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BOWERS BACKUP GENERATING FACILITY

Final Environmental Impact Report

SCH # 2023020228

Part 2 of 2

CALIFORNIA
ENERGY
COMMISSION
Gavin Newsom,
Governor

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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 a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation Incorporated.

Biology Resources

Less Than Significant with Mitigation Incorporated. With the implementation of staff recommended mitigation measures (**BIO-1** and **BIO-2**) included in **Section 4.4 Biological Resources**, 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 bird species. Existing structures and trees also provide roosting opportunities for protected bat species. The implementation of mitigation measures **BIO-1** and **BIO-2**, which would require avoidance and minimization measures for protected bird species and protected bat species, 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 staff recommended mitigation measures (**CUL-1** through **CUL-9**) 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, therefore the impact would be less than significant.

Geology and Soils

Less Than Significant with Mitigation Incorporated. The project site is located on expansive soil as defined in Section 1803.5.3 of the California Building Code (CBC). The project would be required to adhere to the CBC, which would reduce impacts related to expansive soils to a less than significant level. The policies of the City of Santa Clara 2010-2035 General Plan (General Plan) have been adopted for the purpose of avoiding or mitigating environmental effects resulting from planned development within the city. 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. Therefore, with adherence to the CBC and the City's Building Codes the risks to people or structures from expansive soil would be less than significant.

As described in **Section 4.7 Geology and Soils**, the level of paleontological sensitivity at the project site is considered to be low at and near the ground surface within the alluvial deposits of Holocene age; however, older Pleistocene age sediments present at or near the ground surface at some locations have a high potential to contain these

resources. These older sediments, often found at depths greater than 10 feet below the ground surface, have yielded the fossil remains of plants and extinct terrestrial Pleistocene vertebrates (GI Partners 2022e). The project site is located in the Santa Clara Valley, an area known to have scientifically significant but widespread or intermittent fossil discoveries. While surficial sediments have been mapped as Holocene age, paleontological evidence indicates that Pleistocene age (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.

There could be a potential to disturb paleontological resources during the construction activities requiring earth moving, such as grading, trenching, excavation for foundations, and installation of support structures, where native soil would be disturbed. The maximum depth of soil disturbance is estimated to vary between 3 and 16 feet below the existing grade for utility trenching (GI Partners 2022f) and if deep foundations are used, piles could extend 80 feet below the existing grade surface.

Ground disturbing activities of ten feet or more have the potential to impact undiscovered paleontological resources. The applicant proposed a measure to reduce impacts to unique paleontological resources or unique geologic features. This measure requires that in the event paleontological resources are discovered all work shall be halted within 50 feet of the find and a Paleontological Resource Mitigation Plan be prepared by a qualified paleontologist to address assessment and recovery of the resource. A final report documenting any found resources, their recovery, and disposition shall be prepared in consultation with the Director of Community Development and filed with the City of Santa Clara (City) and local repository. The CEC staff reviewed this measure and finds it insufficient to reduce impacts to less than significant as there are no measures included to train workers to identify potential paleontological resources if encountered during construction activities thus resulting in damage or destruction to paleontological resources.

Staff proposes implementation of mitigation measure **GEO-1,** included in **Section 4.7 Geology and Soils**, which includes all of the above-mentioned mitigation measures proposed by the applicant, plus requires the development of a Worker Environmental Awareness Program (WEAP) to be implemented by a qualified paleontologist. The WEAP should include proper procedures (including training on the identification of paleontological resources and worker notification procedures) in the event fossil materials are encountered during construction.

Staff concludes that with adherence to the General Plan policies (5.6.3-G1, 5.6.3-G2, 5.6.3-P1, 5.6.3-P2, 5.6.3-P4, and 5.3.6-P5) and implementation of **GEO-1** impacts to buried paleontological resources would be reduced to a less-than-significant level (Santa Clara 2010). The proposed project therefore is unlikely to eliminate important examples of paleontological resources that are part of the prehistory of California.

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. California Environmental Quality Act (CEQA) Guidelines section 15130(b) state that an adequate discussion of significant 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;
- Solid Waste – Contribution to solid waste generation beyond available capacity after 2024; and
- Traffic – Degradation of traffic operations on regional roadways and highways within Santa Clara of an unacceptable level of service.

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.

Greenhouse Gas Emissions (Climate Change)

Less Than Significant Impact with Mitigation Incorporated. The General Plan FEIR identified significant unavoidable impacts from contribution to greenhouse gas (GHG) emissions exceeding the City's emission reduction target for 2035. The Bay Area Air Quality Management District (BAAQMD) 2017 CEQA Air Quality Guidelines do not identify a GHG emissions threshold for construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, and the impacts be determined in relation to meeting Assembly Bill 32 (Núñez, Chapter 488, Statutes of 2006) GHG reduction goals. BAAQMD further recommends incorporation of best management practices (BMPs) to reduce GHG emissions during construction, as feasible and applicable. The project's 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 states 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 of significance for stationary sources to 2,000 $MTCO_2e/yr$ or compliance with the California Air Resources Board's cap-and-trade program. However, this proposed update to the BAAQMD threshold of significance has not been adopted as of the date of this analysis. As a stationary source, the project's emergency backup generators may be subject to the pending CEQA GHG threshold. The emergency backup generators would not have a cumulatively considerable contribution to GHGs because estimated emissions would be below the applicable BAAQMD CEQA GHG threshold.

Based on BAAQMD's 2017 CEQA Guidelines, 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. Instead, in April 2022, the BAAQMD updated thresholds of significance 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 would not make a cumulatively considerable contribution to global climate change if the project is designed and built to be consistent with the requirements of either Option A or Option B of the BAAQMD thresholds. Because the proposed project includes a General Plan Amendment, it cannot rely on a GHG Reduction Strategy as outlined in Option B of the BAAQMD thresholds. In Option A, projects must include, at a minimum, the project design elements of buildings and transportation. In Option B, projects must be consistent with a local GHG reduction strategy that meets the criteria under CA CEQA Guidelines Section 15183.5(b) (BAAQMD 2022, p.2). As a result, the project's consistency with the requirements of Option A of the BAAQMD thresholds would be used to determine the significance of the project's operational GHG emissions.

Staff proposes implementation of mitigation measure **GHG-1** which would require the applicant to use renewable diesel for 100 percent of total energy use by the emergency backup generators, and only use ultra-low sulfur diesel (ULSD) as a secondary fuel in the event of supply challenges or disruption in obtaining renewable diesel. Staff also proposes implementation of **GHG-2** which would 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 carbon offsets renewable energy credits or similar instruments that accomplish the same goals of 100 percent carbon-free electricity. With the implementation of the mitigation measures described in **Section 4.8 Greenhouse Gas Emissions** of this analysis (**GHG-1** and **GHG-2**), the project would ensure that the project-related emissions would not significantly add to the global problem of climate change, nor would the project hinder California's ability to reach California's GHG reduction goals in any significant way, even when considered cumulatively. Additionally, the project would implement efficiency measures to meet California green building standards, and additional voluntary efficiency and use reduction measures. As such, with implementation of **GHG-1** and **GHG-2**, GHG emissions related to the project would not conflict with the City's Climate Action Plan (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 considered cumulatively significant.

Noise

Less Than Significant. The General Plan FEIR identified significant unavoidable impacts from an increase in localized traffic noise level on roadway segments throughout Santa Clara, associated with the build out of the General Plan. The project site is already developed and traffic to the site would already be part of the existing traffic levels. The project would contribute to vehicle trips during project operations from workers commuting to the project and trucks deliveries. The project's trips would not significantly add to regular traffic. The implementation of staff's proposed mitigation measure **TRANS-1** would ensure the project-related vehicle miles travelled (VMT) would be reduced to a level below the City's industrial threshold and the impact would be less than significant. Thus, project-related traffic would not substantially increase traffic noise levels in the project area. Any noise impacts associated with construction and operation-related traffic would be less than significant and not cumulatively considerable.

Construction would not occur on Sundays and holidays, in compliance with Santa Clara City Code, section 9.10.230. Construction activities would increase the ambient noise levels by up to 8 A-weighted decibels (dBA). This is less than 10 dBA and would likely have a less-than-significant impact. Additionally, the elevated noise levels from construction activities would be lower than those from passing trains along the Caltrain corridor. Passing trains intermittently elevate noise levels at these residences by up to 83 dBA L_{max}—23 dBA above the existing daytime ambient level of 60 dBA L_{eq} at this location. In addition, the city would require a series of performance standards, as part of their condition of approval for construction. These performance standards are ultimately used

as a backstop measure to address any noise impacts that might be perceived by the community.

Sources of operational noise for the project would include the backup generators, rooftop mechanical equipment including HVAC and other equipment necessary for project operation. The City's General Plan Policy (Section 5.10.6) requires existing and new industrial development to reduce the effects of operational noise on adjacent properties through compliance with noise standards in the Santa Clara City Code, section 9.10.040). Since the project is near residential land use, noise reduction measures, such as mechanical equipment enclosures and parapet walls, would be required (incorporated in the operational noise modeling). Thus, 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.

The project's construction and operational noise impacts would be less than significant. Therefore, the project's noise impacts would not be cumulatively considerable.

Population and Housing

Less Than Significant Impact. The General Plan FEIR identified significant unavoidable impacts from the exacerbation of land use impacts arising from the jobs/housing imbalance, associated with build out of the General Plan. The General Plan FEIR concluded that cumulative projects would accommodate two new jobs for every new employed resident, exacerbating Santa Clara County's existing jobs-housing imbalance which in essence means that workers unable to live near their employment commute long distances from outlying areas with affordable housing, continuing a pervasive trend over the past several decades as job growth has outpaced housing growth in Santa Clara County. 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 is anticipated to require 33 to 35 employees in the building on an average day. 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.

Utilities and Service Systems (Solid Waste)

Less Than Significant Impact. The General Plan FEIR identified significant unavoidable impacts from contribution to solid waste generation beyond available capacity after 2024. As determined in **Section 4.17 Utilities and Service Systems**, adequate water supply, as well as wastewater treatment capacity, are available to serve the project. Likewise, there are adequate electricity and telecommunication services in the vicinity to meet the project's needs. Natural gas resources would not be used on the project as proposed.

The nearby Newby Island Landfill has available landfill capacity through 2041. The current landfill impacts are addressed within an ongoing Santa Clara County Integrated Waste Management Plan to provide waste disposal services. 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 increase the supply and demand of utility services and infrastructure. Therefore, the project's contribution to this cumulative impact would not be considerable.

Transportation

Less Than Significant with Mitigation Incorporated. The General Plan FEIR identified significant unavoidable impacts from a degradation of traffic operations on regional roadways and highways within Santa Clara of an unacceptable level of service, associated with the build-out of the General Plan. As discussed in **Section 4.17 Transportation**, implementation of **TRANS-1** would reduce the project generated VMT to a level below the city's industrial threshold and reduce the project impact to a less than significant level. With implementation of **TRANS-1**, the project's contribution to cumulative transportation impacts during project construction and operation would not be cumulatively considerable.

Other Technical Areas

Although the City's General Plan FEIR did not identify significant unavoidable impacts in the areas of air quality, biological resources, cultural resources, geology and soils (paleontology), and hazards and hazardous materials and did not include an analysis of impacts to tribal cultural resources as the General Plan FEIR was adopted before the passage of Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) requiring such analysis, the CEC staff concluded that the project's impacts in these areas are *less than significant with mitigation*. Thus, staff have 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 Impact. The proposed project would be constructed on relatively flat land in a developed urban area within the city of Santa Clara. Land uses in the area consist of low intensity, heavy- and light-industrial uses that include larger mid-rise buildings, manufacturing, construction-related industries, warehousing and distribution, data centers, and repair services with a combination of surface and structured parking and well-landscaped grounds. San José Mineta International Airport is a little more than 1.8 miles to the east. The Caltrain corridor is to the south.

As discussed in **Section 4.1 Aesthetics** there are no scenic vistas in the project 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 in the vicinity.

The project and new or foreseeable projects within this "urbanized area" as defined per Public Resources Code, section 21071 would not conflict with applicable City zoning and other regulations governing scenic quality.

The project includes outdoor lighting for driveways, entrances, walkways, parking areas, and security purposes. Outdoor lighting would be angled downward onsite and include light visors, light hoods, and utilize lighting controls to reduce energy usage. LED lighting fixtures would be installed throughout the project site.

The project site does not border a residential use. The nearest residential area is approximately 500 feet south of the project site on the opposite side of the Caltrain corridor.

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 the BAAQMD. The SFBAAB is designated as a nonattainment area for ozone and particulate matter with a diameter of 2.5 microns or less (called "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 with a diameter of 10 microns or less (called "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 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. CEQA would then require implementation of all feasible mitigation measures.

The construction 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 implementation of staff's proposed 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 emergency backup generators 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. 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.

The health risk assessment shows that the project's health risk impacts would not exceed BAAQMD significance thresholds during construction or emergency backup generator readiness testing and maintenance. The project would not expose sensitive receptors to substantial toxic air contaminant (TAC) concentrations during construction or emergency backup generator 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.

For the reasons discussed above, the project's air quality impacts would not be cumulatively significant.

Biological Resources

Less Than Significant with Mitigation Incorporated. With implementation of staff recommended mitigation measures (**BIO-1** and **BIO-2**), 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, existing buildings, mature landscaping trees and shrubs to be removed as part of the project may provide nesting opportunities for protected bird species and special status bat species. Implementation of mitigation measures **BIO-1** and **BIO-2**, which would require avoidance and minimization measures for protected birds and special status bats, would ensure that project impacts would be less than significant.

Cultural and Tribal Cultural Resources

Less Than Significant Impact 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 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 tribal cultural resources. Implementation of **CUL-1** through **CUL-9** would prevent, minimize, or compensate for impacts on buried, tribal cultural resources. Project impacts to tribal cultural resources therefore would not be cumulatively considerable.

Energy

Less Than Significant Impact. The project would use 32 Tier 4 renewable diesel-fired gensets for emergency backup generation. The total number of hours of operation from the gensets for operational reliability purposes would be limited to no more than 50 hours annually.

At a rate of 50 hours, the total quantities of renewable diesel as primary fuel or ultra-low sulfur diesel (ULSD or conventional) as secondary fuel used for all the generators operating at full load would be approximately 7,900 barrels per year (bbl/yr). California has renewable diesel and USLD fuel supply of approximately 6,300,000 bbl/yr and 310,000,000 bbl/yr, respectively. The project's use of renewable diesel or ULSD fuel constitutes a small fraction (less than 0.13 or 0.0025 percent, respectively) of available resources. Both renewable diesel and ULSD fuel supply are more than sufficient to meet necessary demand of the project. For these reasons, the project's use of fuel would be 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**. 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. Significant 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. Implementation of **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.

Hazards and Hazardous Materials

Less Than Significant with Mitigation Incorporated. As discussed in **Section 4.9 Hazards and Hazardous Materials,** ground disturbing activities associated with grading and construction activities of the project could have the potential to encounter contaminated soil and water. Additionally, demolition activities could run into lead based paint (LBP). Implementation of staff's proposed mitigation measure **HAZ-1** would require testing and removal of LBP contaminated materials prior to building demolition. Implementation of staff's proposed mitigation measure **HAZ-2** would require a Site Mitigation Plan to be created along with a Health and Safety Plan (HSP). The Site Mitigation Plan would establish proper procedures to be taken when contaminated soil is found and how to dispose of the contaminated soil properly. The Health and Safety Plan would establish worker training and provide provisions for personal protective equipment and procedures in the event contaminated soil or water is encountered. In addition, if contaminated soils are found in concentrations above thresholds, the project would halt construction and the contaminated soil would be treated in place or removed to an appropriate disposal facility. Implementation of staff's proposed mitigation measure **HAZ-3** would require the testing of soil and groundwater per plan and protocols developed in the Site Mitigation Plan to fully identify any potential contamination at the project site. With the implementation of **HAZ-1, HAZ-2,** and **HAZ-3** 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 and 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. The project would be required to comply with the City's Flood Damage Prevention Code (Santa Clara City Code Chapter 15.45), the Construction and Municipal NPDES Permits, 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,

singularly and cumulatively. If implemented as described in **Section 4.10 Hydrology and Water Quality** of this analysis, these standards would protect the watershed receiving discharge from the project from a cumulatively considerable impact to the basin's hydrology. Similarly, these same plans and permits would be protective of water quality. These standards would be protective of the quality of both surface water and groundwater bodies receiving discharge from the project.

