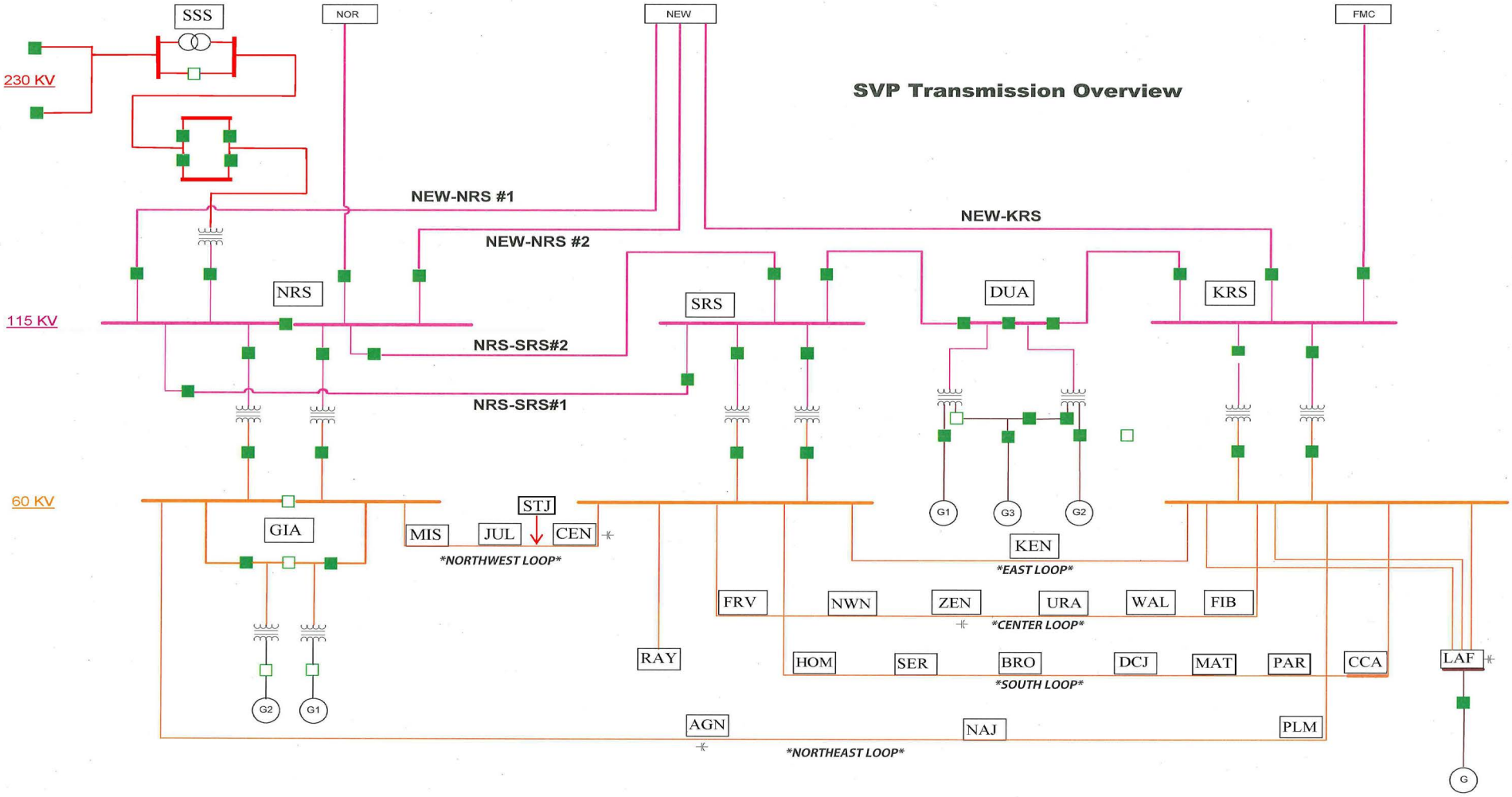
Thank you,



Manuel Pineda
Chief Electric Utility Officer
City of Santa Clara – Silicon Valley Power