Land Use and Planning

Less Than Significant Impact. The project site has a General Plan land use designation of High Intensity Office/Research and Development (R&D) and a zoning designation of Light Industrial. The General Plan land use designation of High Intensity Office/R&D does not allow stand-alone data centers and is inconsistent with the site's zoning designation of Light Industrial. Due to the inconsistency between the site's General Plan designation and zoning designation, City staff recommended that the project owner apply with the City for a General Plan amendment to change the project site's General Plan land use designation to Light Industrial, which allows stand-alone data centers and is consistent with the site's zoning designation of Light Industrial.

Although the Light Industrial General Plan designation allows for stand-alone data centers, the list of permitted uses in the Light Industrial zoning district does not include data centers (Santa Clara 2023, Section 18.48.030). However, Section 18.48.040 of the Zoning Code provides for allowance of "other uses not normally permitted, but that are…appropriate for an industrial area" with City approval of a Conditional Use Permit (CUP) (Santa Clara 2023, Section 18.48.040(e)(2)). The City has permitted data centers in the Light Industrial zoning district in the past, and the General Plan land use designation of Light Industrial lists data centers as an allowed use. Therefore, a data center could be allowed on the project site with the City's issuance of a CUP.

With the City's approval of a General Plan amendment to change the project's land use designation to Light Industrial, and with the City's issuance of a CUP for the project, the project would be consistent with the description of uses allowed under the site's General Plan and zoning designations. The project would not conflict with land use plans or policies such that significant environmental impacts would occur, and there would be no cumulative impacts from conflicts with local land use regulations.

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 in order 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 project would be constructed in conformance with current building and fire codes, and the Santa Clara Fire Department would review project plans to ensure appropriate safety features are incorporated.

In accordance with California Government Code, section 65996, the project would be required to the appropriate school impact fees to the Santa Clara Unified School District. The operation of the project would require 33 to 35 employees in the building on an average day. Given the availability of the existing workforce in the Bay Area, the operation employees would likely reside within commuting distance to the project site and would not relocate closer to the project. Even if the operation workforce 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 in order to maintain acceptable service ratios or other performance objectives. The project's impacts to 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. Operation of the project would require 33 to 35 employees in the building on an average day. The project's operation workforce would be consistent with growth projections 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 and operation, including changes to air and water quality~~,~~ and exposure to geologic hazards, noise, and hazardous materials as well as from greenhouse gas (GHG) emissions. As discussed in **Section 4.3 Air Quality**, with implementation of **AQ-1** to control emissions during project construction and NOx emissions fully offset for engine testing and maintenance, the project would result in a less-than-significant impact related to human health. As discussed in **Section 4.8 Greenhouse Gas Emissions**, direct GHG emissions from maintenance and testing of the project gensets would be less than significant with implementation of **GHG-1**, and indirect GHG emissions from the project's energy usage, mobile sources, and building operation (electricity use) would be less than significant with implementation of **GHG-2.** As discussed in **Section 4.7 Geology and Soils**, impacts to people or property associated with geologic or seismic conditions onsite would be less than significant. As discussed in **Section 4.13 Noise**, the temporary noise impacts to humans during construction and intermittently during operation would be less than significant. As discussed in **Section 4.9 Hazards and Hazardous Materials**, hazards impacts would be less than significant with the

implementation of **HAZ-1**, **HAZ-2**, and **HAZ-~~2~~3**. As discussed in **Section 4.10 Hydrology and Water Quality**, water quality impacts would be less than significant. 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 project.

4.21.1 Environmental Setting and Regulatory Background

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, page 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) site certification process, the methodology used to identify an EJ population, and the consideration of California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool (CalEnviroScreen). 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 analyses 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 Energy Commission Siting Process

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/or low-income populations.

The California Natural Resources Agency (CNRA) recognizes that EJ communities are commonly identified as those where residents are predominantly minorities or live below the poverty level; where residents have been excluded from the environmental policy

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.

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 comparatively larger 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 CNRA 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 is required to select 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 2023). The project site is not located in an AB 617 community. In addition to falling outside a disproportionately affected community as determined by state law, this location also falls outside of such communities as identified by the local air district. 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 2023). The proposed project is not located in a CARE community.

CalEnviroScreen- More Information About an EJ Population

CalEnviroScreen is a science-based mapping tool used by CalEPA to identify disadvantaged communities (DAC)[2] pursuant to Senate Bill 535 (De León, Chapter 830, Statutes of 2012). As required by SB 535, DACs 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, page 8).

Using data from federal and state sources, the tool consists of four components in two broad groups. The Exposure and Environmental Effects components comprise a Pollution Burden group, and the Sensitive Populations and Socioeconomic Factors components comprise a Population Characteristic Group. The four components are made up of environmental, health, and socioeconomic data from 21 indictors.

CalEnviroScreen scores present 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, page 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 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 (CalEPA

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).

2022a, pages 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, page 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 visits	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 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.

The CalEnviroScreen indicators relevant to each of the three technical areas are:

- For air quality, these indicators are asthma, cardiovascular disease, diesel PM emissions, low birth-weight infants, ozone concentrations, pesticide use, PM 2.5 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 DACs 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 environmental justice, meaningful involvement is an important part of the siting process. Meaningful involvement occurs when:

- those whose environment and/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;
- the concerns of all participants involved are considered in the decision-making process; and,
- decision makers seek out and facilitate the involvement of the population potentially affected by the decision.

The CEC staff and the Public Advisor's Office (PAO) coordinated closely on public outreach early in the review process. The Office of the Public Advisor, Energy Equity and Tribal Affair's 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 twelve-mile radius of the proposed project.

The CEC staff docketed and mailed to the project mail list a Notice of Receipt of the BBGF SPPE Application on October 25, 2022. 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 the public notices was deemed appropriate. U.S. Census data also showed that of those who report they "speak English less than very well," the predominant languages spoken were Chinese and Spanish. The CalEnviroScreen data supports the U.S. Census fluency data, showing that the population in this immediate project area are linguistically isolated and translation is warranted. Public notices for the project in English, Chinese, and Spanish were posted to the project's docket and GovDelivery system on October 25, 2022. Public notices also were published in local

newspapers: in the San Jose Mercury News (in English) on November 4, 2022; in El Observador (in Spanish) on November 4-10, 2022; and in the World Journal (in Chinese) on October 31, 2022.

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**, consistent with the noticing requirements under CEQA Guidelines Section 15087, staff mailed the Notice of Availability of the Draft EIR to all owners and occupants contiguous to the project site and 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 Luther Burbank Elementary, Orchard Elementary, San Jose Unified, and Santa Clara Unified school districts (in a six-mile radius of the project site) and enrolled in the free or reduced-price meal program is larger than the percentage of those living in the reference geography (Santa Clara County) and enrolled in these programs. Thus, the population in this school district is considered an EJ population based on low income 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	5,940	1,588	26.7%
Campbell Union	6,253	2,070	33.1%
Cupertino Union Elementary	13,467	2,153	16.0%
Luther Burbank Elementary	**422**	**350**	**82.9%**
Milpitas Unified	9,967	2,802	28.1%
Moreland	3,940	1,311	33.3%
Mountain View Whisman Elementary	4,522	1,283	28.4%
Orchard Elementary	**763**	**335**	**43.9%**
San Jose Unified	**26,479**	**11,284**	**42.6%**
Santa Clara Unified	**13,919**	**5,602**	**40.2%**
Sunnyvale Elementary	5,465	1,636	29.9%
Reference Geography			
Santa Clara County	236,428	80,551	34.1%

Note: **Bold** indicates school districts considered having an EJ population based on low-income
Source: CDE 2023

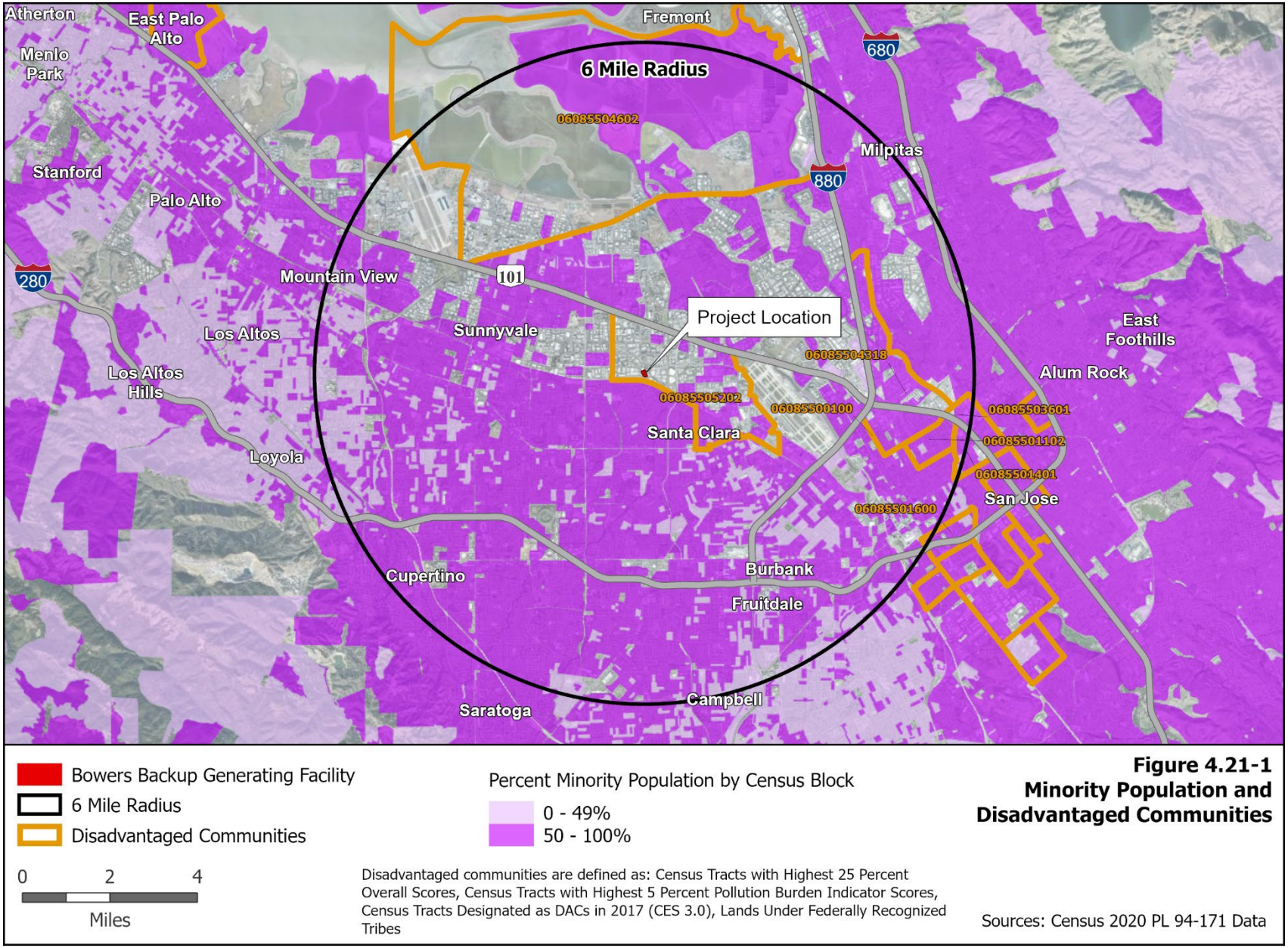

Figure 4.21-1
Minority Population and Disadvantaged Communities

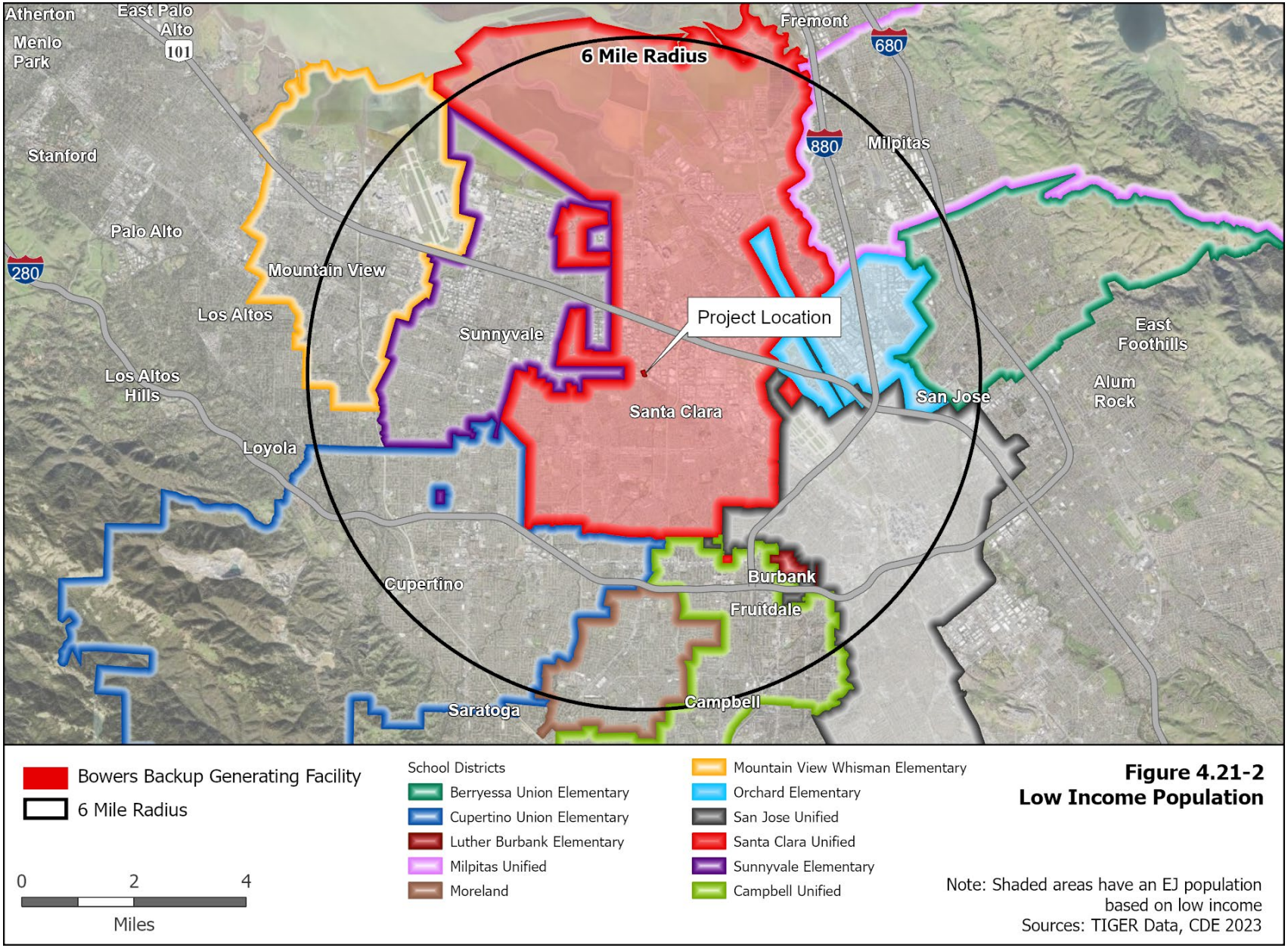

Figure 4.21-2
Low Income Population

Note: Shaded areas have an EJ population based on low income
Sources: TIGER Data, CDE 2023

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 **Table 4.21-1**) are used to measure factors that affect the potential[3] for pollution impacts in communities. Staff used CalEnviroScreen to identify the disadvantaged communities (DACs)[4] in the vicinity of the proposed project and better understand the characteristics of the areas where impacts could occur.

Table 4.21-3 presents the CalEnviroScreen overall scores and DAC category for the DACs 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
06085504318	6,095	80.06	88.82	63.28	CES 4.0 top 25 percent
06085500100	8,306	71.19	89.77	50.16	CES 3.0 DAC only
06085503601	3,383	85.36	84.12	76.94	CES 4.0 top 25 percent
06085501102	4,305	71.32	79.53	57.83	CES 3.0 DAC only
06085501401	3,226	71.72	67.98	66.69	CES 3.0 DAC Only
06085501600	7,716	85.01	77.80	81.48	CES 4.0 top 25 percent

Note: Disadvantaged communities by census tract in the project's six-mile radius. Shaded row indicates census tract where the project is located. Source: CalEPA 2021

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 mitigation 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).

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
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
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
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
06085501102	79.53	20.85	36.85	63.71	22.74	91.30	0.41	33.76	68.21	83.58	88.01	86.45	33.16	91.43
06085501401	67.98	20.85	37.29	78.38	22.74	83.02	0.00	33.03	87.66	62.04	73.75	28.30	33.16	98.22
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

Notes: Disadvantaged communities by census tract in the project's six-mile radius. Shaded row indicates census tract where the project is located. Source: CalEPA 2021

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
06085504318	63.28	36.05	71.79	28.12	78.63	95.72	59.52	78.97	46.02
06085500100	50.16	66.59	54.12	42.40	66.31	76.64	40.80	17.11	26.17
06085503601	76.94	73.54	77.05	53.39	79.42	95.03	78.45	21.11	63.26
06085501102	57.83	69.65	61.41	45.03	65.20	67.72	34.70	52.52	37.48
06085501401	66.69	60.99	73.33	31.68	79.73	93.80	65.93	29.41	62.42
06085501600	81.48	72.98	91.34	39.71	63.76	67.45	80.28	64.51	94.47

Notes: Disadvantaged communities by census tract in the project's six-mile radius. Shaded row indicates census tract where the project is located. Source: CalEPA 2021

4.21.2 Environmental Impacts

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 would adversely affect day or nighttime views in the area.

The project is in an urbanized area as defined in Public Resources Code, section 21071. According to this section of the Public Resources Code, the project conforms to the applicable city zoning and other regulations governing scenic quality.

Staff viewed aerial and street imagery (Google Earth and Google Maps), other maps, and site photographs in addition to the EJ figures and concludes the nearest EJ population would have no to low visibility of the project due to the existence of aboveground landscape components (buildings, structures, earthworks, trees, etc.) obstructing or obscuring the public view of the project from the identified population.

The project design includes outdoor lighting that would be angled downward and would include light visors and light hoods (GI Partners 2022e). The design also includes installing

5 Public Health concern discussed under Air Quality

light-emitting diode (LED) lighting throughout the project site. Project components would have no to low reflectivity offsite.

The project would not have a disproportionate effect to an EJ population and would have a less than significant impact.

Air Quality

Less Than Significant with Mitigation Incorporated. **Tables 4.21-4** and **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, fine particulate matter having a diameter of less than or equal to 2.5 microns (PM2.5), and nitrogen dioxide (NO_2) 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 the CARB and the U.S. EPA are authorized to set ambient air quality standards. Since toxic air contaminants have no AAQS that specify health-based levels considered safe for everyone, a health risk assessment (HRA) is used to determine if people might be exposed to those types of air pollutants at unhealthy levels.

Staff identified the potential air quality (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 an 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** and oxides of nitrogen (NOx) emissions fully offset through the permitting process with BAAQMD, 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. 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 through:

- 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);
- an 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-Ramon, 2008).

Even though ozone is not directly emitted from emission sources such as the gensets, precursor pollutants that create ozone, such as NOx and volatile organic compounds (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 BAAQMD. For a more detailed discussion see, **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 average daily maximum 8-hour ozone concentration (ppm) for the summer months (May-October), averaged over three years (2017-2019). According to CalEnviroScreen data, ozone concentrations in each census tract are ordered by ozone concentration values, and then are assigned a percentile based on the statewide distribution of values.

Results for ozone are shown in **Table 4.21-4.** Ozone levels in the census tracts are relatively low, with percentiles up to 21. Another way to look at the data is that approximately more than 79 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 be expected to contribute significantly to the 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 during construction. The project's impacts would not be expected to cause exceedance of ambient air quality standards during readiness testing and maintenance. NOx emissions resulting from readiness testing and maintenance would be high enough to trigger offset requirements due to BAAQMD Regulation 2, Rule 2. Therefore, the NOx emissions 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 standby generators 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

Particulate matter (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, µg/m3), averaged over three years (2015-2017). According to CalEnviroScreen data, PM2.5 concentrations in each census tract 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**. The percentiles range between 19.43 and 37.13, with the lowest from census tract 06085504602 and the highest from census tract 06085501600.

Census tract 06085501600 was at the 37.13 percentile in the PM2.5 category (see **Table 4.21-4**). This indicates that PM2.5 concentrations in this census tract are higher than 37.13 percent of tracts statewide. This indicates that these communities are exposed to below average PM2.5 concentrations compared to the rest of the state.

The project would not be expected to 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 the 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. **Section 4.3 Air Quality** includes an additional assessment of other criteria air pollutant impacts, including NO_2 impacts. Staff's analysis indicates that the project would not cause adverse NO_2 impacts during construction or readiness testing and maintenance. The project's NO_2 air quality impacts would be less than significant for the local EJ community and the general population.

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 CARB'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, three are higher than the 90th percentile. They are 95.13, 91.50, and 90.49 (in census tracts 06085501600, 06085503601, and 06085504318, respectively), meaning these three are higher than 95.13, 91.5 and 90.49 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 readiness testing and maintenance 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 category were narrowed from the list of all registered pesticides in use in California to focus on a subset of 132 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.

Census tracts on **Table 4.21-4** were all below the 10^{th} percentile in the Pesticide Use category. This indicates that pesticide use in these census tracts are below the statewide average in terms of pesticide use. This indicates that these communities are not exposed to high pesticide concentrations as compared to the rest of the state.

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 all census tracts are fairly similar, with the percentiles being around 30. The highest percentile is from census tract 6085504318 (39.48), meaning this census tract is higher than 39.48 percent of tracts statewide. This indicates that these communities are lower than the state average for exposure to toxic releases.

According to the results of the health risk assessment conducted for the project in **Section 4.3 Air Quality**, impacts associated with toxic releases from the proposed project construction and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant. The project would not have a significant cumulative contribution to toxic releases. 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 the 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 three census tracts are higher than the 90th percentile. The highest one is 94.31 (in census tract 06085504318), meaning it is higher than 94.31 percent of the census tracts in California. Traffic impacts is related to the diesel PM emitted from diesel-fueled vehicles. Census tract 06085504602 and 06085503601 were at the 94.13 and 91st percentile, respectively. However, according to the results of the health risk assessment conducted for the project in **Section 4.3 Air Quality**, impacts associated with diesel PM from the project construction and readiness testing and maintenance 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.

The project would generate a small number of vehicle trips to the site. 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. 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 information was collected by the California Office of Statewide Health Planning and Development (OSHPD).

Table 4.21-5 shows census tract 06085503601 was the highest. It was at the 73.54 percentile in the Asthma category. This indicates the number of ED visits for asthma per 10,000 people over the years 2015 to 2017 are higher than 73.54 percent of tracts statewide. Census tract 06085501600 was slightly lower, at the 72.98 percentile, followed by Census tract 6085501102 (69.65), 6085500100 (66.59), and 6085501401 (60.99). This indicates that these five communities have the above average numbers of ED visits due to asthma compared to the rest of the state. On the contrary, the rest of the census tracts were lower than the state average for asthma ED visits.

According to the results of the health risk assessment conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from the project construction and readiness testing and maintenance activities (diesel-fueled equipment) would be less than significant and would not have a significant cumulative contribution to asthma ED visits. The project's emissions would not have a significant cumulative contribution to asthma ED 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, two are higher than the 90th percentile. They are 98.85 and 91.34 (in census tracts 06085504602 and 06085501600, respectively), meaning these two are higher than 98.85 and 91.34 percent of the census tracts in California. This indicates that these two communities had above average numbers of low birth weight infants.

However, staff's health risk assessment for the project was based on a highly conservative health-protective methodology that accounts for impacts on the most sensitive individuals in a given population. According to the results of the assessment, the risks at the nearest sensitive receptors (i.e. Maximum exposed individual sensitive receptor [MEIS] and Maximum exposed individual residential receptor [MEIR]) are 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 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 census tract 06085503601 was at the 53.39 percentile in the Cardiovascular Disease category. This indicates the number of ED visits for AMI per 10,000 people over the years 2015 to 2017 is higher than 53.39 percent of tracts statewide. This is the only census tract which has the above average number of ED visits for AMI compared to the rest of the state. Other census tracts were all below the average.

According to the results of the health risk assessment conducted for the project in **Section 4.3 Air Quality**, impacts associated with emissions from construction and operation activities 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. The CEC staff did not identify any Native American environmental justice populations that either reside within six 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. Diesel fuel to run the emergency generators is the hazardous material that the project site would have in greatest quantity. The total quantity would be divided and 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 drinking water degradation, exacerbate groundwater contamination, or discharge additional pollutants to impaired surface 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 six-mile radius of the project (see **Figure 4.21-1**) are presented in **Table 4.12-4** 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.

CalEnviroScreen assigns a score to each type of stressor. To assess the impact of a stressor on the 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 miles). 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 proposed project site is located within census tract 6085505202; 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 category (see **Table 4.21-4**). This indicates the drinking water contamination threat in this census tract is moderate, and that the community does not have a significant level of exposure to contaminants through drinking water. The project would not be expected to contribute significantly to drinking water source degradation. The project would be required to comply with the Clean Water Act (CWA) and California's Porter-Cologne Water Quality Control Act by controlling the discharge of pollutants during its construction and operation phases. In addition, the majority of drinking water is supplied from surface water sources, such as Hetch Hetchy, from outside of the area. The project would implement modern storm water and containment controls that would improve upon the site's potential to release contaminants to the environment. 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 contaminant release sites in California include gasoline and diesel fuels; chlorinated solvents and other volatile organic compounds; heavy metals such as lead, chromium and arsenic; polycyclic aromatic hydrocarbons;

persistent organic pollutants like polychlorinated biphenyls and pesticides; 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 impact by groundwater contamination, within each census tract.

Census tract 6085505202 scored 98 percent in the Groundwater Threat category (see **Table 4.21-4**). This indicates that the community is located alongside a high proportion of groundwater threats and is within the top 10 percent of tracts statewide.

The project would not be expected to exacerbate groundwater contamination, 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 storm water and containment controls that would improve upon the site's potential to release contaminants to groundwater. The project would therefore not be expected to degrade groundwater quality any further than 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 the 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 category (see **Table 4.21-4**). This indicates the threat to impaired water bodies in this census tract is low, and that there is not a significant impact to the community and local wildlife.

The project would not be expected to further impair local water bodies. 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 storm water and containment controls that would improve upon the site's potential to release contaminants to the environment. The project's hydrology and water quality impacts would be reduced to less than significant for the census tract of concern.

Land Use and Planning

Less Than Significant Impact. The project site has a General Plan land use designation of High Intensity Office/Research and Development (R&D) and a zoning designation of Light Industrial. The General Plan land use designation of High Intensity Office/R&D does not allow stand-alone data centers and is inconsistent with the site's zoning designation of Light Industrial. Due to the inconsistency between the site's General Plan designation and zoning designation, City of Santa Clara (City) staff recommended that the project owner apply with the City for a General Plan amendment to change the project site's General Plan land use designation to Light Industrial, which allows stand-alone data centers and is consistent with the site's zoning designation of Light Industrial.

While the City's Light Industrial General Plan designation lists stand-alone data centers as an allowed use, the Light Industrial zoning designation does not mention data centers as either an allowed or prohibited use (Santa Clara 2023, Section 18.48.030). Section 18.48.040 of the Zoning Code provides for allowance of "other uses not normally permitted, but that are… appropriate for an industrial area" with City approval of a conditional use permit (CUP) (Santa Clara 2023, Section 18.48.040(e)(2)). The City has permitted stand-alone data centers in the Light Industrial zoning district in the past, and the General Plan land use designation of Light Industrial lists stand-alone data centers as an allowed use. Regarding the conditional use permit process, the Zoning Code further states: "Such use permits shall not be granted if the proposed use or structure would be objectionable or detrimental to adjacent properties or to the industrial area in general by reason of traffic, parking, noise, inappropriate design, or signs" (Santa Clara 2023, Chapter 18.48.040). Therefore, the City considers nuisance impacts in their CUP process. Staff has not identified any project-generated nuisances which would cause significant environmental impacts. (See **Sections 4.1 Aesthetics**, **4.3 Air Quality**, **4.9 Hazards and Hazardous Materials**, **4.13 Noise**, and **4.17 Transportation** of this environmental impact report for more information.) A data center could be allowed on the project site with the City's issuance of a CUP.

With the City's approval of a General Plan amendment to the Light Industrial land use designation, and with the City's issuance of a CUP for the project, the project would be consistent with the description of uses allowed under the site's General Plan and zoning designations. The project would not conflict with land use plans or policies such that significant environmental impacts would occur. The impact 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. The area surrounding the site is primarily industrial uses. The closest sensitive receptors are residences located approximately 500

feet to the south of the project site. The Caltrain corridor separates the project from these residences.

Construction would not occur on Sundays and holidays, in compliance with the Santa Clara City Code, section 9.10.230. Construction activities would increase the ambient noise levels by up to 8 A-weighted decibels (dBA). This is less than 10 dBA and would likely have a less-than-significant impact. Additionally, the elevated noise levels from construction activities would be lower than those from passing trains along the Caltrain corridor. Passing trains intermittently elevate noise levels at these residences by a maximum noise level, L_{max}, up to 83 $dBAL_{eq}$[6] at this location. In addition, the City would require a series of performance standards, as part of their condition of approval for construction. These performance standards are ultimately used as a backstop measure to address any noise impacts that might be perceived by the community.

Sources of operational noise for the project would include the backup generators, rooftop mechanical equipment including heating, ventilation, and air conditioning (HVAC) and other equipment necessary for project operation. The City's General Plan Policy (Section 5.10.6) requires existing and new industrial development to reduce the effects of operational noise on adjacent properties through compliance with noise standards in the City's Municipal Code (Section 9.10.040). Since the project is near residential land use, noise reduction measures, such as mechanical equipment enclosures and parapet walls, would be required (incorporated in the operational noise modeling). Thus, 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 project's construction and operational noise impacts would be less than significant for all the area's population, including the EJ population.

Population and Housing

Less Than Significant Impact. Because the study area used in this analysis for impacts related to population influx and housing supply includes Campbell, Cupertino, Milpitas, San Jose, Santa Clara, 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. Operation of the project would require 33 to 35 people working in the building on an average day. If the operations workers relocate closer to the project site, there would be sufficient housing in the project area.

6 L_{eq} is a measurement of average energy level intensity of noise over a given period of time.

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. In particular, 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. Construction of the project may require temporary closure of pedestrian facilities. In the event of any type of closure, clear signage (closure and detour signs) would be provided to ensure vehicles, pedestrians and bicyclists could reach their intended destinations safely. Construction and operation of the project would contribute to the fulfillment of pedestrian plans by widening sidewalks along the project frontage thus, improving the surrounding alternative transportation infrastructure. As concluded in **Section 4.17 Transportation**, all transportation impacts, including impacts to alternative modes of transportation, 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 Service Systems

Less Than Significant Impact. A disproportionate utilities and service systems 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 is dependent 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 six-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 category of stressors. To assess the impact of a stressor on the population within a census tract, the score is assigned a weighting factor

that's inversely proportional to the distance from the census tract. 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 proposed project site is located within census tract 6085505202; therefore, this analysis focuses on that census tract.

Cleanup Sites

This indicator is calculated by considering the number of cleanup sites including Superfund sites on the National Priorities List, 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 the presence of hazardous substances. Of primary concern is the potential for people to come in contact with these substances.

Census tract 6085505202 scored 99.85 percent in the Cleanup Sites category (see **Table 4.21-4**). The contamination threats due to the presence of cleanup sites in this census tract are among the highest of all tracts statewide and indicate that the communities within 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 be expected to 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, weighted by a factor of each generator or site, and the distance to the census tract. Hazardous waste must be transported by the hazardous waste generators to permitted TSDFs by registered hazardous waste transporters. Shipments must be accompanied by a hazardous waste manifest. There are widespread concerns for both human health and the environment from sites that process and dispose of hazardous waste. Newer facilities are designed to prevent the contamination of air, water, and soil from hazardous materials. However, even newer facilities may negatively affect perceptions of surrounding areas in ways that have economic, social, and health impacts.

Census tract 6085505202 scored 98.37 percent in the Hazardous Waste Generators and Facilities category (see **Table 4.21-4**). The threats related to hazardous waste generation and facilities in this census tract are among the worst of all tracts statewide, meaning that the communities in the subject tract are located alongside sites with a high relative proportion of hazardous waste generators and facilities.

The project would not be expected to 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 the storage and disposal of hazardous waste during its construction and operation phases. The project would implement modern controls to prevent or minimize the generation of hazardous wastes and to dispose of them in a manner that would avoid or reduce impacts on 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.

Census tract 6085505202 scored in the 95th percentile for the Solid Waste Facilities category (see **Table 4.21-4**). This indicates that the number and type of facilities within or nearby this census tract and the environmental deterioration due to their presence are among the highest of all tracts statewide.

Solid waste generated during the construction and operation of the project would be segregated, where practical, for recycling, and would be disposed of where there is adequate capacity for non-hazardous 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 waste sites or facilities that are verified to be in compliance with current laws, ordinances, regulations, and standards. In addition, there would be no increase in solid waste generators and facilities in the area due to project construction or operation because there is adequate capacity to dispose of waste from the project. Therefore, there would be no significant impact related to solid waste facilities that would disproportionately impact an EJ community in the relevant census tract.