cc: Michael Stoner

B. Schematic diagram of the SVP 230 kV, 115 kV and 60 kV transmission system, and SVP System Map


SVP Transmission Overview
230 KV
115 KV
60 KV
SSS
NOR
NEW
FMC
NEW-NRS #1
NEW-NRS #2
NEW-KRS
NRS
SRS
DUA
KRS
NRS-SRS#2
NRS-SRS#1
GIA
MIS
JUL
STJ
CEN
NORTHWEST LOOP
G1
G3
G2
KEN
EAST LOOP
FRV
NWN
ZEN
URA
WAL
FIB
CENTER LOOP
RAY
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SER
BRO
DCJ
MAT
PAR
CCA
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SOUTH LOOP
G2
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AGN
NAJ
PLM
NORTHEAST LOOP
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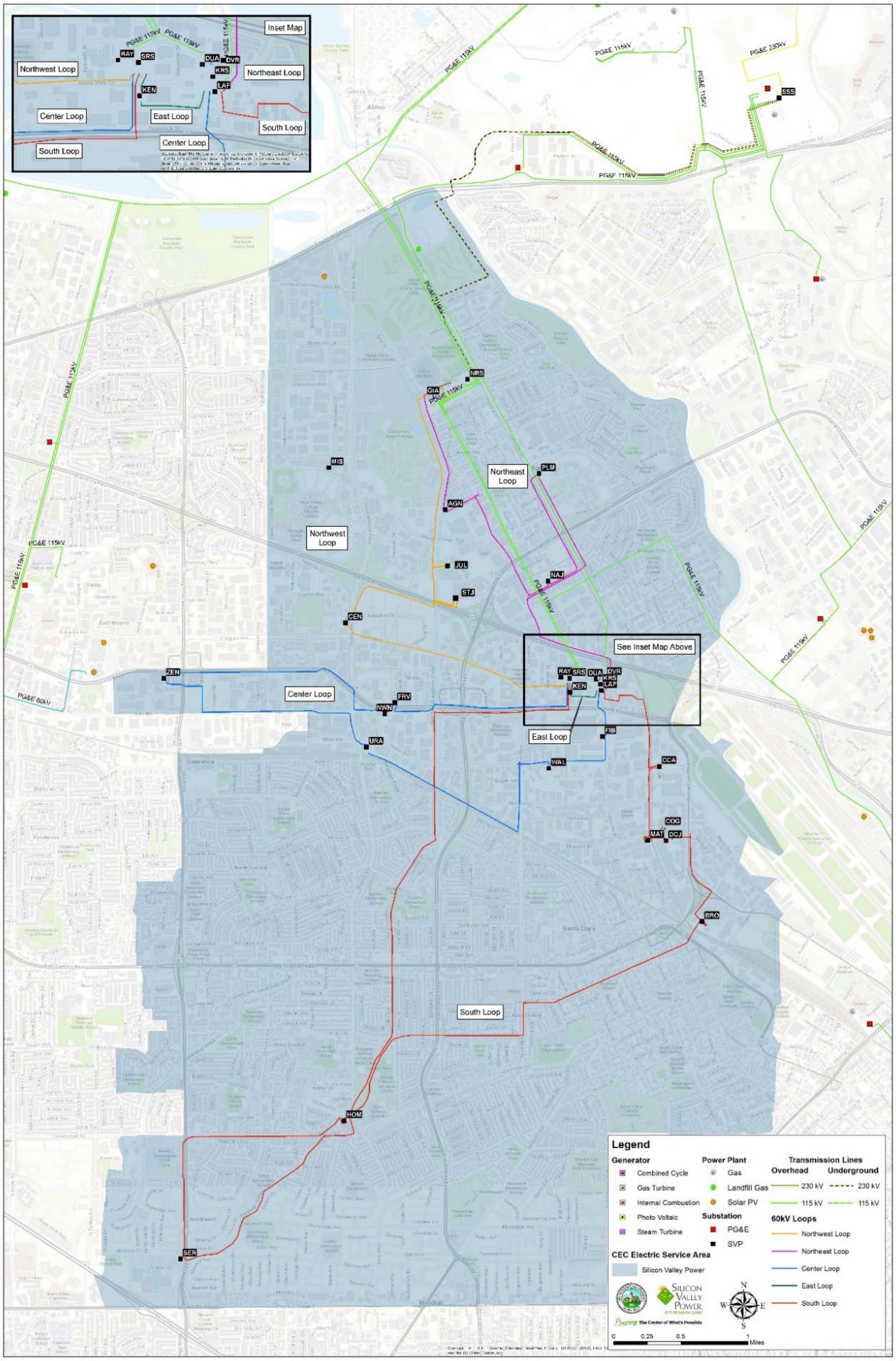
Inset Map
Northwest Loop
Northeast Loop
Center Loop
East Loop
South Loop
Center Loop
South Loop
RAY
SRS
DUA
DVR
KRS
LAF
KEN
PG&E 115kV
PG&E 230kV
NRS
GIA
MIS
PLM
AGN
Northeast Loop
Northwest Loop
JUL
STJ
NAJ
CEN
See Inset Map Above
ZEN
Center Loop
FRV
NWN
URA
East Loop
FIB
WAL
CCA
COG
MAT
DCJ
BRO
SSS
Santa Clara
South Loop
HOM
SER
PG&E 60kV
Legend
Generator
Combined Cycle
Gas Turbine
Internal Combustion
Photo Voltaic
Steam Turbine
Power Plant
Gas
Landfill Gas
Solar PV
Substation
PG&E
SVP
Transmission Lines
Overhead
Underground
230 kV
230 kV
115 kV
115 kV
60kV Loops
Northwest Loop
Northeast Loop
Center Loop
East Loop
South Loop
CEC Electric Service Area
Silicon Valley Power
SILICON VALLEY POWER
CITY OF SANTA CLARA
Powering The Center of What's Possible
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1
Miles

C. A list of the customers connected to each of the five 60 kV loops in the SVP system

SVP Loop Customers and Loading Peak - Substation

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Fairview	Center	Mfg1	Central	Northwest	Medical2
Fairview	Center	Datacenter1	Central	Northwest	Real Estate2
Fairview	Center	Datacenter2	Central	Northwest	Real Estate3
Fairview	Center	Datacenter3	Central	Northwest	Real Estate4
Fairview	Center	Datacenter4	Central	Northwest	Datacenter24
FIB	Center	Mfg2	Central	Northwest	Datacenter25
Lafayette	Center	Mfg3	Central	Northwest	R&D2
Lafayette	Center	Datacenter5	Central	Northwest	Real Estate5
Lafayette	Center	Mfg4	Central	Northwest	Real Estate6
Lafayette	Center	Mfg5	Central	Northwest	Healthcare equipment
Lafayette	Center	Datacenter6	Central	Northwest	Education13
Lafayette	Center	Mfg6	Central	Northwest	Semiconductor/R&D
NWN	Center	Datacenter7	JUL	Northwest	Datacenter26
Uranium	Center	Datacenter8	Mission	Northwest	Property Management7
Uranium	Center	R&D1	Mission	Northwest	Computer hardware/software 2
Uranium	Center	Property Management1	Mission	Northwest	Real Estate7
Uranium	Center	Datacenter9	Mission	Northwest	Datacenter27
Uranium	Center	Datacenter10	Mission	Northwest	Software1
Uranium	Center	Datacenter11	Mission	Northwest	Computer hardware/software 3
Uranium	Center	Property Management2	Mission	Northwest	Cyber Security 2
Uranium	Center	Education1	Mission	Northwest	Conventions 2
Uranium	Center	Education2	Mission	Northwest	Hotel3
Uranium	Center	Education3	Mission	Northwest	Medical3
Uranium	Center	Education4	Mission	Northwest	Cyber Security 3
Uranium	Center	Semiconductor/ Telecommunications	Mission	Northwest	Education14
Uranium	Center	Gaming/AI/ Semiconductors1	Mission	Northwest	Datacenter28
Uranium	Center	R&D/Mfg	Mission	Northwest	R&D3
Uranium	Center	Mfg7	Mission	Northwest	Semiconductor6
Walsh	Center	Semiconductor1	Mission	Northwest	Storage1
Walsh	Center	Gaming/AI/ Semiconductors2	Mission	Northwest	Entertainment3
Walsh	Center	Mfg8	Mission	Northwest	Property Management8
Walsh	Center	Gaming/AI/ Semiconductors3	Mission	Northwest	Medical4
Walsh	Center	Datacenter12	Mission	Northwest	Telecommunications2
Walsh	Center	Education5	Mission	Northwest	NFL5
Walsh	Center	Government1	Raymond	Northwest	Datacenter29
Walsh	Center	Government2	Raymond	Northwest	Datacenter30
Walsh	Center	Semiconductor2	Raymond	Northwest	Datacenter31
Walsh	Center	Semiconductor/R&D/Mfg	Raymond	Northwest	Datacenter32
Walsh	Center	Mfg9	Raymond	Northwest	Telecommunications3
Walsh	Center	Telecommunications1	Raymond	Northwest	Datacenter33
Walsh	Center	Datacenter13	Raymond	Northwest	Gaming/AI/Semiconductors5
Walsh	Center	Education6	Raymond	Northwest	Datacenter34
Walsh	Center	Datacenter14	Brokaw	South	Government3