4.21.3 References

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Section 5

Alternatives

5 Alternatives

5.1 Introduction

This section evaluates alternatives to the Bowers Data Center (BDC), which includes the Bowers Backup Generating Facility (BBGF). The BBGF would provide backup electricity to the BDC only if electricity cannot be supplied from Silicon Valley Power (SVP) and delivered to the BDC. The BDC's emergency backup generators, or gensets, would use renewable diesel as the primary fuel with ultra-low sulfur (conventional) diesel as the secondary backup fuel if renewable diesel is unavailable (GI Partners 2023d).

Alternatives initially considered and not evaluated further, primarily due to reliability issues, include two fuel cell technologies, two standalone battery energy storage systems (lithium-ion and flow batteries), and a tandem battery storage system.

In addition to the No Project/No Build Alternative (Alternative 1), the California Energy Commission (CEC) staff (staff) fully analyzed and compared the Natural Gas Internal Combustion Engine Alternative (Alternative 2) to the BDC (or proposed project).

5.2 CEQA Requirements

The California Environmental Quality Act (CEQA) Guidelines require that an Environmental Impact Report (EIR) consider and discuss alternatives to the proposed project (Cal. Code Regs., tit. 14, § 15000 et seq.). Section 15126.6 of the CEQA Guidelines provides that the alternatives analysis must:

- describe 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;
- evaluate the comparative merits of the alternatives;
- 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
- describe the rationale for selecting alternatives to be discussed and identify alternatives that were initially considered but then rejected from further evaluation.

CEQA requires that an EIR "consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation" (Cal. Code Regs., tit. 14, § 15126.6, subd. (a)). Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are failure to meet most of the basic project objectives, infeasibility, or inability to avoid significant environmental impacts (Cal. Code Regs., tit. 14, § 15126.6, subd. (c)). The range of potentially feasible alternatives selected for analysis is governed by a "rule of reason," requiring evaluation of only those alternatives "necessary to permit a reasoned choice" (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)).

An EIR is not required to consider alternatives that are infeasible (Cal. Code Regs., tit. 14, § 15126.6, subd. (a)). In addressing 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 proponent can reasonably acquire, control, or otherwise have access to the alternative site (Cal. Code Regs., tit. 14, § 15126.6, subd. (f)(1)). 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 "no project" alternative along with its impact. 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)). "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 purpose for the BDC is to provide customers with mission critical space to support its servers, including space conditioning and a steady stream of high-quality power supply (GI Partners 2022a). The applicant's key objectives are to incorporate the most reliable and flexible form of backup electric generating technology into the BBGF considering reliability, commercial availability and feasibility, and technical feasibility.

The applicant's project objectives are as follows:

- Develop a state-of-the-art data center large enough to meet projected growth.
- Develop the data center on land that has been zoned for data center use at a location acceptable to the City of Santa Clara.
- Incorporate the most reliable and flexible form of backup electric generating technology into the BBGF considering the following evaluation criteria:

- Reliability. The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility.
  - The BBGF must provide a higher reliability than 99.999 percent in order for the BDC to achieve an overall reliability of equal to or greater than 99.999 percent reliability.
  - The BBGF must provide reliability to the greatest extent feasible during natural disasters, including earthquakes.
  - The selected backup electric generation technology must have a proven built-in resilience so if any of the backup unit fails due to external or internal failure, the system will have redundancy to continue to operate without interruption.
  - The selected backup electric generation technology must include engineering methods, procedures, and equipment that have been achieved in practice.
  - The BDC must have onsite means to sustain power for 24 hours minimum in failure mode, inclusive of utility outage.
- Commercial Availability and Feasibility. The selected backup electric generation technology must currently be in use and proven as an accepted industry standard for technology sufficient to receive commercial guarantees in a form and amount acceptable to financing entities. It must be operational within a reasonable timeframe where permits and approvals are required.
- Technical Feasibility. The selected backup electric generation technology must use systems that are compatible with one another and be maintainable in a reasonable fashion achieving timely switch outs, repairs, and maintenance. Warranty and support must be within practical means to achieve optimum uptime during failures within the utility power supply.

5.4 Reliability and Risk Factors

The most important data center criterion is reliability. Crucial services such as the 911, state offices of emergency management, and utilities infrastructure are increasingly using data centers for their operation. The selected backup electric generation technology must be extremely reliable in the case of an emergency loss of electricity from the utility. Data center customers demand the most reliable data storage service available, and data center insurers are willing to invest only in proven technologies with extremely low probability of operational failure.

Any alternative backup generation technology would be measured against proven available technologies such as that proposed for the BBGF. Should the reliability of an alternative technology not match that of the proposed technology, it would not be considered a viable alternative.

Risk factors that affect the reliable operation of backup generators include the following: failure to start, failure to run due to various technical issues, and failure to run due to lack of fuel supply (NREL 2019). Any alternative technology must have proven operational

hours, a reliable source of fuel supply, and redundancy capabilities. Sufficiently mitigating these risks would ensure that data center operation is not interrupted during a power utility failure.

The analyses in subsections "5.6 Alternatives Considered and Not Evaluated Further" and "5.7 Alternatives Selected for Analysis and Comparison to the Proposed Project" below, assess the reliability issues of the fuel and technology alternatives.

5.5 Environmental Impacts of the Proposed Project

This EIR evaluates the environmental impacts of implementing the proposed project. One of the purposes of an alternatives analysis is to consider alternatives that would avoid or lessen the significant effects of a project. For the BDC project, staff recommends mitigation measures to reduce significant impacts to less-than-significant levels. No significant and unavoidable environmental impacts have been identified. Project impacts and staff's recommended mitigation measures are summarized as follows:

- **Air Quality** – Mitigation measure **AQ-1** would reduce air quality impacts during project construction. This measure requires the incorporation of the local air district's best management practices to control fugitive dust. This measure also incorporates exhaust control measures to reduce emissions from construction equipment. During readiness testing and maintenance, the oxides of nitrogen (NOx [as an ozone precursor]) emissions of the standby generators would be fully offset through the permitting process with the Bay Area Air Quality Management District (BAAQMD). With the implementation of **AQ-1** during construction and NOx offsets for readiness testing and maintenance through BAAQMD's permitting requirements, the project would not cause a cumulatively considerable net increase of any criteria air pollutant, and impacts would be reduced to less than significant with mitigation incorporated.
- **Biological Resources** – The proposed project area has the potential to support nesting for a suite of common birds that are protected by federal, state, and local laws, policies, and regulations. Removal of the existing office building and trees from the project site could cause direct impacts on nesting birds and raptors if that work occurred during the nesting season. Direct impacts on active roosts of protected or common bats could also occur. Mitigation measure **BIO-1** requires nesting bird surveys to be conducted before starting any construction activities during the nesting period. If active nests are detected, additional measures are required. Mitigation measure **BIO-2** requires preparation and implementation of a Bat Mitigation and Monitoring Plan; and it requires bat clearance surveys prior to building demolition or tree removal. Implementation of **BIO-1** and **BIO-2** would reduce potential impacts on protected wildlife species, including raptors, migratory birds, and bats, to less than significant.
- **Cultural and Tribal Cultural Resources** – Mitigation measure **CUL-1** requires that a qualified archaeologist prepare a Cultural Resources Identification, Monitoring, and Treatment Plan in consultation with the Tamien Nation and a qualified Native American monitor, to ensure that potential impacts on any as-yet unidentified cultural

resources are reduced to a less-than-significant level. **CUL-2** requires qualified specialists and Native American monitors to prepare and implement a workforce environmental awareness program, or WEAP, in conjunction with Tribal Cultural Resources Sensitivity training, to instruct construction workers of the obligation to protect and preserve buried archaeological and Native American resources that could be encountered during construction. It includes instructions regarding the need to halt work in the vicinity of potential archaeological and Native American resources that could be encountered. Mitigation measure **CUL-3** requires that a preliminary field investigation be conducted by a qualified archaeologist and Native American monitor to determine if cultural deposits are present, once pavement is removed and soils are accessible for inspection. **CUL-4** requires that all ground disturbing activities be completed under the observation of a qualified archaeologist and Native American monitor, and provides for the cultural resources monitors to have the authority to temporaily halt construction activities within a 50-foot radius of finds. **CUL-5** specifies the procedures for documenting and evaluating cultural resources finds made during the preliminary field investigation, grading, or other construction activities. Further, **CUL-5** requires that a qualified archaeologist make recommendations to the Santa Clara Director of Community Development regarding data recovery, curation or other appropriate mitigation.

Mitigation Measure **CUL-6** specifies procedures in the event that human remains are discovered. **CUL-7** affords for the installation of security fencing onsite, to avoid destruction or theft of potential cultural resources, at the discretion of the Santa Clara Director of Community Development, and requires the qualified archaeologist and Native American monitor to advise the Director of Community Development on security measures to be taken to ensure the safety of any cultural resources. **CUL-8** requires that the project owner or its representative prepare a closing cultural resources report summarizing the results of the field investigations, data recovery activities and results, and compliance with the Cultural Resources Identification, Monitoring, and Treatment Plan once all analyses and studies required have been completed. **CUL-9** requires that all archaeological cultural resources recovered and not identified as tribal cultural resources be transferred to a long-term curation facility, and all Native American/tribal cultural resources and artifacts be reburried onsite, if feasible and if requested by the Native American representative. Combined, mitigation measures **CUL-1** through **CUL-9** would reduce potential impacts on buried historical resources to a less-than-significant level.

- **Geology and Soils** – Disturbance of paleontological resources could occur during construction activities requiring earth moving, including grading, trenching, excavation for foundations, and installation of support structures, where native soil would be disturbed. Mitigation measure **GEO-1** requires the applicant to secure the services of a qualified professional paleontologist to teach site workers on required actions in the event of encountering a suspected fossil. If a fossil is encountered, the qualified paleontologist will develop and implement an excavation and salvage plan in accordance with professional standards. Implementation of mitigation measure **GEO-**

1 would reduce potential impacts on unique paleontological resources to a less-than-significant level.

- **Greenhouse Gas Emissions** – Greenhouse gas (GHG) emissions from project operation would consist of direct, "stationary source," emissions from routine readiness testing and maintenance of the emergency backup generators. Indirect and "non-stationary source" GHG emissions would come from offsite vehicle trips for worker commutes, materials delivery, and other project activities. Mitigation measure **GHG-1** requires the applicant to use renewable diesel for 100 percent of total energy use by the emergency backup generators, and only use ultra-low sulfur diesel as a secondary fuel in the event of supply challenges or a disruption in obtaining renewable diesel. **GHG-2** requires the applicant to participate in SVP's Large Customer Renewable Energy Program or other renewable energy program to accomplish the objective to achieve 100 percent carbon-free electricity for electricity accounts associated with the project. Alternatively, the applicant could purchase renewable energy credits or similar instruments to accomplish the same goal of 100 percent carbon-free electricity for the project. With implementation of mitigation measures **GHG-1** and **GHG-2** the project would comply with all statewide, regional, and local plans, policies, and regulations adopted to reduce GHG emissions. Therefore, the project's GHG emissions would not have a significant direct or indirect impact on the environment.
- **Hazards and Hazardous Materials** – Mitigation measure **HAZ-1** requires sampling and testing of suspect materials in existing buildings on the site for lead-based paint prior to issuance of demolition permits. **HAZ-2** requires preparation and implementation of a Site Management Plan (SMP) to establish procedures and protocols for handling any unknown or remnant contaminated soil or groundwater encountered during construction. **HAZ-2** also requires preparation and implementation of a Health and Safety Plan to protect and educate workers in the event contaminated soil or groundwater is encountered during project work. **HAZ-3** requires testing of soil and groundwater per the protocols developed in the SMP to identify potential soil or groundwater contamination at the site prior to issuance of grading permits. Implementation of mitigation measures **HAZ-1**, **HAZ-2**, and **HAZ-3** would reduce potential impacts on the public and the environment through exposure to hazards and hazardous materials during construction to less-than-significant levels.
- **Transportation** – Project operation would generate vehicle miles travelled (VMT) that would exceed the City of Santa Clara (City) threshold for industrial uses. Mitigation measure **TRANS-1** requires implementing a combination of Transportation Demand Management measures to reduce the project VMT to a level below the City's threshold. Also, the City will ensure project consistency with General Plan policies relating to trip reduction, transit connectivity, and alternative modes of transportation. Implementation of **TRANS-1** would ensure that VMT generated by the project would be less than significant.

5.6 Alternatives Considered and Not Evaluated Further

CEQA provides that the range of alternatives to the proposed project, or to the location of the project, must include those that would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the project's significant effects. CEQA defines feasible as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (Cal. Code Regs., tit. 14, §§ 15126.6, subd. (c), and 15364).

Some of the alternatives initially considered by staff for this analysis were eliminated from detailed consideration due to potential feasibility issues, failure to reduce any significant environmental impacts, or failure to meet most of the project objectives. The subsections that follow discuss why certain technology alternatives could not achieve the level of reliability required to ensure an uninterrupted power supply. (The discussion under the subsection "5.4 Reliability and Risk Factors" above describes reliability and risk factors pertaining to data centers in general.) Staff also discusses the reasons why no alternative project site is evaluated in this EIR.

The following discussions provide staff's reasons for eliminating these alternatives from further analysis and comparison to the proposed project.

5.6.1 Fuel Cell Technology Alternative

Fuel cell technology is an alternative considered but dismissed from further evaluation. 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).

5.6.1.1 Solid Oxide Fuel Cells

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 2023a). 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. eBay's data center in Utah uses thirty 200-kilowatt (kW) SOFCs to provide continuous base load power to the information technology (IT) load (6 megawatts), 8,760 hours per year, with the electric grid as its backup power supply. Additionally, some data centers (e.g., Apple and Equinix) have supplemented their base load power demand (IT and cooling systems) with SOFCs, but they 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 (i.e., IT and cooling systems) are not yet industry standard for large-scale data centers.

Because it takes time to reach critical operating temperatures, SOFCs have long startup times, sometimes up to 60 minutes (GenCell 2023). 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 2023). 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 backup power supply to a data center.

SOFCs would use 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 might be needed for redundancy. The project site has two nearby independent gas distribution lines available for connection. (See subsection "5.7.2 Alternative 2: Natural Gas Internal Combustion Engine Alternative" below, for a discussion of nearby natural gas distribution lines.)

5.6.1.2 PEM Fuel Cells

Another potentially suitable fuel cell technology for backup energy generation is PEM fuel cell technology (U.S. DOE 2023a). 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 megawatt (MW) delivered in the size of a 40-foot International Organization for Standardization (ISO) container (Plug Power 2022a). For a 100-MW backup generation system, which is approximately the capacity needed for the BDC, 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.

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 generator requires. Hydrogen can be stored onsite via pressure vessels, 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 BDC backup generation. Issues involving onsite fuel storage, the lack of pipeline infrastructure, and onsite generation of hydrogen would make it difficult to provide fuel to the PEM fuel cell, as discussed below.

Onsite Fuel Storage

A 1-MW PEM fuel cell consumes approximately 65 kilograms (kg) of hydrogen fuel per hour (Plug Power 2022a). 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 3,600 pounds per square inch (psi) (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 approximately 1,100 kg (Gardner Cryogenics 2022). The project would need approximately 142 trailers and 64,000 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 4,400 kg, stored in a

1 Hydrogen fuel calculation: 65 kg per hour x 24 hours = 1,560 kg of hydrogen per 1-MW fuel cell

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

single hydrogen cylinder (Gardner Cryogenics 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.

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 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 might 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 of 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 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. 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 compliance and potential safety impacts that would not occur under the proposed project.

Pipeline Infrastructure

Supplying hydrogen to the project through pipelines is another possible way of providing fuel for a 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. According to the U.S. Department of Energy (U.S. DOE 2023b), there are approximately 1,600 miles of hydrogen pipeline currently operating in the United States.

Moreover, there are technical concerns related to hydrogen pipeline transmission, including the potential for hydrogen to embrittle the steel and welds used in the pipelines. Hydrogen degrades, fatigues, and reduces fatigue resistance of steel and steel welds. The effects of hydrogen on pipeline would remain significant were it not mitigated. Mitigation measures for hydrogen degradation, fatigue, and fatigue resistance include

increasing pipe wall thickness, reducing loading of pipe caused by fluctuations in operating pressure, or, alternatively, using fiber reinforced polymer (FRP) piping. FRP would be a viable and accepted alternative to steel pipeline for hydrogen transmission, and in 2016 was accepted into the American Society of Mechanical Engineers (ASME) B31.12 Hydrogen Piping and Pipelines code for up to 170 bar (2,465 psi). However, the infrastructure is not yet built to deliver hydrogen to the project site, contributing to the probable infeasibility of delivering hydrogen to the site.

Onsite Generation

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 proposed project currently has access to two natural gas pipelines that could be used for SMR. (See subsection "5.7.2 Alternative 2: Natural Gas Internal Combustion Engine Alternative" below for a discussion of natural gas distribution lines available for connection.) 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. CO can poison the PEM fuel cells' platinum on the electrode, which leads to lower voltage at a given electrical current density (Fuel Cell Store 2019). 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 might be released into the atmosphere, leading to greenhouse gas (GHG) impacts. Also, additional equipment for both types of reforming would increase project costs, although comparative cost data is not readily available.

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 2023c).

A 1-MW PEM electrolyzer, with an approximate 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 1 kg of hydrogen produced, the electrolyzer would need 10 kg of water and 49.9 kilowatt-hour (kWh) of energy (Plug Power 2022b). During a grid outage, the amount of electricity to generate enough hydrogen fuel for 100 MW might not be available, rendering the fuel cell inoperable and a data center without power. Therefore, hydrogen might need to be produced and stored onsite for future use during emergency generation. As discussed above under "Onsite Fuel Storage," onsite storage of hydrogen has feasibility issues, including storage space, boil-off gas (BOG), the need for specialized equipment, and concerns about public safety.

5.6.1.3 Reliability Issues for Fuel Cell Technology – Summary Conclusions

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. 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 infrequently. Because of the limitations described above, fuel cell technology is not currently a feasible alternative to the project's proposed backup generators.

5.6.2 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. Batteries provide standby or emergency power and almost instantaneous startup times and are therefore considered suitable for backup power for data centers. There are two types of long duration and large capacity battery systems: lithium-ion battery energy storage systems and flow battery energy storage systems.

5.6.2.1 Lithium-ion Battery Energy Storage Systems

The lithium-ion (Li-ion) battery includes an electrolyte solution (Li-ion), separator, anode, cathode, and two electrical current collectors, that are contained in a single cell. The cells are stacked in huge battery banks, and these large battery banks are called a battery

3 An ISO container is a container which has been built in accordance with the International Organization for Standardization regulations.

energy storage system (BESS). Li-ion batteries have an average monthly round trip efficiency of 82 percent (U.S. EIA 2021).

Data centers currently use smaller UPS systems consisting of Li-ion 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 5 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 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/1,600 megawatt-hour (MWh) (supplying 400 MW continuously for 4 hours) BESS is the largest system successfully deployed (Energy Storage News 2022). Until recently, the operational duration of battery systems has been up to 4 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 (GBGF), 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 (Amazon Data Services 2021). The GBGF was designed to include diesel-fired gensets to support the data center when the batteries were fully discharged and further backup generation was 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. The project has since been refiled with the City of Gilroy, to include two phases of construction. Phase I would be 49 MW of capacity using 25, 2.5-MW diesel gensets. Phase II would be 50 MW capacity, with potentially a backup generation technology with either a 13-hour duration BESS or fuel cells. Phase II construction would occur within 4 to 7 years of Phase I based on customer demand. Currently, long duration batteries and large-scale fuel cells have not been technologically feasible for data center backup generation (Amazon Data Services 2022).

Potential Feasibility Issues. The employment of a standalone BESS as an alternative to the BBGF would be the first application of this technology for a project of this magnitude for long durations. The BBGF would require storing fuel onsite for approximately 24 hours of backup generation. A 4-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, a standalone BESS alternative would need a 2,400-MWh battery system, assuming a 100-percent charging and

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.

discharging scenario. This translates to approximately 5 acres of battery storage space needed. The storage space requirement could multiply up to six times for the project to meet its backup generation duration requirement. 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 multi-story frame structures or buildings to reduce their footprint, but they would then be subject to stricter Building Code fire protection requirements. The added challenge of configuring the batteries to fit the site and meet regulatory requirements 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 a potential problem for Li-ion battery systems. Thermal runaway begins when the heat generated within a battery exceeds the amount of heat dissipated to its surroundings. The excess heat can cause components within the battery cell to fail, leading to the Li-ion electrolyte in the anode and cathode to mix—Li-ion is flammable. 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 2023). There are extensive mitigations, codes and standards, and a comprehensive regulatory framework in place that applies 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 might be shut down for investigation.

Another constraint of a standalone BESS is that once discharged, the batteries would require power to recharge. The only way they can be recharged without onsite generation is if the utility electrical system is back up and running. Since it is not possible to predict the duration of an electricity outage, batteries are not a viable option for emergency electrical power. Finally, because batteries have a finite lifespan, they would probably have to be replaced at least once during the life of the project. This would add to the project's cost by an unknown but potentially considerable amount.

5.6.2.2 Flow Battery Energy Storage Systems

Alternatively, the flow battery is another type of battery energy storage system. The flow battery, also called redox (reduction-oxidation) battery, includes two external tanks containing an anode and cathode electrolyte solution. The electrolyte solutions are aqueous and non-flammable, which pose no fire risks separately or when mixed. The solutions are pumped through the electrode flow cell(s) where electrodes extract electrons and electricity is generated.

Many different electrolyte solutions are used in the flow battery system and paired as such: vanadium/vanadium, iron/chromium, iron/water, or zinc/bromine. However, in battery systems that use zinc/bromine the zinc is deposited on the electrode, and these systems are known as hybrid flow battery systems.

Flow batteries are currently capable of discharging power for up to 8 hours. They can be designed to discharge for more than 8 hours by increasing the volume of electrolyte being stored.

Flow batteries have a round trip efficiency of between 38 and 75 percent and are designed for utility-scale applications to support peak electricity demand. In addition, flow batteries have a lifespan of at least 20 years.

Potential Feasibility Issues. Similar to the Li-ion BESS, the employment of a standalone flow battery system as an alternative to the BBGF would be the first application of this technology for a project of this magnitude for long durations. The BBGF would require storing fuel onsite for approximately 24 hours of backup generation. To supply approximately 100 MW of uninterruptable power in case of 24 hours of grid outage, a standalone flow battery alternative would need a 2,400-MWh battery system, assuming a 100 percent charging and discharging scenario. This translates to 25 acres or more of battery storage space needed, depending on the flow battery technology and manufacturer. This amount of storage space is not available on the project site.

Like Li-ion battery systems, once discharged, flow batteries would require power to recharge. This battery's maximum 8-hour duration would not meet the project's requirement of 24 hours of continuous backup electricity. Further design considerations would be needed for a standalone BESS to potentially replace the proposed project's diesel-fired gensets.

5.6.3 Tandem Battery Energy Storage Alternative

Staff considered a battery energy storage system in tandem (tandem BESS) with the proposed project's renewable 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 39 diesel-fired gensets would provide backup power when outages are longer in duration and the batteries have been discharged.

For this project, staff assumes a tandem solution would include an approximately 100-MW-capacity BESS with a discharge duration of 4 hours (since this is the duration that is currently available). The battery system would supply backup power for a duration of approximately 4 hours, and once the batteries have been discharged the 39 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 152,000 square feet (3.5 acres) of storage space.

5.6.3.1 Potential Feasibility Issues

The project site does not provide sufficient room for the proposed project and the tandem BESS' 152,000 square feet (3.5 acres) of battery storage. Also, project cost would increase significantly with a 400-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.

The 2022 California Energy Code (California Building Standards Code [Cal. Code Regs., Title 24] Part 6, Building Energy Efficiency Standards, Nonresidential Photovoltaic and Battery Storage) requires battery storage systems when photovoltaic (PV) systems are required (i.e., for construction of new buildings). This regulation 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 (DGS 2022). 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 to provide backup power during a grid electrical outage lasting many hours. The daily cycling of battery systems reduces the overall lifespan of the battery system, increases wear and tear, and might 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.

5.6.4 Alternative Project Site

The *City of Santa Clara 2010–2035 General Plan* (General Plan) shows that the project site is designated High Intensity Office/Research and Development (R&D). The zoning district is ML – Light Industrial. The applicant is requesting a General Plan amendment from the City to align the General Plan designation with the zoning district. (See section **4.11 Land Use and Planning** for discussions of the land use designation and zoning for the site.) The project site is adjacent to properties designated Light Industrial, and the General Plan lists data centers as an allowable use for that land use designation. The proposed BDC would be compatible with industrial, technology-based, and commercial warehouse uses in the project area.

The applicant's project objectives address developing the data center on land that has been zoned for data center use at a location acceptable to the City. The applicant has a planning application on file with the City for the BDC General Plan amendment, Conditional Use Permit, and Architectural Review (PLN21-15069). The project is in review, and the applicant is working with the City on the site plans to ensure compliance with the City's project development and design requirements. Based on the active status of the planning application, CEC staff assumes that the project is proposed at a location that is acceptable to the City.

Staff assumes that the applicant's site screening process was focused on identifying a site with the necessary characteristics to ensure a reliable supply of high-quality power to the data center and satisfy the other project objectives. CEC staff knows of no potentially feasible alternative site that would allow a comparison of impacts with those of the proposed project. No comments on the site location were submitted following public noticing of the project. The CEQA Guidelines provide that 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)). Therefore, no alternative site is evaluated in this EIR.

5.6.5 Decision to Eliminate These Alternatives from Further Consideration

The applicant's purpose for the BDC is to provide customers with mission critical server space, which requires a large capacity of servers, adequate space conditioning and a steady stream of high-quality power supply (GI Partners 2022a). The applicant's key objectives are to incorporate the most reliable and flexible form of backup electric generating technology into the BBGF considering reliability, commercial availability and feasibility, and technical feasibility. Specifically, the BBGF must provide greater than 99.999 percent reliability for data center customers. Fuel cells, and battery storage alternatives were eliminated from further consideration as alternative technologies to the proposed project based on their infeasibility and lack of a sufficient level of proven reliability in large-scale data center applications, such as this project. 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.

The proposed project would be compatible with existing industrial and technology-based land uses in the area near the site. The City's adoption of a General Plan amendment to change the site's land use designation to Light Industrial would ensure consistency of the BDC with the General Plan. As the permitting agency for the project, the City is processing the BDC planning application for the project at its proposed location, which means that the City considers a data center to be an appropriate use for the site. No potentially feasible alternative site is known that would allow a meaningful comparison of impacts with the proposed project. For these reasons, no alternative site is included in this analysis of alternatives to the proposed project.

5.7 Alternatives Selected for Analysis and Comparison to the Proposed Project

The following alternatives were carried forward for full analysis and comparison to the proposed project in this EIR:

- Alternative 1: No Project/No Build Alternative
- Alternative 2: Natural Gas Internal Combustion Engine (ICE) Alternative

The No Project/No Build Alternative (Alternative 1) is required for analysis in every EIR. CEQA provides that the discussion of project alternatives is to focus on those that could feasibly avoid or lessen the proposed project's potentially significant impacts, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (Cal. Code Regs., tit. 14, § 15126.6, subd. (b)). A comparative analysis of the impacts of the alternatives is provided below, followed by an assessment of the extent to which each alternative could meet the basic project objectives. An assessment of potential feasibility issues is provided for the Natural Gas ICE Alternative (Alternative 2).

The comparative analysis of impacts is centered on the topics of air quality, public health, GHG emissions, and cultural and tribal cultural resources. For the other topics covered in this EIR, staff's analyses show essentially no differences between the impacts identified under the proposed project and Alternative 2. The discussions below summarize the environmental effects for Alternative 1 and Alternative 2 compared to the proposed project. (See also **Table 5-1**, below.) It is assumed that the project site location would remain the same under Alternative 2.

5.7.1 Alternative 1: No Project/No Build Alternative

The BDC site covers 5.12 acres on a single lot. The site address is 2805 Bowers Avenue in the city of Santa Clara. The property is developed with a two-story office building and associated paved surface parking. The existing building would be demolished as part of the project.

Should the BDC proposal not move forward, a new project could eventually be approved at the site that would be compatible with other uses in the area. Although a different, industrial use project could be proposed 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. Therefore, under the No Project/No Build Alternative, current conditions would continue at the site for an unknown period. If the BDC were not constructed, the basic project objectives would not be attained.

As discussed under subsection "5.5 Environmental Impacts of the Proposed Project" above, staff recommends mitigation measures to reduce all potentially significant impacts identified in this EIR to less-than-significant levels. The No Project/No Build Alternative would avoid the proposed project's potentially significant impacts (*no impact* compared to the proposed project) because no project construction and operation would occur, summarized as follows:

- **Air Quality** – This alternative would avoid construction-related air emissions due to fugitive dust and exhaust from heavy duty construction equipment. This alternative would avoid the operational emissions related to maintenance testing and operation of the diesel-fired engine generators.
- **Biological Resources** – This alternative would avoid potentially significant impacts on biological resources, including raptors, migratory birds, and bats.
- **Cultural and Tribal Cultural Resources** – This alternative would avoid discovery of, and potential impacts on, buried archaeological and Native American resources that could otherwise be encountered during ground disturbing activities.
- **Geology and Soils** – This alternative would avoid disturbing paleontological resources during earth moving activities, were they discovered at the site.
- **Greenhouse Gas Emissions** – This alternative would avoid project-related direct GHG emissions from the diesel fueled generators and the indirect GHG emissions from the electricity use of the data center.
- **Hazards and Hazardous Materials** – This alternative would avoid impacts on the public and the environment from exposure to unknown or remnant contaminated soil or groundwater that could be encountered during demolition, ground disturbing activities, and project construction.
- **Transportation** – This alternative would avoid impacts from the estimated project-related vehicle miles traveled of 15.70 miles per worker.

5.7.2 Alternative 2: Natural Gas Internal Combustion Engine Alternative

Natural gas internal combustion engines (ICEs) are fueled by natural gas, while the proposed engines for the project would use renewable diesel (with ultra-low sulfur diesel as backup). 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 proposed project is approximately 29 feet (GI Partners 2022a).

The preferred, most feasible method to supply fuel for the natural gas ICEs would be by pipeline through Pacific Gas and Electric's (PG&E's) underground natural gas transmission system. (Subsection 5.7.2.3 below discusses potential fuel supply methods for this alternative.) Based on PG&E's gas transmission pipeline map, the two closest locations for independent natural gas pipeline connections are approximately 1.0 mile west of the project site on Lawrence Expressway[5] and approximately 1½ miles east of the project site on Lafayette Street.[6] In concept, the primary pipeline for this alternative could connect to the nearby gas line on Lawrence Expressway. Another pipeline connecting to the gas line at Lafayette Street could also be installed to add fuel supply reliability, as discussed below. It is assumed 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. The installation of natural gas pipelines would cause temporary impacts during construction. State and local regulations and the mitigation measures for the project would be applied to pipeline construction under this alternative to reduce construction-related impacts to less than significant (e.g., measures to reduce impacts in the areas of Air Quality, Biological Resources, Geology and Soils, Greenhouse Gas Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, and Transportation).

Under this alternative, the footprint of the natural gas ICEs might not be the same as for the proposed diesel-fired 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 startup. 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.

5.7.2.1 Air Quality and Public Health

Staff compared criteria air pollutant emissions of natural gas ICEs against the proposed diesel-fired engines for the BBGF. The proposed 32, 3-MW engines for the project would be equipped with selective catalytic reduction (SCR) equipment and diesel particulate

5 Conceptually along Kifer Road west to Lawrence Expressway.

6 Conceptually along Walsh Avenue east to Lafayette Street.

filters (DPF) to achieve compliance with Tier 4 emission standards (GI Partners 2022a). However, it takes time for SCRs to reach their activation temperature and become fully effective in controlling NOx emissions. Depending on load, the SCR would be expected to become fully operational 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 (SPPE) 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 the proposed diesel-fired engines for the BBGF and those for the natural gas ICEs 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 for the natural gas ICEs. As shown in **Table D-1** of **Appendix D**, the emission factors in lbs/MWe-hr for the NOx emissions would reduce by more than 98 percent using natural gas ICEs compared to the proposed diesel-fired engines for the BBGF. The particulate matter (PM) emissions would reduce by more than 78 percent using natural gas ICEs compared to the proposed diesel-fired engines. The VOC emissions would reduce by about 77 percent using natural gas ICEs compared to the proposed diesel-fired engines. The CO emissions would reduce by about 80 percent using natural gas ICEs compared to the proposed diesel-fired engines. The sulfur dioxide (SO_2) emissions would reduce by about 46 percent using natural gas ICEs compared to the proposed diesel-fired engines.