SVP Loop Customers and Loading Peak - Substation

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Zeno	Center	Education7	Brokaw	South	Education15
Zeno	Center	Education8	Brokaw	South	Education16
Zeno	Center	Semiconductor3	Brokaw	South	Education17
Zeno	Center	Datacenter15	Brokaw	South	Real Estate8
Zeno	Center	Bio Tech 1	Brokaw	South	Design1
Zeno	Center	Semiconductor/ Telecommunications	Brokaw	South	Security 2
Zeno	Center	Semiconductor/R&D/Mfg	Brokaw	South	Education18
Agnew	Northeast	Security1	Brokaw	South	Education19
Agnew	Northeast	Property Management3	CCA	South	Mfg12
Agnew	Northeast	Property Management4	DCJ	South	Datacenter35
Agnew	Northeast	Entertainment1	Homestead	South	Education20
Agnew	Northeast	NFL1	Homestead	South	Education21
Agnew	Northeast	Property Management5	Homestead	South	Education22
Agnew	Northeast	Entertainment2	Homestead	South	Education23
Agnew	Northeast	Hotel1	Homestead	South	Education24
Agnew	Northeast	Datacenter18	Homestead	South	Education25
Agnew	Northeast	Medical1	Homestead	South	Education26
Agnew	Northeast	Mfg10	Homestead	South	Healthcare1
Agnew	Northeast	Datacenter19	Homestead	South	Telecommunications4
Agnew	Northeast	Datacenter20	Homestead	South	Education27
Agnew	Northeast	Datacenter21	Homestead	South	Education28
Agnew	Northeast	Datacenter22	MAT	South	Datacenter36
Agnew	Northeast	Cyber Security 1	PRK	South	Datacenter37
Agnew	Northeast	Hotel2	Serra	South	Medical device
Agnew	Northeast	Property Management6	Serra	South	Education29
NAJ	Northeast	Mfg11	Serra	South	Education30
Palm	Northeast	Datacenter/software/ cloud computing	Serra	South	Healthcare2
Palm	Northeast	NFL2	Serra	South	Healthcare3
Palm	Northeast	NFL3	Serra	South	Healthcare4
Palm	Northeast	NFL4	Serra	South	Healthcare5
Palm	Northeast	Education9	Kenneth	East	Datacenter16
Palm	Northeast	Education10	Kenneth	East	Datacenter17
Palm	Northeast	Conventions 1	Kenneth	East	Gaming/AI/Semiconductors4
Palm	Northeast	Education11			
Palm	Northeast	Semiconductor4			
Palm	Northeast	Datacenter23			
Palm	Northeast	Education12			
Palm	Northeast	Real Estate1			
Palm	Northeast	Network hardware1			
Palm	Northeast	Semiconductor5			
Palm	Northeast	Computer hardware/software 1			

SVP Loop Customers and Loading Peak - Loop

Center 141MW	East Loop 15MW	Northeast Loop 28MW	Northwest Loop 112MW	South Loop 65MW
Mfg1	Datacenter16	Security1	Medical2	Government3
Datacenter1	Datacenter17	Property Management3	Real Estate2	Education15
Datacenter2	Gaming/AI/ Semiconductors4	Property Management4	Real Estate3	Education16
Datacenter3		Entertainment1	Real Estate4	Education17
Datacenter4		NFL1	Datacenter24	Real Estate8
Mfg2		Property Management5	Datacenter25	Design1
Mfg3		Entertainment2	R&D2	Security 2
Datacenter5		Hotel1	Real Estate5	Education18
Mfg4		Datacenter18	Real Estate6	Education19
Mfg5		Medical1	Healthcare equipment	Mfg12
Datacenter6		Mfg10	Education13	Datacenter35
Mfg6		Datacenter19	Semiconductor/R&D	Education20
Datacenter7		Datacenter20	Datacenter26	Education21
Datacenter8		Datacenter21	Property Management7	Education22
R&D1		Datacenter22	Computer hardware/software 2	Education23
Property Management1		Cyber Security 1	Real Estate7	Education24
Datacenter9		Hotel2	Datacenter27	Education25
Datacenter10		Property Management6	Software1	Education26
Datacenter11		Mfg11	Computer hardware/software 3	Healthcare1
Property Management2		Datacenter/software/cloud computing	Cyber Security 2	Telecommunications 4
Education1		NFL2	Conventions 2	Education27
Education2		NFL3	Hotel3	Education28
Education3		NFL4	Medical3	Datacenter36
Education4		Education9	Cyber Security 3	Datacenter37
Semiconductor/ Telecommunications		Education10	Education14	Medical device
Gaming/AI/Semiconductors1		Conventions 1	Datacenter28	Education29
R&D/Mfg		Education11	R&D3	Education30
Mfg7		Semiconductor4	Semiconductor6	Healthcare2
Semiconductor1		Datacenter23	Storage1	Healthcare3
Gaming/AI/Semiconductors2		Education12	Entertainment3	Healthcare4
Mfg8		Real Estate1	Property Management8	Healthcare5
Gaming/AI/Semiconductors3		Network hardware1	Medical4	