It should be noted that the emission factors for the proposed diesel-fired engines shown in **Table D-1** of **Appendix D** 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 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, 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 decreases 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 using the same size of engine proposed for this facility and employing the same 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 ICE Alternative to the proposed diesel engines using renewable diesel to be similar to those shown for ultra-low sulfur diesel in **Table**

D-1 of **Appendix D**, except that the exact percent reduction in CO emissions 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 due to the reductions reported for VOCs and PM.

In addition, staff does not assume additional operation of the natural gas ICEs to offset the cost difference between the technologies and acknowledges that the capital cost of natural gas ICEs could increase project costs. Staff acknowledges that the operational profile might be different for the natural gas ICEs, and annual emissions may be higher since they might operate more based on other project applications, such as participation in a demand response program. 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 only compares the emission factors in lbs/MWe-hour for the natural gas ICEs and those for the renewable diesel-fired engines for the proposed project, assuming a similar operating profile.

Air quality impacts using natural gas ICEs are expected to be *much less* than those that would occur with the proposed diesel-fired engines for the project. This would result independent of whether the engines are fueled on renewable diesel or ultra-low sulfur, petroleum-based diesel. Public health impacts from toxic air contaminants using natural gas ICEs are *likely less* than those that would occur with the proposed diesel-fired engines for the BBGF, similarly irrespective of the type of diesel used.

5.7.2.2 Greenhouse Gas Emissions

As shown in **Table D-1** of **Appendix D**, natural gas fueled ICEs would reduce tailpipe 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 emergency backup generators, 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 shows that the tailpipe CO_2 emissions would reduce by about 3 to 4 percent using renewable diesel compared to ultra-low sulfur, petroleum-based diesel (CARB 2021). 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 D-2** of **Appendix D**, 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 D-2** of **Appendix D** 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, in order for the natural gas ICEs to remain an environmentally superior alternative to the proposed diesel engines using renewable diesel, it 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.

5.7.2.3 Cultural and Tribal Cultural Resources

Depending on pipeline route and location, the natural gas pipelines for this alternative could cause significant adverse impacts on cultural and tribal cultural resources. Such impacts could include direct or indirect impacts on historic built environment resources, historic or Native American archaeological deposits, Native American human remains, or tribal cultural resources.

The historic built environment project area of analysis (PAA) for the proposed project includes the project site and properties within a one-parcel boundary of the project site, and associated linears. Therefore, any alternatives requiring additional linear infrastructure would require additional analysis of adjacent parcels for historic built environment resources. This would include all properties directly adjacent to any pipeline. Likewise, the archaeological PAA includes the project site and associated linears, which would require additional analysis of the potential for the alignments of the natural gas pipelines to impact archaeological resources.

Staff analysis of the conceptual routes for the natural gas fuel supply pipelines under Alternative 2 has identified one previously recorded cultural resource within the conceptual alignment and tie-in to existing natural gas infrastructure. Lafayette Street, a historic road alignment that runs north-south from Santa Clara to Alviso, dates to the 1850s and was originally called the Santa Clara-Alviso Road. Recorded in 2002 by JRP Historical Consulting Services, Lafayette Steet has not yet been evaluated for significance. Therefore, construction of the natural gas pipelines could cause impacts on a historical resource under the Natural Gas ICE Alternative. The lead agency would be responsible for evaluating the significance of Lafayette Street in its assessment of impacts on historical resources under CEQA. Nonetheless, potential impacts on historical resources that could result from the construction of the natural gas fuel supply pipeline would likely be reduced to less-than-significant levels by implementing mitigation measures **CUL-1** through **CUL-9**, and the comparative impact is *likely similar* under this alternative.

5.7.2.4 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 proposed project would employ 32 total backup gensets (including the three house gensets to support redundant critical cooling equipment and other general building and life safety services). Depending on the MW size of the natural gas ICE engine, more engines may or may not be needed under this alternative. 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 for the proposed project. Liquefied natural gas (LNG)[7] would minimize the storage space, but the needed storage volume would still be substantially larger than that of diesel fuel (both renewable or conventional).[8,9] 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. BOG is essentially a loss of stored fuel that occurs when the ambient temperature heats the insulated tanks. LNG must release this gas to maintain its liquid state. To mitigate the loss of fuel and gas release into the atmosphere, BOG can be reliquefied 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 ICEs. Both reliquefication and regasification would result in additional processes and equipment and an increased 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. As discussed above, the preferred, most feasible method to supply fuel for the natural gas ICEs would be by pipeline through PG&E's underground natural gas transmission system. Based on PG&E's gas transmission pipeline map, there

7 Natural Gas can be liquefied to 600 cubic meters times smaller than its volume in its gas state.

8 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.

9 Renewable diesel volume for current proposal: Genset Fuel Consumption (207 gal/hr x 24 hours per year x 32 generators) = 160,000 gallons per year

are two locations for independent natural gas pipeline connections within approximately 1½ miles of the BDC site.

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 1½ miles east of the project site on Lafayette Street would increase fuel supply reliability. The Natural Gas ICE Alternative could potentially be feasible and attain most of the project objectives, and it could connect to the underground natural gas pipeline system with implementation of mitigation measures to ensure impacts would be reduced to less than significant.

However, for the BDC to provide the same level of reliability with ICEs as it would with the renewable diesel-fired gensets, or at least 99.999 percent availability factor, the ICE fuel delivery system under this alternative must not be susceptible to any disruptions. Although two natural gas pipelines could be available for the project, due to the pipelines' susceptibility to natural disasters (e.g., earthquakes) as well as accidents, the ICE fuel delivery and storage system under this alternative might provide a slightly lower level of reliability than has been demonstrated by the diesel fuel delivery and storage system for many data centers.

However, in July 2022 the CEC issued a SPPE for the SJDC, mentioned earlier in this section. The SJDC, which is owned by Microsoft but is 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). Microsoft chose to use ICEs for the SJDC because the project site is in a unique location. The site has two redundant high-pressure independent natural gas pipelines (separate regional backbones). These two pipelines will increase the reliability of fuel supply delivery to the site during emergencies. Thus, Microsoft has determined that the reliability requirements (of 99.999 percent) of the project would meet the project objectives (DayZenLLC 2022c).

5.8 Environmentally Superior Alternative

CEQA requires that an EIR identify the *environmentally superior alternative* and discuss the facts supporting that selection. Alternative 1, the No Project/No Build Alternative, is the environmentally superior alternative because it would avoid all impacts of the proposed project by not creating any physical change to the environment. However, Alternative 1 would not attain any of the project objectives. "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)).

Staff compared Alternative 2, the Natural Gas ICE Alternative, to the proposed project and determined that it has some advantages in terms of reducing impacts. Staff's conclusions are summarized below.

5.8.1 Alternative 2: Natural Gas Internal Combustion Engine Alternative

The GHG impacts of this alternative would likely be similar to those of the proposed project if renewable natural gas were used for this alternative. Criteria air pollutant emissions and air quality impacts using natural gas ICEs are expected to be much less than those that would occur with the proposed 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. Impacts on cultural and tribal cultural resources would likely be similar to those of the proposed project. Additional analysis of the natural gas pipeline routes and adjacent parcels would be required to determine the presence of resources that could be affected by pipeline installation.

Staff considers Alternative 2 to be *environmentally superior* to the proposed project due to its reductions in criteria air pollutants. Redesigning the project with natural gas ICE technology could increase the number of engines onsite depending on the MW sizing and physical dimensions. As discussed earlier, 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 would take time to complete.

Table 5-1 summarizes the comparison of environmental effects for each alternative to the proposed project for the topics of air quality, public health, GHG emissions, and cultural and tribal cultural resources. 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 Natural Gas ICE Alternative. The No Project Alternative would result in no impacts.

TABLE 5-1 SUMMARY COMPARISON OF IMPACTS OF THE PROPOSED PROJECT TO THE ALTERNATIVES

Environmental Topics and Impacts	Proposed Project	Alternatives	
		No Project/No Build	Natural Gas Internal Combustion Engine
Air Quality, Public Health, Greenhouse Gas (GHG) Emissions			
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)
Cultural and Tribal Cultural Resources			
Direct or indirect impacts from installation of natural gas pipelines	LTS with Mitigation	No Impact	LTS with Mitigation (Likely Similar)

Notes: Impact conclusions for the proposed project and the alternatives 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 are conveyed using these abbreviations (staff identified no impacts that would be greater than the proposed project):

- Much 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

Bowers Backup Generating Facility
22-SPPE-01
Planning File Nos. PLN21-15069 and PLN22-00479
~~August~~ October 2023

PREFACE

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.

While the California Energy Commission (CEC) is the lead agency in assessing the exemption application, the CEC is not the jurisdiction that will be approving the project for construction and operations. Such authority will be with the City of Santa Clara (City). Therefore, the MMRP will be implemented and enforced by the City upon its approval of the project.

The ~~Draft~~ Final Environmental Impact Report (EIR) prepared for the Bowers 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 ~~Draft~~ Final EIR concluded that the impacts from 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_____

MITIGATION	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 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?					
AQ-1: To ensure that fugitive dust impacts are less than significant, the project will implement the Bay Area Air Quality Management District (BAAQMD) recommended Best Management Practices (BMPs) during the construction phase, the project owner shall implement a construction emissions control plan that has been reviewed and approved by the Director or Director's designee of the City of Santa Clara Community Development Department prior to the issuance of any grading or building permits, whichever occurs earliest. These BMPs are incorporated into the design of the project and will include: • Water all exposed areas (e.g., parking areas, graded areas, unpaved access roads) twice a day. • Maintain a minimum soil moisture of 12% in exposed areas by maintaining proper watering frequency.	Implement the BAAQMD's recommended BMPs to control fugitive dust and additional measures to control exhaust emissions	During construction phase	City of Santa Clara Director of Community Development or Director's designee	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)

MITIGATION	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					
• 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					

MITIGATION	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					
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 name of the person to contact regarding dust complaints and the BAAQMD telephone number. The contact person shall implement corrective measures, as needed, within 48 hours, and the BAAQMD shall be informed of any legitimate complaints received to verify compliance with applicable regulations. Limit simultaneous occurrence of excavation, grading, and ground-disturbing construction activities. • Minimize idling time of diesel-powered construction vehicles to two minutes.					

MITIGATION	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					
• 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. • 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.					
Impact 4.3-c Would the project expose sensitive receptors to substantial pollutant concentrations?					
AQ-1 (see Impact 4.3-b for mitigation)					

MITIGATION	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**
BIOLOGICAL RESOURCES					
Impact 4.4-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?					
BIO-1: Avoid and Minimize Impacts to Protected Bird Species If initial demolition and construction activities, including tree, shrub, or vegetation removal, are to occur during the breeding season February 1st to August 31st inclusive, a qualified biologist, approved by the City of Santa Clara, shall conduct pre-construction surveys for nesting protected birds onsite and within 250 feet (for raptors) of the site, where accessible. The survey shall occur no more than 7 days prior to the onset of ground disturbance if disturbances are to commence between February 1st and June 30th and no more than 14 days prior to the onset of ground disturbance between July 1st and August 31st. Additional follow-up surveys may be required if a period of construction	Avoidance of construction activities during nesting season. If construction activities occur between February 1st and August 31st, a pre-construction nesting bird survey shall be conducted by a qualified biologist. In coordination with CDFW, a construction-free buffer zone shall be established around active nests	Prior to initiation of any onsite project related activities (staging, demolition, construction, etc.)	City of Santa Clara Director of Community Development or Director's designee	Confirm that construction activities are scheduled outside of the nesting season. If not outside nesting season, surveys are required	Prior to initiation of any onsite project related activities (staging, demolition, construction, etc.)

MITIGATION	MONITORING AND REPORTING PROGRAM				
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BIOLOGICAL RESOURCES					
inactivity exceeds two weeks in any given area, an interval during which birds may establish a nesting territory and initiate egg laying and incubation. If a nesting protected bird is detected, an appropriate construction-free buffer (typically 250 feet for non-raptors to 500 feet for raptors) shall be established in consultation with the California Department of Fish and Wildlife (CDFW). The actual size of the buffer, which shall be determined by the project's qualified biologist, would depend on species, topography, and type of activity that would occur in the vicinity of the nest. The appropriate buffer zone will be marked in the field with exclusion fencing, within which no construction, tree removal, or vegetation clearing shall commence until the qualified biologist verifies that the nest(s) are no longer active. The project buffer would be monitored periodically by the project biologist to verify compliance. After the nest is completed, as determined by the biologist, the buffer would no longer be required. If an active bird nest is	The biologist shall submit a report indicating the results of the survey and any designated buffer zones to the City of Santa Clara Director of Community Development or Director's designee	Prior to the issuance of permits for tree removal, demolition, or grading	City of Santa Clara Director of Community Development or Director's designee	The qualified biologist shall inspect all potentially affected trees and designate a buffer-free zone around nest until the end of the nesting activity. Applicant submits report completed by biologist for pre-construction survey results.	Prior to initiation of any onsite project related activities (staging, demolition, construction, etc.)

MITIGATION	MONITORING AND REPORTING PROGRAM				
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BIOLOGICAL RESOURCES					
discovered during demolition or construction, then a buffer zone shall be established under the guidelines specified. The applicant shall submit a report indicating the results of the survey and any designated buffer zones to the satisfaction of the City of Santa Clara's Director of Community Development prior to the issuance of permits for tree removal, demolition, or grading. The report(s) shall 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 shall be provided within 10 days of completing a pre-construction nest survey.					
BIO-2: Avoid and Minimize Impacts to Bat Species If suitable roosting habitat for special-status bats will be affected by project construction (e.g., removal of buildings,	A qualified biologist shall conduct surveys during the appropriate time of day to determine if bats are roosting	No less than 7 days and no more than 14 days prior to beginning tree removal	City of Santa Clara Director of Community Development or Director's designee.	A tally of the number and species of bats using the roost shall be documented and submitted in report.	Prior to initiation of any onsite project related tree removal and/or demolition

MITIGATION	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
BIOLOGICAL RESOURCES					
removal of trees), a qualified wildlife biologist shall conduct surveys for special-status bats during the appropriate time of day to maximize detectability to determine if bat species are roosting near the work area no less than 7 days and no more than 14 days prior to beginning tree removal and/or demolition or ground disturbance. Survey methodology may include visual surveys of bats (e.g., observation of bats during foraging period), inspection for suitable habitat, bat sign (e.g., guano), or use of ultrasonic detectors (e.g., Anabat, etc.). Visual surveys shall include trees and structures within 50 feet of construction activities. The type of survey will depend on the condition of the potential roosting habitat. If no bat roosts are found, then no further study and no further mitigation is required. If evidence of bat use is observed, the number and species of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts.		and/or demolition or ground disturbance			or ground disturbance
	If bats are roosting, a Bat Mitigation and Monitoring Plan shall be prepared and implemented for habitat loss, if necessary.	Prior to initiation of any onsite project related tree removal and/or demolition or ground disturbance	City of Santa Clara Director of Community Development or Director's designee and California Department of Fish and Wildlife. Bat houses built to California Department of Fish and Wildlife standards	Depending on the presence of bats, exclusion methods and bat houses may be specified for use depending on the circumstances and included in the Bat Mitigation and Monitoring Plan.	Prior to initiation of any onsite project related tree removal and/or demolition or ground disturbance

MITIGATION	MONITORING AND REPORTING PROGRAM				
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BIOLOGICAL RESOURCES					
If roosts or a maternity colony are determined to be present and must be removed, the bats shall be excluded from the roosting site before the tree or structure is removed. Exclusion methods may include use of one-way doors at roost entrances (bats may leave, but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). If roosts cannot be avoided or it is determined that construction activities may cause roost abandonment, such activities shall not commence until permanent, elevated bat houses have been installed outside of, but near, the construction area. Placement and height will be determined by a qualified wildlife biologist, but the height of bat house shall be at least 15 feet. Bat houses shall be multi-chambered and be purchased or constructed in accordance with California Department of Fish and Wildlife (CDFW) standards. The number of bat houses					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
BIOLOGICAL RESOURCES					
required shall be dependent upon the size and number of colonies found, but at least one bat house shall be installed for each pair of bats (if occurring individually) or of a sufficient number to accommodate each colony of bats to be relocated. If bat roosts are detected, then a Bat Mitigation and Monitoring Plan (Plan) shall be prepared and implemented to mitigate for the loss of roosting habitat. The Plan shall include information pertaining to the species of bat and location of the roost, exclusion methods and roost removal procedures, compensatory mitigation for permanent impacts (including specific mitigation ratios and location of proposed mitigation as described in the above bullet) and monitoring to assess bat use of mitigation areas. This Plan shall be submitted to the City of Santa Clara and CDFW for review and approval prior to project activities that would disturb roosting bats.					