Center 141MW	East Loop 15MW	Northeast Loop 28MW	Northwest Loop 112MW	South Loop 65MW
Datacenter12		Semiconductor5	Telecommunications2	
Education5		Computer hardware/software 1	NFL5	
Government1			Datacenter29	
Government2			Datacenter30	
Semiconductor2			Datacenter31	
Semiconductor/R&D/Mfg			Datacenter32	
Mfg9			Telecommunications3	
Telecommunications1			Datacenter33	
Datacenter13			Gaming/AI/Semiconductors5	
Education6			Datacenter34	
Datacenter14				
Education7				
Education8				
Semiconductor3				
Datacenter15				
Bio Tech 1				
Semiconductor/Telecommuni				
Semiconductor/R&D/Mfg				

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Appendix C

Natural Gas Supplemental Information

Appendix C: Natural Gas Supplemental Information

Natural Gas Internal Combustion Engines

Introduction

CEC staff (staff) has researched the difference in cost, supply, and emissions of using natural-gas-fueled internal combustion engines (ICEs) in place of conventional petroleum diesel for the emergency backup generators (gensets) proposed for this project. Currently, there is limited information available on the fuel supply reliability of natural gas delivered to the site by pipeline versus the reliability of delivering liquid petroleum diesel by tanker truck to the site. However, most gensets currently in place use diesel. A nationwide survey in 2016 revealed that 85 percent of the emergency backup generation was served by diesel, while 10 percent was served by natural gas and the remainder by propane.[1]

Cost Difference Between Natural Gas and Petroleum Diesel Emergency Backup Generators (Gensets)

The reliability of a system is an important consideration when selecting a genset. But cost is important as well. Many factors contribute to the life-cycle costs of a backup system, such as equipment, maintenance, and fuel costs.

Both, natural gas ICEs and diesel engines are reciprocating engines. They are available in sizes up to 18 MW. The fast start-up capability of reciprocating engines allows for the timely resumption of the system following a maintenance procedure. In peaking or emergency power applications, reciprocating engines can quickly supply electricity on demand. The annual energy cost ($/MMBtu) for natural gas fuel is lower than conventional diesel. But diesel generators generally have a lower component cost than ICEs. It is notable that improvements in ICEs and recently promulgated air quality regulations have reduced some of the cost advantages of diesel systems.[19]

The size of the engines can impact operating cost. If switching from one generating technology to another requires more engines to deliver the same total MW capacity, the repair and maintenance frequency and testing requirements could increase, which may result in an increase in associated costs.

Space Needs

Diesel-fueled gensets are typically built on a rack over their fuel supply tank, requiring space between each generator and a staircase and service deck at the elevation of the diesel engine. Based on air quality modeling files, staff estimated the footprint of the 45

1 National Renewable Energy Laboratory report. A Comparison of Fuel Choices for Backup Generators; https://www.nrel.gov/docs/fy19osti/72509.pdf.

engines proposed at the project site as approximately 1 acre for 133 MW (peak power) or approximately 133 MW per acre.

Enchanted Rock, a vendor for natural gas ICEs, provided a drawing showing how they would arrange their engines at a typical site. The result was an approximate capacity of 78 MW per acre.

Natural Gas ICE Emissions Compared to Petroleum Diesel

Criteria Air Pollutant and Carbon Dioxide Emissions Comparison

Staff compared criteria air pollutant emissions and carbon dioxide emissions of natural gas ICEs against the proposed diesel-fired engines for the project. The proposed larger 44, 3.0-MW engines and 1 smaller 1-MW engine, or 45 engines total, would be equipped with SCR and DPF to achieve compliance with Tier 4 emission standards. However, it takes time for the SCR to reach the activation temperature and become fully effective in controlling NOx emissions. Depending on load, the SCR would be expected to kick on within 15 minutes.

Information for the natural gas ICEs is primarily based on the data provided for the Small Power Plant Exemption application for the San Jose Data Center (Jacobs 2021s). The natural gas ICEs for the San Jose Data Center would be equipped with a 3-way catalyst system to reduce emissions of NOx, CO, volatile organic compounds (VOC), and air toxics. The applicant for the San Jose Data Center also assumed 15 minutes of operation with uncontrolled emissions and 45 minutes of operation with controlled emissions to estimate hourly emissions (Jacobs 2021o).

Table C-1 compares the emission factors in pounds per megawatt-hour (lbs/MWe-hr) for the proposed diesel engines at the project and those for the natural gas ICEs proposed at the San Jose Data Center. Staff assumed the same 15-minute warm up period for the SCRs of the diesel engines and the 3-way catalyst system for the natural gas ICEs.

It should be noted that the emission factors for the proposed larger Cummins C3000 engines shown in **Table D-1** are based on the use of petroleum-based diesel. However, the applicant has proposed to use renewable diesel as the primary fuel for the engines, with ultra-low sulfur diesel serving as a secondary fuel when renewable diesel is unavailable. The California Air Resources Board's (CARB) 2021 testing report (CARB 2021) shows that for diesel engines with SCR and DPF, there are no statistically significant differences in NOx, particulate matter (PM), and total hydrocarbon emissions using renewable diesel when compared to using ultra-low sulfur petroleum-based diesel. For CO emissions, there are either no statistically significant differences (or emissions were already below background levels) between renewable diesel and ultra-low sulfur petroleum-based diesel or 5 to 44 percent decrease using renewable diesel compared to ultra-low sulfur petroleum-based diesel, depending on the testing cycle used. Ideally, this should be confirmed with testing under controlled conditions in the same size of engine proposed for this facility and using the same source test cycle used for engine

certification. With the currently available information, staff expects the comparison results of criteria air pollutant emissions of the natural gas ICEs alternative to the proposed diesel engines using renewable diesel would be similar to those shown for conventional ultra-low sulfur diesel in **Table D-1**, except that the exact reduction percentage in CO emissions may be a little different depending on the testing cycle used.

TABLE C-1 CRITERIA AIR POLLUTANT EMISSIONS NATURAL GAS ICE VERSUS PETROLEUM DIESEL ICE

	Units	Proposed Petroleum Diesel Engine	Natural Gas ICE	Difference	Percent Difference (%)
NOx	Lbs/MWe-hr	4.75	0.09	-4.66	-98.2
PM	Lbs/MWe-hr	0.05	0.01	-0.04	-78.9
VOC	Lbs/MWe-hr	0.57	0.10	-0.47	-82.0
CO	Lbs/MWe-hr	8.23	1.68	-6.56	-79.6
SO_2	Lbs/MWe-hr	0.02	0.009	-0.01	-46.0
CO_2	Lbs/MWe-hr	1,564	1,440	-124	-7.9

Sources: (TN 233041-2), (TN 238218), Jacobs 2021s, and Energy Commission staff analysis

Toxics Emissions

Staff is not able to find data comparing toxics emissions of natural gas ICEs with those for diesel engines. However, these are expected to be reduced due to the reductions reported above for VOCs and PM.

Fuel-cycle Greenhouse Gas Emissions Comparison

Table D-1 shows that the tailpipe CO_2 emissions of natural gas ICEs would be about 8.4 percent lower than those for the proposed engines with the use of ultra-low sulfur petroleum-based diesel. However, the applicant has proposed to use renewable diesel as primary fuel in the proposed engines. CARB's 2021 testing report (CARB 2021) shows that the tailpipe CO_2 emissions would reduce about 3 to 4 percent using renewable diesel compared to ultra-low sulfur petroleum-based diesel. Therefore, the tailpipe CO_2 emissions of natural gas ICEs would only be about 4 to 5 percent lower than those for the proposed engines using renewable diesel. Ideally, this should be confirmed with testing under controlled conditions in the size of engine proposed for this facility. However, to have a more complete understanding of the impact of replacing renewable diesel with natural gas, it is necessary to examine the full fuel-cycle of each fuel from origin to use. This is because greenhouse gas emissions (GHG) have a global impact rather than a local impact.

To compute full fuel-cycle GHG emissions, a model called GREET[2] is commonly used to evaluate full fuel-cycle GHG emissions for transportation. Although staff has not

2 Greenhouse gases, Regulated Emissions, and Energy use in Transportation. Available from Argonne National Labs. From the Arbonne web site: Analysis of transportation systems on a life-cycle basis permits us

computed fuel-cycle emissions using GREET, we can estimate the relative change in GHG emissions using carbon intensity values from the Low Carbon Fuel Standard (LCFS) program. Carbon intensity values obtained from the program[3] can be used to estimate the expected GHG emissions reductions associated with switching from ultra-low sulfur petroleum-based diesel to renewable diesel and natural gas in this project. CARB staff use a version of GREET called CA-GREET to compute carbon intensity values for the LCFS program.[4] GREET results should be combined with stack emissions shown above to get an understanding of the relative GHG emissions associated with both natural gas ICEs and petroleum diesel ICEs.

Table D-2 shows the carbon intensity values of renewable diesel and natural gas compared to ultra-low sulfur petroleum-based diesel. For renewable diesel, the data shown in **Table D-2** are CARB-estimated values for Neste reformulated diesel supplied from various feedstocks with the renewable diesel produced at the Neste refinery located in Singapore. These carbon intensity values include the feedstock and transport to California via oceangoing tanker. For comparison purposes, the carbon intensity for ultra-low sulfur petroleum-based diesel/CARB diesel has a value of 100.45, as shown at the bottom of the table. **Table D-2** shows that there are 61 to 83 percent reduction in carbon intensity values using renewable diesel in place of ultra-low sulfur petroleum-based diesel. However, renewable diesel still has some carbon associated with the fuel-cycle, as evidenced by the carbon intensity values in **Table D-2** not being zero, so additional measures would be needed before the project could be considered a carbon-free facility.

Carbon intensity values shown in **Table D-2** indicate that natural gas ICEs fueled with pipeline natural gas produced from fossil feedstocks have a carbon intensity about 20 percent lower than petroleum diesel. Natural gas feedstocks from renewable feedstocks have a carbon intensity that is much lower, with most of the renewable feedstocks associated with a net reduction in fuel-cycle carbon emissions. In other words, these feedstock options act as a way of capturing GHG emissions that would otherwise escape. Negative values in **Table D-2** below reflect this outcome. Converting these feedstocks

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to better understand the breadth and magnitude of impacts produced when vehicle systems are operated on different fuels or energy options like electricity or hydrogen. Such detailed analysis also provides the granularity needed to investigate policy implications, set R&D goals, and perform follow-on impact and policy assessments. US Department Energy's Office of Energy Efficiency and Renewable Energy, Systems Assessment Group in Argonne's Energy Systems Division has been developing the GREET model to provide a common, transparent platform for lifecycle analysis (LCA) of alternative combinations of vehicle and fuel technologies. Vehicle technologies include conventional internal combustion engines, hybrid electric systems, battery electric vehicles, and fuel cell electric vehicles. Fuel/energy options include petroleum fuels, natural gas-based fuels, biofuels, hydrogen, and electricity. LCAs conducted with the GREET platform permit consideration of a host of different fuel production, and vehicle material and production pathways, as well as alternative vehicle utilization assumptions. GREET includes all transportation modes – on-road vehicles, aircraft, marine vessels, and rail (to be added in a new GREET release). The Systems Assessment Group has conducted various LCAs of vehicle/fuel systems for DOE and other agencies. There are more than 20,000 registered GREET users.

3 https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities

4 https://ww2.arb.ca.gov/resources/documents/lcfs-pathway-certified-carbon-intensities.

into a fuel would provide substantial societal benefits since the feedstock would otherwise be contributing directly to global warming. For the natural gas ICEs to remain an environmentally superior alternative to the proposed project using renewable diesel for GHG, it would be required to use certain percentage of renewable natural gas to reduce the fuel cycle GHG emissions.