MITIGATION	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**
CULTURAL AND TRIBAL CULTURAL RESOURCES					
Impact 4.5-a Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?					
CUL-1: Cultural Resources Identification, Monitoring, and Treatment Plan Prior to the issuance of any grading permit, a project-specific Cultural Resources Identification, Monitoring, and Treatment Plan (Plan) shall be prepared. The Plan shall be prepared by a Secretary of the Interior-qualified archaeologist, in consultation with the Tamien Nation and a qualified Native American monitor registered with the Native American Heritage Commission (NAHC) with an interest in the city of Santa Clara and that is traditionally and culturally affiliated with the geographic area. The Plan shall reflect permit-level detail pertaining to depths and locations of all ground disturbing activities. The Plan shall be prepared and submitted to the City of Santa's Clara Director of Community Development prior to approval of any grading permit. The Plan shall contain, at a minimum:	A qualified archaeologist in consultation with the Tamien Nation and a qualified Native American monitor shall prepare a project specific Cultural Resources Identification, Monitoring, and Treatment Plan and submit it to the City of Santa Clara Director of Community Development or Director's designee for review and approval	Prior to issuance of grading permits	City of Santa Clara Director of Community Development or Director's designee	Review and approve the Cultural Resources Identification, Monitoring, and Treatment Plan	Prior to issuance of grading permit

MITIGATION	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
CULTURAL AND TRIBAL CULTURAL RESOURCES					
• Identification of the scope of work and range of subsurface effects (including location map and development plan), including requirements for preliminary field investigation and construction monitoring. • Description of the environmental setting (past and present) and the historic, California Native American archaeological, and ethnographic background of the parcel (potential range of what might be found). • Development of research questions and goals to be addressed by the investigation (what is significant vs. what is redundant information). • Detailed field strategy (including the preliminary field investigation) used to identify cultural deposits, record, recover, or avoid the finds and address research goals. • Analytical methods. • Handling and preservation of cultural materials. • Report structure of the closing cultural resources report including a					

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
confidential technical report and layperson's report and an outline of document contents in one year of completion of construction (provide a draft for review before a final report). • Disposition of the artifacts, including identification of potential reburial location(s) on site. • Appendices: all site records, correspondence, and consultation with Native Americans, etc.					
CUL-2: Worker Environmental Awareness Program Training Prior to issuance of the grading permit by the City of Santa Clara's Community Development Department, and for the duration of ground disturbance, the project shall be required to submit evidence that Worker Environmental Awareness Program (WEAP) training was held for all existing and any new employees. The training shall be facilitated by the project archaeologist in coordination with a Native American representative registered with the Native American Heritage Commissions	The qualified archaeological specialists in consultation with the Native American representative shall prepare a WEAP and submit an electronic copy to the City of Santa Clara Director of Community Development or Director's designee	Prior to issuance of grading permit	City of Santa Clara Director of Community Development or Director's designee	Review and approve the Workforce Environmental Awareness Program	Prior to issuance of grading permit.

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
with an interest in the city of Santa Clara and that is traditionally and culturally affiliated with the geographic area as described in Public Resources Code, section 21080.3. 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 resource discovery, and notify the City-approved archaeologist and Native American cultural resources monitor. The Native American monitor shall provide a Tribal Cultural Resources Sensitivity Training in conjunction with the WEAP.	for review and approval.				
	WEAP and Tribal Cultural Resources Sensitivity training shall be provided to all existing and new employees and a monthly report shall be submitted to the City of Santa Clara Director of Community Development or Director's designee quantifying the number of workers who received training the prior month as well as a running total of all workers who have received training over the course of the project	Prior to and for the duration of ground disturbing activities	Applicant/Owner; City of Santa Clara Director of Community Development or Director's designee	Review and approve the WEAP training monthly reports	Monthly for the duration of ground disturbing construction activities

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
CUL-3: Preliminary Field Investigations After removal of pavement at the project site and prior to grading, a Secretary of the Interior-qualified archaeologist and qualified Native American monitor shall conduct a pedestrian survey over the exposed soils to determine if any surface archaeological manifestations are present. Prior to issuance of any grading or demolition permits, the project applicant shall complete a preliminary field investigation program in conformance with the project-specific Cultural Resources Identification, Monitoring, and Treatment Plan required under **CUL-1**. Results of the investigation shall be provided to the City of Santa Clara's Director of Community Development prior to issuance of any grading permit. If any finds were discovered during the preliminary field investigation, the project archaeologist shall implement **CUL-5** for evaluation and recovery methodologies. The results of the preliminary field investigation shall be	The qualified archaeologist shall conduct a preliminary field investigation of exposed soils with a Native American monitor present	After demolition of the existing building removal of pavement and prior to grading	City of Santa Clara Director of Community Development or Director's designee	Review the results and approve next steps	Prior to grading
	If the preliminary field investigation determines that resources are present and significant, treatment plan will be followed	Prior to grading	City of Santa Clara Director of Community Development or Director's designee	Review the results and approve next steps	Prior to grading

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
submitted to the Director of Community Development for review and approval prior to issuance of any grading permit. The California Department of Parks and Recreation 523 series forms shall be submitted along with the report for any cultural resources encountered over 50 years old.					
CUL-4: Construction Monitoring and Protection Measures All ground-disturbing activities (e.g., grading and excavation) shall be completed under the observation of a Secretary of the Interior-qualified archaeologist and a qualified Native American monitor, registered with the Native American Heritage Commission (NAHC) with an interest in the city of Santa Clara. Preference in selecting Native American monitors shall be given to members of the Tamien Nation and Native Americans with: • Traditional ties to the area being monitored. • Knowledge of local Native American village sites and habitation patterns.	Project applicant/owner shall submit the qualifications of archaeological specialists and Native American monitors to the City of Santa Clara Director of Community Development or Director's designee with a signed letter of commitment or agreement to monitor	Prior to issuance of a grading permit	City of Santa Clara Director of Community Development or Director's designee	Review and approve the qualifications of archaeologist and Native American monitors	Prior to issuance of a grading permit
	The archaeologist and Native American monitor	During grading and ground	City of Santa Clara Director of Community	Review monitoring logs as needed	During grading and ground

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
• 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 California Environmental Quality Act (CEQA) mitigation provisions.	will monitor full-time all grading and ground disturbing activities and maintain a daily monitoring log	disturbing activities	Development or Director's designee.		disturbing activities
	Work shall be stopped if cultural resources are encountered within a 50' radius	During ground disturbing activities	City of Santa Clara Director of Community Development or Director's designee; Secretary of the Interior-qualified archaeologist or qualified Native American monitor	Review and approve work stoppage	During grading and ground disturbing activities
	If the archaeologist and Native American monitor believe that a reduction in monitoring activities is prudent, they may prepare a report detailing their	During grading and ground disturbing activities	City of Santa Clara Director of Community Development or Director's designee	Review and approve request to reduce cultural resources monitoring	During grading and ground disturbing activities

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
• Ability to read a topographical map and be able to locate site and reburial locations for future inclusion in the NAHC's Sacred Lands Inventory. • Knowledge and understanding of archaeological practices, including the phases of archaeological investigation. The qualified archaeologist or a qualified Native American monitor, shall have authority to halt construction activities temporarily within a 50-foot radius of any cultural resources finds. 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 Community Development. If, for any reasons, the qualified archaeologist or a qualified Native American monitor is not present, but construction crews encounter a cultural resource, all work shall stop temporarily within 50 feet of	rationale for the reduction and submit it to the Santa Clara Director of Community Development or Director's designee				

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
the find until a qualified archaeologist in consultation with a qualified Native American monitor has been contacted to determine the proper course of action. The Director of Community Development shall be notified of any finds during the grading or other construction activities. Any human remains encountered during construction shall be treated according to the protocol identified in **CUL-6**.					
CUL-5: Evaluation and Data Recovery The City of Santa Clara's Director of Community Development shall be notified of any finds during the preliminary field investigation, grading, or other construction activities. Any historic or Native American cultural material identified in the project area during the preliminary field investigation and during grading or other construction activities shall be evaluated for eligibility for listing as a Candidate City Landmark or a California	All construction activity will stop within 50-feet of an archaeological discovery, the City of Santa Clara Director of Community Development or Director's designee will be notified, and a qualified archaeologist will inspect the find	During the preliminary field investigation, grading and construction phase	City of Santa Clara Director of Community Development or Director's designee	Review and approve the recommendation(s) of the qualified archaeologist	During the preliminary field investigation, grading, construction phase.

Historical Resource by a Secretary of the Interior-qualified archaeologist. If Native American cultural materials or historic resources are encountered, all activity within a 50-foot radius of the find shall be stopped, the Director of Community Development 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, and document the find using the California Department of Parks and Recreation 523 series forms. The archaeologist shall make recommendations regarding eligibility as a Candidate City Landmark and/or a California Historical Resource, 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 Community Development has concurred with the recommendations. Data recovery methods may include, but are not limited to, backhoe trenching, shovel test units, hand auguring, and hand-excavation. The techniques used for data recovery shall follow the protocols identified in the project-specific Cultural Resources Identification, Monitoring, and Treatment Plan. Data recovery shall include excavation and exposure of features, field documentation, and recordation.	Examination of the find and recordation on DPR 523 Series forms along with a determination of eligibility and recommendation for data recovery or curation	While ground disturbing activities are halted and prior to returning to work	Secretary of the Interior-qualified archaeologist; City of Santa Clara Director of Community Development or Director's designee	Record on DPR forms with eligibility and curation recommendations; If the find does meet the definition of a historical, unique archaeological, or tribal cultural resource and cannot be avoided, review and authorize implementation appropriate treatment/ mitigation per treatment and mitigation plan and authorize construction to resume in the vicinity of the find after appropriate mitigation is completed; or Authorize construction to resume in the vicinity of the find if the find does not meet the definition of a historical, unique archaeological, or tribal cultural resources.	During grading and ground disturbing activities

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
CUL-6: Human Remains If human remains are discovered during the preliminary field investigation, excavation and/or grading, building, or other construction activities at the site, all activity within a 50-foot radius of the find will be stopped. The Santa Clara County Coroner will 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 will notify the Native American Heritage Commission (NAHC) immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding treatment and disposition with appropriate dignity, which will be implemented in accordance with section 15064.5(e) of the California Environmental Quality Act Guidelines. All actions taken under this mitigation measure shall comply with Health and Human Safety Code, section 7050.5(b).	All construction activity will stop within 50-feet of the discovery of human remains, the Santa Clara County Coroner and City of Santa Clara Director of Community Development or Director's designee will be notified immediately	Immediately upon discovery of human remains	City of Santa Clara Director of Community Development or Director's designee	The Santa Clara County coroner shall contact the NAHC if human remains are found and believed to the Native American. Authorize implementation of the treatment plan based on the recommendations of the MLD, if the remains are determined to be of Native American origin. Authorize construction to resume in the vicinity of the find when appropriate treatment is completed.	Upon discovery of human remains

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
CUL-7: Site Security At the discretion of the City of Santa Clara's Director of Community Development, site fencing shall be installed on-site during the preliminary field investigation, grading, building, or other construction activities to avoid destruction and/or theft of potential cultural resources. The responsible qualified archaeologist, in consultation with a qualified Native American monitor, registered with the Native American Heritage Commission (NAHC) with an interest in the city of Santa Clara and that is traditionally and culturally affiliated with the geographic area, shall advise the Director of Community Development as to the necessity for a security guard. The purpose of the security guard shall be to ensure the safety of any potential cultural resources (including human remains) that are left exposed overnight. The Director of Community Development shall have the final discretion to authorize the use of a security guard at the project site.	The qualified archaeologist in consultation with the Native American monitor shall advise the City of Santa Clara Director of Community Development or Director's designee on the necessity for a security guard	During ground disturbing activities	City of Santa Clara Director of Community Development or Director's designee	Review and implement site security advice	During ground disturbing activities

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
CUL-8: Closing Cultural Resources Report Once all analyses and studies required by the project-specific Cultural Resources Identification, Monitoring, and Treatment Plan (Plan) have been completed, the project applicant, or representative, shall prepare a closing cultural resources report summarizing the results of the preliminary field investigation, data recovery activities and results, and compliance with the Plan during all demolition, grading, building, and other construction activities. The report shall document the results of field and laboratory investigations and shall meet the Secretary of the Interior's Standards for Archaeological Documentation. The contents of the report shall be consistent with the protocol included in the project-specific Cultural Resources Treatment Plan. The report shall be submitted to the City of Santa Clara's Director of Community Development for review and approval prior to issuance of any certificates of occupancy (temporary or final). Once approved,	A closing cultural resources report shall summarize the findings documenting any cultural resources found during construction	Upon completion of monitoring and prior to issuance of any Certificates of Occupancy	City of Santa Clara Director of Community Development or Director's designee; Secretary of Interior-qualified archaeologist	Review and approve closing cultural resources report	Upon completion of cultural resources monitoring and prior to issuance of any Certificates of Occupancy
	Submittal of the closing cultural resources report to the NWIC	Upon finalization of the report	City of Santa Clara Director of Community Development or Director's designee	Obtain proof of submittal to NWIC	Upon finalization of the report

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
the final documentation shall be submitted to the Northwest Information Center at Sonoma State University, as appropriate.					
CUL-9: Curation Upon completion of the closing cultural resources report required by **CUL-8**, all recovered archaeological materials not identified as tribal cultural resources by the Native American monitor, shall be transferred to a long-term curation facility. Any curation facility used shall meet the standards outlined in the National Park Service Curation of Federally Owned and Administered Archaeological Collections (36 CFR 79). The project owner shall notify the City of Santa Clara's Director of Community Development of the selected curation facility prior to the issuance of any certificates of occupancy (temporary or final). To the extent feasible, and in consultation with the Native American representative, all recovered Native American/tribal cultural resources and artifacts shall be reburied on-site in an area that is unlikely to be disturbed again. Treatment of materials to be	All archaeological materials not identified as tribal cultural resources shall be curated at a long-term collections facility	Upon completion of the closing cultural resources report	Project Applicant/ Owner	Notification of selection of collections facility submitted to City of Santa Clara Director of Community Development or Director's designee.	Prior to issuing Certification of Occupancy
	Native American and tribal cultural resources should be reburied on-site, if feasible	Prior to issuance of Certificate of Occupancy	City of Santa Clara Director of Community Development or Director's designee	Confirm with Native American monitor and MLD (if applicable)	Prior to issuing Certification of Occupancy

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CULTURAL AND TRIBAL CULTURAL RESOURCES					
curated shall be consistent with the protocols included in the project-specific Cultural Resources Identification, Monitoring, and Treatment Plan. All archaeological materials recovered during the data recovery efforts shall be cleaned, sorted, catalogued, and analyzed following standard archaeological procedures, and shall be documented in a report submitted to the City of Santa Clara's Director of Community Development and the Northwest Information Center (NWIC).					
Impact 4.5-b Would the project cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?					
CUL-1 through **CUL-9** (See impact 4.5-a for mitigation)					
Impact 4.5-c Would the project disturb any human remains, including those interred outside of formal cemeteries?					
CUL-1 through **CUL-9** (See impact 4.5-a for mitigation)					
Impact 4.5-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?					
CUL-1 through **CUL-9** (See impact 4.5-a for mitigation)					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance or Mitigation Action	**Timing of Compliance**	**Oversight Responsibility**	**Actions/Reports**	**Monitoring Timing or Schedule**
GEOLOGY AND SOILS (PALEONTOLOGY)					
Impact 4.7-f Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?					
GEO-1: Prior to the commencement of construction, the applicant shall secure the services of a qualified paleontological specialist. The specialist shall prepare a Worker Environmental Awareness Program (WEAP) to instruct site workers of the obligation to protect and preserve valuable paleontological resources for review by Santa Clara Community Development Department. This program shall be provided to all construction workers via a recorded presentation and shall include a discussion of applicable laws and penalties; samples or visual aids of resources that could be encountered; instructions regarding the need to halt work in the vicinity of any potential paleontological resources encountered; and measures to notify their supervisor, the applicant, and the specialists. The applicant shall secure the services of a qualified professional	Secure services of an on-call qualified professional paleontologist, as defined by the Society of Vertebrate Paleontology If suspected fossils are encountered during construction, the construction workers shall halt construction within 50 feet of any potential fossil find and notify the paleontologist, who shall evaluate its significance	The qualified professional paleontologist shall be on-call prior to the commencement of construction. As soon as suspected fossils are encountered and determined to be significant and avoidance is not feasible, the paleontologist will develop and implement an excavation and salvage plan in	Paleontological Resource Monitoring Report: City of Santa Clara Director or Director's designee	Review and approve the paleontological resource monitoring report and confirm disposition of significant fossil finds	Prior to completion of construction