A recent study done for the State Water Resources Control Board by Carollo Engineers[5] and published in June 2019 illustrates how food wastes can be converted to renewable natural gas and achieve significant GHG emissions reductions. Through the co-digestion of food waste diverted from landfills and processed in anaerobic digesters, municipal wastewater treatment plants have the potential to produce, capture, and make beneficial use of biogas, which is a renewable source of methane.

The Carollo report stated that landfills accounted for approximately 8,560,000 metric tons of carbon dioxide equivalent ($MTCO_2e$) emissions as methane in 2016, or about 22 percent of statewide methane emissions. They estimated that by the year 2030, approximately 3.4 million short wet tons of food waste could be diverted from landfills to municipal wastewater treatment plants for co-digestion and processing into renewable natural gas for beneficial use. This would reduce methane emissions from landfills and reduce GHG emissions from this sector by up to approximately 2.4 $MMTCO_2e$.

TABLE C-2 CARBON INTENSITY VALUES COMPUTED FROM CA-GREET MODEL

Feedstock	Carbon intensity (CI)	Percent Reduction From Petroleum Diesel (%)
Renewable Diesel		
Asian-sourced used cooking oil	16.89	-83
Globally averaged used cooking oil	25.61	-75
Southeast Asian fish oil	33.08	-67
North American tallow	34.19	-66
New Zealand tallow	34.81	-65
Australian tallow	36.83	-63
Midwest corn oil	37.39	-63
Globally averaged tallow	39.06	-61
Natural Gas		
PG&E Gas	80.59	-19.7
Average Pipeline Gas	79.21	-21.1
SoCal Gas	78.21	-22.1
Landfill Gas	-5.28 to 62.30	-105 to -38
Food Wastes	-22.93	-122
Dairy Manure	-377.83 to -192.49	-476 to -292
Renewable Natural Gas	-630.72 to -151.41	-728 to -251
Ultra-Low Sulfur Diesel/CARB Diesel	100.45	0

5 WRCB, Co-Digestion Capacity In California; Co-Digestion Capacity Analysis Prepared for the California State Water Resources Control Board under Agreement #17-014-240; https://www.waterboards.ca.gov/water_issues/programs/climate/docs/co_digestion/final_co_digestion_capacity_in_california_report_only.pdf; June 2019.

While renewable natural gas would result in a net reduction in fuel-cycle carbon emissions, a 2018 report funded by the Public Utilities Commission (CPUC) evaluated issues with injecting fuels other than natural gas into natural gas pipelines. The report was titled: *Biomethane in California Common Carrier Pipelines: Assessing Heating Value and Maximum Siloxane Specifications -- An Independent Review of Scientific and Technical Information*.[6] Assembly Bill 1900 (Chapter 602, Statutes of 2012), which became operative beginning in 2013, required, among other things, that the CPUC review and upgrade as appropriate specifications for adding biogas to the state's existing natural gas pipeline system.

In 2006, the CPUC adopted Decision 06-09-039, which increased the specified minimum allowable biomethane heating value (HV) from 970 British Thermal Units per standard cubic foot of gas (BTU/scf) to 990 BTU/scf.

In 2014 the CPUC adopted Decision 14-01-034, which included additional gas quality specification requirements that biogas would need to meet before it could be added to natural gas pipelines, including a maximum siloxane content of 0.1 mg siloxane per cubic meter of gas (Si/m^3). This level was set to protect against equipment damage and catalyst poisoning.

The 2018 CPUC report recommends that CPUC conduct further work to determine the acceptability of allowing an HV as low as 970 BTU/scf, which is the value that was allowed before the 2006 CPUC decision to increase the HV to 990 BTU/scf.

The 2018 CPUC report stated that siloxanes are not expected to be present in dairy waste, agriculture waste, or forestry residues. It concluded that some sources are very unlikely to have siloxanes (e.g., dairies or agricultural waste) and that these sources could be held to a reduced and simplified verification regime.

Further work may be needed to integrate renewable natural gas into the existing natural gas pipeline system in a cost-effective manner.

Contracting to obtain rights for renewable gas would lead to greater GHG benefits. This can be accomplished simply by displacement if the issues identified above can be resolved, assuming that the location of the use of the renewable natural gas is different from the source of the renewable natural gas unless they are close enough together to use a dedicated pipeline.

As shown in **Table C-2**, *fossil* natural gas and some forms of renewable natural gas still have some carbon associated with the fuel cycle. These show up in the table for those fuels with a CI that is greater than zero. In these cases, additional measures could be needed before the project would be considered a carbon-free facility.

6 See: https://ccst.us/wp-content/uploads/2018biomethane.pdf

References

CARB 2021 – California Air Resources Board (CARB). Low Emission Diesel (LED) Study: Biodiesel and Renewable Diesel Emissions in Legacy and New Technology Diesel Engines, Final Report – November 2021. Accessed July 2022. Available Online at: https://ww2.arb.ca.gov/resources/documents/low-emission-diesel-led-study-biodiesel-and-renewable-diesel-emissions-legacy

Jacobs 2021o – Jacobs (Jacobs). (TN 239409). SJC Data Center SPPE Application Supplemental Filing Volume 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Jacobs 2021s – Jacobs (Jacobs). (TN 239413). SJC Data Center SPPE Application Supplemental Filing Appendix Air - Traffic, Part 1, dated August 20, 2021. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-SPPE-04

Appendix D

Mailing List

Appendix D: Mailing List

The following is the mailing list for the Lafayette Data Center project.

The following is a list of the State agencies that received State Clearinghouse notices and documents:

- Bay Area Air Quality Management District
- California Department of Transportation, District 4 (DOT)
- California Natural Resources Agency
- California Public Utilities Commission (CPUC)
- California Regional Water Quality Control Board, San Francisco Bay Region 2 (RWQCB)
- Department of Toxic Substances Control
- State Water Resources Control Board, Division of Water Quality
- California Native American Heritage Commission (NAHC)
- California Department of Fish and Wildlife, Bay Delta Region 3 (CDFW)
- Air Resources Board
- California Department of Conservation
- Delta Protection Commission
- Department of Parks and Recreation
- San Francisco Bay Conservation and Development Commission
- State Lands Commission

Table D-1 presents the list of occupants and property owners contiguous to the project site.

Table D-2 presents the list of agencies, including responsible and trustee agencies and libraries.

TABLE D – 1 OWNERS AND OCCUPANTS OF PROPERTY CONTIGUOUS TO PROJECT SITE				
Name	**Mail Address**	**City**	**State**	**Zip**
651 WALSH PARTNERS LLC	14573 BIG BASIN WAY	SARATOGA	CA	95070
WITKIN PROPERTIES LP	188 TWIN OAKS DR	LOS GATOS	CA	95032
DIGITAL BH 800 LLC	16600 WOODRUFF AVE	BELLFLOWER	CA	90706
OWENS CORNING INSULATING	13155 NOEL RD	DALLAS	TX	75240
OWENS CORNING INSULATING	960 CENTRAL EXPY	SANTA CLARA	CA	95050
DOLLINGER LAFAYETTE ASSOCIATES	555 TWIN DOLPHIN DR	REDWOOD CITY	CA	94065
LAPTALO JAKOV (TRUSTEE)	12125 HILLTOP DR	LOS ALTOS	CA	94024
MONTALBANO ROSALIE (TRUSTEE)	3804 BAYVIEW DR	MODESTO	CA	95355
SANTA CLARA PROPCO LLC,	400 WATER ST	EXCELSIOR	MN	55331
WATSON JOYCE J (TRUSTEE)	2104 FALLEN LEAF LN	LINCOLN	CA	95648
ZIMMERMAN LEAH F (TRUSTEE)	1010 HEWITT DR	SAN CARLOS	CA	94070
ALBANESE PARKER I LLC	851 MARTIN AVE	SANTA CLARA	CA	95050
NAPOLI BILL M (TRUSTEE); NAPOLI KATHERINE C (TRUSTEE)	1590 EDMUNDSON CT	MORGAN HILL	CA	95037
SOUTHERN PACIFIC TRANSPORTATION CO	65 CAHILL ST	SAN JOSE	CA	95110
PSB NORTHERN CA INDUSTL PORTFOLIO LLC	701 WESTERN AVE	GLENDALE	CA	91201
SAN JOSE CITY OF	801 N 1ST ST	SAN JOSE	CA	95110
SOUTHERN PACIFIC TRANSPORTATION CO	65 CAHILL ST	SAN JOSE	CA	95110
@CENTRAL PROPERTY OWNER LLC	260 CALIFORNIA ST	SAN FRANCISCO	CA	94111

TABLE D – 2 AGENCIES AND LIBRARIES							
First	**Last**	**Title**	**Business/Agency**	**Mail Address**	**City**	**St**	**Zip**
WENDY	GOODFRIEND	AIR QUALITY PLANNING MANAGER	BAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
PAMELA	LEONG	DIRECTOR, OFFICER	BAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
ARIANA	HUSAIN	PERMIT ENGINEER	BAY AREA AIR QUALITY MANAGEMENT DISTRICT	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
CRAIG	WEIGHTMAN	ENVIRONMENTAL PROGRAM MGR. WATER RIGHTS	CA. DEPT. OF FISH AND WILDLIFE, BAY DELTA REGION (REGION 3)	2825 CORDELIA ROAD SUITE 100	FAIRFIELD	CA	94534
GERRY	HAAS	PROGRAM MANAGER	SANTA CLARA VALLEY HABITAT AGENCY	535 ALKIRE AVENUE	MORGAN HILL	CA	95037

TABLE D – 2 AGENCIES AND LIBRARIES

First	Last	Title	Business/Agency	Mail Address	City	St	Zip
ELAINE	SISON-LEBRILLA	MANAGER-CEQA AND FERC BRANCH	CALIFORNIA PUBLIC UTILITIES COMMISSION	505 VAN NESS AVENUE	SAN FRANCISCO	CA	94102
RYAN	OLAH	DIVISION CHIEF	US FISH & WILDLIFE SERVICE, SACRAMENTO FISH & WILDLIFE OFFICE, COAST BAY DIVISION	2800 COTTAGE WAY RM W-2605	SACRAMENTO	CA	95825
KERRI	KISKO	ENVIRONMENTAL SCIENTIST	CALIFORNIA DEPARTMENT OF CONSERVATION	801 K STREET, MS 14-15	SACRAMENTO	CA	95814
LAURA	MIRANDA	COMMISSIONER	NATIVE AMERICAN HERITAGE COMMISSION	1550 HARBOR BLVD, SUITE 100	WEST SACRAMENTO	CA	95691
DAN	RIVAS	SUPERVISING TRANSPORTATON ENGINEER	IGR, CALTRANS, DISTRICT 4	P.O. BOX 23660	OAKLAND	CA	94623-0660
KEITH	LICHTEN	DIVISION CHIEF	SAN FRANCISCO BAY RWQCB, REGION 2	1515 CLAY SUITE 1400	OAKLAND	CA	94612
JULIE	PETTIJOHN	BRANCH CHIEF BERKELEY/HQ	DEPT. OF TOXIC SUBSTANCES CONTROL	700 HEINZ AVENUE SUITE 200	BERKELEY	CA	94710-2721
			SAN FRANCISCO BAY CONSERVATION & DEVELOPMENT COMMISSION	375 BEALE STREET, SUITE 510	SAN FRANCISCO	CA	94105
BINAYA	SHRESTHA	SUBJECT MATTER EXPERT, PG&E	CALIFORNIA INDEPENDENT SYSTEM OPERATOR	250 OUTCROPPING WAY	FOLSOM	CA	95630
WADE	CROWFOOT	SECRETARY	CALIFORNIA NATURAL RESOURCES AGENCY	1416 NINTH STREET, SUITE 1311	SACRAMENTO	CA	95814
PHILLIP	CRADER	ASST. DEPUTY DIRECTOR	STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY DIVISION	P.O. BOX 100	SACRAMENTO	CA	95812-0100
JAMES	BOOTH	DISTRICT CONVSERVATIONIST	NATURAL RESOURCES CONSERVATION SERVICES	2337 TECHNOLOGY PKWY., SUITE C	HOLLISTER	CA	95023-2544
KARLA	NEMETH	DIRECTOR	DEPARTMENT OF WATER RESOURCES	P.O. BOX 942836	SACRAMENTO	CA	94236-0001
			COUNTY OF SANTA CLARA, OFFICE OF THE CLERK RECORDER	70 WEST HEDDING STREET	SAN JOSE	CA	95110
REBECCA	FANCHER	STAFF AIR POLLUTION SPECIALIST	CALIFORNIA AIR RESOURCES BOARD	1001 I ST	SACRAMENTO	CA	95814

TABLE D – 2 AGENCIES AND LIBRARIES

First	Last	Title	Business/Agency	Mail Address	City	St	Zip
COURTNEY	GRAHAM	MANAGER	CALIFORNIA AIR RESOURCES BOARD, ENFORCEMENT DIVISION	1001 I ST	SACRAMENTO	CA	95814
GLORIA	SCIARA	DEVELOPMENT REVIEW OFFICER	CITY OF SANTA CLARA PLANNING DIVISION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
ROY	MOLSEED	SENIOR ENVIRONMENTAL PLANNER	SANTA CLARA VALLEY TRANSPORTATION AUTHORITY	3331 NORTH FIRST STREET	SAN JOSE	CA	95134-1927
BEN	AGHEGNEHU	ASSOCIATE TRANSPORTATION PLANNER	COUNTY OF SANTA CLARA ROADS AND AIRPORT DEPARTMENT	101 SKYPORT DRIVE	SAN JOSE	CA	95110
MARK	CONNOLLY	PLANNER	SANTA CLARA COUNTY AIRPORT LAND USE COMMISSION	70 WEST HEDDING STREET; EAST WING, 7TH FLOOR	SAN JOSE	CA	95110
WENDY	STONE	KEY CUSTOMER SERVICE REPRESENTATIVE	SILICON VALLEY POWER	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
COLLEEN	HAGERTY		SANTA CLARA VALLEY WATER DISTRICT--COMMUNITY PROJECTS REVIEW UNIT	5750 ALMADEN EXPRESSWAY	SAN JOSE	CA	95118
REBECCA	BUSTOS	STAFF LIAISON	HISTORICAL AND LANDMARKS COMMISSION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
FREDERICK	CHUN	ASSOCIATE FIRE MARSHAL/HAZARDOUS MATERIALS MANAGER	CITY OF SANTA CLARA--FIRE PREVENTION/HAZARDOUS MATERIALS	1675 LINCOLN STREET	SANTA CLARA	CA	95050-4653
			SANTA CLARA FIRE STATION #2	1900 WALSH AVE	SANTA CLARA	CA	95050
RUBEN	TORRES	FIRE CHIEF	SANTA CLARA FIRE DEPARTMENT, FIRE STATION NO. 1 /FIRE ADMINISTRATION	777 BENTON STREET	SANTA CLARA	CA	95050
KEVIN	KEATING	ELECTRIC DIVISION MANAGER	SILICON VALLEY POWER (CITY OF SANTA CLARA)	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
KATHERINE	KENNEDY	AIRPORT PLANNER	FEDERAL AVIATION ADMINISTRATION (FAA)	1000 MARINA BOULEVARD, SUITE 220	BRISBANE	CA	94005
ALI	FAIYAZ	DEPUTY DIRECTOR, AIRPORT DEPARTMENT	NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT	1701 AIRPORT BOULEVARD, SUITE B-1130	SAN JOSE	CA	95110-1206

TABLE D – 2 AGENCIES AND LIBRARIES

First	Last	Title	Business/Agency	Mail Address	City	St	Zip
		ENVIRONMENTAL REVIEW, PLANNING DIVISION	SAN JOSE DEPARTMENT OF PLANNING, BUILDING, AND CODE ENFORCEMENT	200 E. SANTA CLARA STREET	SAN JOSE	CA	95113
CARY	GREENE	AIRPORT PLANNER	CITY OF SAN JOSE AIRPORT DEPARTMENT	1701 AIRPORT BOULEVARD, SUITE B-1130	SAN JOSE	CA	95510
DANIEL	WELSH	DEPUTY FIELD SUPERVISOR	SAN FRANCISCO BAY-DELTA FISH AND WILDLIFE	650 CAPITOL MALL, SUITE 8-300	SACRAMENTO	CA	95814
			COUNTY OF SANTA CLARA COUNTY ROADS AND AIRPORTS DEPARTMENT	101 SKYPORT DRIVE	SAN JOSE	CA	95110
			CEC - ENERGY LIBRARY	715 P STREET, MS-10	SACRAMENTO	CA	95814-5504
		GOV PUBLICATIONS	FRESNO COUNTY FREE LIBRARY	2420 MARIPOSA ST	FRESNO	CA	93721-2204
			HUMBOLDT COUNTY MAIN LIBRARY	1313 3RD STREET	EUREKA	CA	95501-0553
		SERIALS DIVISION	LOS ANGELES PUBLIC LIBRARY	630 W 5TH ST	LOS ANGELES	CA	90071-2002
		SCIENCE & INDUSTRY DIV	SAN DIEGO PUBLIC LIBRARY	330 PARK BLVD	SAN DIEGO	CA	92101-6478
		GOVERNMENT INFORMATION CENTER	SAN FRANCISCO PUBLIC LIBRARY	100 LARKIN ST	SAN FRANCISCO	CA	94102-4733
		GOV PUBLICATIONS	STANLEY MOSK LIBRARY & COURTS BLDG	914 CAPITOL MALL, 3RD FLOOR	SACRAMENTO	CA	95814
			JOYCE ELLINGTON LIBRARY	491 EAST EMPIRE STREET	SAN JOSE	CA	95112
			NORTHSIDE BRANCH LIBRARY	695 MORELAND WAY	SANTA CLARA	CA	95054