MITIGATION	MONITORING AND REPORTING PROGRAM				
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GEOLOGY AND SOILS (PALEONTOLOGY)					
paleontologist, as defined by the Society of Vertebrate Paleontology, to be on-call prior to the commencement of construction. The paleontologist shall be experienced in teaching non-specialists to recognize fossil materials and how to notify supervisors in the event of encountering a suspected fossil. If suspected fossils are encountered during construction, the construction workers shall halt construction within 50 feet of any potential fossil find and notify the paleontologist, who shall evaluate its significance. If a fossil is encountered and determined to be significant and avoidance is not feasible, the paleontologist will develop and implement an excavation and salvage plan in accordance with Society of Vertebrate Paleontology standards. Construction work in the immediate area shall be halted or diverted to allow recovery of fossil remains in a		accordance with Society of Vertebrate Paleontology standards. Construction work in the immediate area shall be halted or diverted to allow recovery of fossil remains in a timely manner. Fossil remains collected shall be cleaned, repaired, sorted, and cataloged, along with copies of all pertinent field notes, photos, and maps			

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GEOLOGY AND SOILS (PALEONTOLOGY)					
timely manner. Fossil remains collected shall be cleaned, repaired, sorted, and cataloged, along with copies of all pertinent field notes, photos, and maps. The paleontologist shall prepare a paleontological resource monitoring report that outlines the results of the monitoring program and any encountered fossils. The report shall be submitted to the Director or Director's designee of the Santa Clara Community Development Department for review and approval. The report and any fossil remains collected shall be submitted to a scientific institution with paleontological collections.	The qualified paleontological specialist will prepare a Worker Environmental Awareness Program	Prior to the commencement of construction	City of Santa Clara Director or Director's designee	Review and approve the Worker Environmental Awareness Program	Prior to the commencement of construction

MITIGATION	MONITORING AND REPORTING PROGRAM				
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GREENHOUSE GAS EMISSIONS					
Impact 4.8-a Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?					
GHG-1: The project owner shall use renewable diesel for 100 percent of total energy use by the emergency backup generators, 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	Following commencement of project operation then annually for the life of the project	Director of Electric Utility Department or Director's designee	The project owner shall provide an annual report of renewable diesel supply and distribution	Following commencement of project operation then annually for the life of the project
GHG-2: The project owner shall participate in SVP's Large Customer Renewable Energy (LCRE) Program or other renewable energy program that	Ensure that 100 percent of the renewable electricity	Prior to local approval of project entitlements and	Director of Electric Utility Department or	The project owner shall provide proof of enrollment in SVP's LCRE or other	Upon commencing project operation and annually for

MITIGATION	MONITORING AND REPORTING PROGRAM				
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GREENHOUSE GAS EMISSIONS					
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.	purchased is covered by carbon-free resources	during the operational phase	Director's designee	acceptable instrument and annual report, with verification by a qualified third-party auditor specializing in greenhouse gas emissions	the life of the project
Impact 4.8-b Would the project conflict with an applicable plan, policy or regulation adopted for the purpose or reducing the emissions of greenhouse gasses?					
GHG-1 and **GHG-2** (See impact 4.8-a for mitigation)					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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HAZARDS AND HAZARDOUS MATERIALS					
Impact 4.9-d Would the project be located on a site that is included of 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?					
HAZ-1: Prior to issuance of demolition permits, a lead-based paint (LBP) visual inspection and pre-demolition survey, including sampling and testing of suspect materials, shall be conducted of on-site buildings to determine the presence of LBP. The survey shall be conducted by a contractor with California Department of Public Health (CDPH) Lead Related Construction (LRC) certified personnel as required by CDPH regulations. The findings of the LBP survey shall be submitted to the Santa Clara City Fire Department Hazardous Materials Division for review.	Plan and implement a pre-demolition LBP survey of the on-site buildings. Prepare a report of LBP survey findings and submit it to the Santa Clara City Fire Department Hazardous Materials Division for review.	Prior to issuance of demolition permits, and after identification of any identified LBP contaminated materials. All LBP surveys conducted prior to start of Project construction	Santa Clara City Fire Department Hazardous Materials Division	Review submitted documentation/ report to verify presence of LBP onsite after pre-demolition survey.	After LBP pre-demolition survey and prior to issuance of demolition permits. Prior to start of Project construction.
HAZ-2: Prior to issuance of demolition or grading permits, the project applicant shall prepare a Site Management Plan (SMP) to guide activities during demolition, excavation, and initial construction to ensure that potentially contaminated soils are identified, characterized, removed, and disposed of properly.	Prepare and implement a SMP and HSPs for the site and submit the SMP and HSPs to the Santa Clara County Hazardous Materials Compliance Division and the Santa Clara City Fire Department	Prior to issuance of demolition or grading permits, prior to soil and groundwater sampling, and prior to the	Santa Clara County Environmental Services Department and the Santa Clara City Fire Department Hazardous	Review and approve submitted SMP and HSPs Review submitted documentation/report of results of soil and groundwater site characterization to	Prior to issuance of any grading, demolition, or building permits, prior to and during handling and removal of any identified contaminated soil

MITIGATION	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
HAZARDS AND HAZARDOUS MATERIALS					
The purpose of the SMP is to establish appropriate management practices for handling impacted soil or other materials that may be encountered during construction activities. The SMP shall be reviewed and approved by the Santa Clara County Environmental Services Department and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division prior to any work on the site, including prior to soil and groundwater sampling. The SMP shall be implemented during project demolition and construction and shall include, but shall not be limited to, the following components: • A detailed discussion of the site background. • Prior to any onsite work, Health and Safety Plans (HSPs) for the Project shall be prepared by all contractors and subcontractors that will be working at the project site and incorporated in the SMP. The HSPs shall be prepared by an	Hazardous Materials Division for review and approval. Submit report of results of site characterization to Santa Clara County Hazardous Materials Compliance Division and Santa Clara City Fire Department Hazardous Materials Division for review. Contact the Santa Clara County Hazardous Materials Compliance Division and/or the California Department of Toxic Substances Control for characterization and remediation oversite if soil or groundwater contaminants exceeding applicable screening levels are identified.	start of and during construction	Materials Division Santa Clara County Hazardous Materials Compliance Division and/or the California Department of Toxic Substances Control	verify presence of absence and levels of contamination. Provide regulatory oversite for site characterization and remediation in the event of identification of contaminated soil or groundwater Provide verification of regulatory compliance to Santa Clara City Fire Department Hazardous Materials Division and Santa Clara County Hazardous Materials Compliance Division	or groundwater, and prior to the start of and during construction

MITIGATION	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
HAZARDS AND HAZARDOUS MATERIALS					
industrial hygienist. The HSPs shall be specific to each of the contractors' or subcontractors' scopes of work and based upon the known environmental conditions for the site prior to project construction. The HSPs shall be updated as needed if site conditions change significantly, such as the discovery of contaminated soil or groundwater. The HSPs shall be approved by the Director or Director's designee with the Santa Clara County Environmental Services Department and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division, and implemented under the direction of a Site Safety and Health Officer. Copies of the approved HSPs shall be kept at the project site. • Description of soil and groundwater testing, which shall include (but not be limited to) the collection of soil samples and groundwater samples and					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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HAZARDS AND HAZARDOUS MATERIALS					
analyses for volatile organic compounds (VOCs) and any other contaminants identified in previous environmental studies in the soil and groundwater and lead and organochlorine pesticides in the soil to verify presence of absence of remnant or unknown soil or groundwater contamination. This soil and groundwater characterization shall be performed prior to initiation of project construction. • Protocols for sampling at the site to verify or rule out a vapor encroachment conditions at the site and within the buildings to be demolished and, if verified, for remediation of vapor encroachment conditions within the existing building prior to demolition and to prevent it in the proposed structures. • Protocols for sampling of soil and groundwater to facilitate the profiling of the soil and groundwater for appropriate off-site disposal or reuse, and for construction worker safety, dust					

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HAZARDS AND HAZARDOUS MATERIALS					
mitigation during demolition and construction and potential exposure of contaminated soil or groundwater to future users of the site prior to project construction. • Procedures to be undertaken in the event that contamination is identified above action levels or previously unknown contamination is discovered prior to or during project demolition or construction; • Notification procedures if previously undiscovered significantly impacted soil or groundwater, or free fuel product is encountered during demolition or construction; • Sampling and laboratory analyses of excess soil requiring disposal at an appropriate off-site waste disposal facility; • Procedures and protocols for the safe storage, stockpiling, and disposal of contaminated soils; and • Protocols to manage groundwater, including					

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	Method of Compliance or Mitigation Action	Timing of Compliance	Oversight Responsibility	Actions/Reports	Monitoring Timing or Schedule
HAZARDS AND HAZARDOUS MATERIALS					
segregation or treatment of contaminated groundwater, if necessary, that may be encountered during trenching or subsurface excavation activities. If there are no contaminants identified on the project site that exceed applicable screening levels for construction workers and residential users published by the Regional Water Quality Control Board (RWQCB), California Department of Toxic Substances Control (DTSC), or California Environmental Protection Agency, the SMP does not need to be submitted to an oversight agency and instead only needs to be submitted to the Santa Clara County Environmental Health Department and the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division for approval prior to issuance of a grading permit and prior to conducting any demolition activities. If contaminants are identified at concentrations exceeding applicable					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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HAZARDS AND HAZARDOUS MATERIALS					
screening levels, the project applicant shall obtain regulatory oversight from Santa Clara County Department of Environmental Health or the DTSC under a Site Cleanup Program. The SMP and planned remedial measures shall be reviewed and approved by the Santa Clara County Department of Environmental Health Hazardous Materials Compliance Division or DTSC. A copy of the SMP shall be submitted to the Director or Director's designee with the Santa Clara County Environmental Services Department and, the Santa Clara Fire Department Fire Prevention and Hazardous Materials Division. Copies of the approved SMP shall be kept at the project site. Any contaminated soils identified by testing conducted in compliance with the SMP and found in concentrations above established thresholds shall either be removed and disposed of according to California Hazardous Waste Regulations or the contaminated portions of the site shall be capped beneath the planned					

MITIGATION	MONITORING AND REPORTING PROGRAM				
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HAZARDS AND HAZARDOUS MATERIALS					
development under the regulatory oversight of the Santa Clara County Hazardous Materials Compliance Division or the DTSC. Contaminated soil excavated from the site shall be hauled off-site and disposed of at a licensed hazardous materials disposal site.					
HAZ-3: Prior to the issuance of grading permits, soil and/or groundwater samples shall be taken in areas where disturbance is anticipated to determine if contaminated soils or groundwater with concentrations above established construction/trench worker thresholds may be present due to historical agricultural use and from historical leaks and spills. Sampling shall be conducted per the protocols outlined in the approved project SMP. Once the soil sampling analysis is complete, a report of the findings shall be submitted to the appropriate agencies per the requirements of the SMP.	Conduct soil and groundwater site characterization prior to initiation of project construction per the plan and protocols outlined in the SMP. Prepare a report with the results of site characterization for submittal to Santa Clara County Hazardous Materials Compliance Division and Santa Clara City Fire Department Hazardous Materials Division for review.	Prior to issuance of demolition or grading permits and prior to the start of construction	Santa Clara County Environmental Services Department and the Santa Clara City Fire Department Hazardous Materials Division	Verify receipt of site characterization report.	Prior to issuance of demolition or grading permits and prior to the start of construction

MITIGATION	MONITORING AND REPORTING PROGRAM				
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	Method of Compliance or Mitigation Action	**Timing of Compliance**	**Oversight Responsibility**	**Actions/Reports**	**Monitoring Timing or Schedule**
TRANSPORTATION					
Impact 4.17-b Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?					
TRANS-1: The project shall implement a Transportation Demand Management (TDM) program sufficient to demonstrate that vehicle miles travelled (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 measures, which have been determined to be a feasible method for achieving the required VMT reduction: 1. Commute Trip Reduction Marketing and Education. This TDM measure shall educate and encourage employees to use transit, shared rides, and active modes of transportation to lower the number of single occupancy vehicle trips. 2. Alternative Transportation Benefits. This TDM measure shall provide general commuter benefits to employees, which would include financial subsidies	Preparation of a Transportation Demand Management (TDM) plan that includes a requirement that at a minimum, the project owner shall require that 100 percent of employees participate in the commute trip reduction/education program, 10 percent of employees would be eligible for alternative transportation benefits, and 4 percent of employees would participate in the	Prior to the issuance of any City of Santa Clara Public Works occupancy permits.	City of Santa Clara Director of Community Development or Director's designee.	Review and approve Transportation Demand Management plan.	Prior to the issuance of any City of Santa Clara Public Works occupancy permits.

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TRANSPORTATION					
or pre-tax deductions for transit, carpooling, and vanpooling activities to encourage employees to use alternative transportation modes. 3. Ride-Sharing Program. This TDM measure shall encourage employees to carpool with other employees and through ride matching services to ensure employees are connected with other commuters traveling in the same direction. Prior to the issuance of an occupancy permit, the TDM program shall be submitted and approved by the City of Santa Clara 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	ride-sharing program.				

MITIGATION	MONITORING AND REPORTING PROGRAM				
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TRANSPORTATION					
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.					

Source: California Energy Commission. ~~Draft~~ Final Environmental Impact Report for the Bowers Backup Generating Facility. ~~August~~ October 2023.

Section 8

Responses to Comments

8 Response to Comments

8.1 Introduction

This section presents responses to the comments received during the 45-day public review period for the Draft Environmental Impact Report (DEIR) (August 10, 2023 through September 29, 2023). A Notice of Availability of the Draft Environmental Impact Report was sent out to the project's mailing list. The California Energy Commission (CEC) received a comment letter from the San Jose Mineta International Airport.

The individual comment is numbered in the comment letter and the response immediately follows the comment. If revisions have been made to the EIR based on the comments, the revisions are included in the text of this FEIR shown as ~~strikeout~~ for deletions of text, and as underline for new text. The response references the general location of the revisions. All revisions made to the EIR clarify or amplify existing analysis and information or make other insignificant modifications. No significant new information has been added requiring the recirculation of the EIR as set forth in California Code of Regulations, title 14, section 15088.5.

8.2 Comment Letter and Response

Staff's response follows the comment letter.

Comments Set A: City of San Jose Airport Department

August 16, 2023

Via CEC Online Portal

Ann Crisp
Project Manager
California Energy Commission

RE: Docket Number 22-SPPE-01: Bowers Backup Generating Facility DEIR

Dear Ms. Crisp,

The City of San Jose Airport Department has reviewed the subject Draft Environmental Impact Report, and offer the following aviation related comments and analyses:

As noted in Sections 4.9 (Hazards and Hazardous Materials) and 4.17 (Transportation) of the Draft EIR, the project site is located approximately 1.8 miles west of San José Mineta International Airport. Under Federal Aviation Regulations, Part 77, "Objects Affecting Navigable Airspace", any proposed structure on the project site exceeding approximately 95 feet in height above ground level (AGL) would require submittal to the Federal Aviation Administration (FAA) for airspace safety review. As the maximum proposed building height of 103 feet AGL exceeds 95 feet AGL, permitee shall obtain from the FAA a "Determination of No Hazard" for each of the proposed rooftop corners and any additional higher points.

Upon compliance with conditions set forth by the FAA in its determinations, the proposed project would not result in a safety hazard or excessive noise for people residing or working in the project area.

Under Docket Log TN#249111 (GI Partners Responses to CEC Data Request Set 2 – Bowers Backup Generating Facility), applicant attests that FAA Form 7460-1 has been prepared and submitted. The Airport is unable to locate these forms within the FAA's published database – the Airport requests the applicant provide the airspace study numbers (ASN's) submitted to the FAA.

A-1

CEC staff or the CEQA consultant team are welcome to contact John Wilson at jwilson@sjc.org (408-392-1136) or Ryan Sheelen at rsheelen@sjc.org (408-392-1163), in the San Jose Airport's Planning Section for any clarification or questions regarding the above comments.

Thank you,

John Wilson

Digitally signed by John Wilson
DN: C=US, E=jwilson@sanjoseca.gov, O=Norman Y. Mineta San Jose International Airport, OU=Planning & Development, CN=John Wilson
Reason: I am the author of this document
Date: 2023.08.16 10:42:04-07'00'

John Wilson
Airport Planner
San Jose Mineta International Airport

Response to Comment Set A: City of San Jose Airport Department

A-1 The commentor submitted notes under docket log TN 249111 that the applicant attested to preparing and submitting FAA Form 7460-1 to the FAA, however airport staff were unable to locate these forms within the FAA's published database. The Airport requested the aeronautical study number (ASN) submitted to the FAA. In response the applicant reviewed their documents and found their consultant had not yet filed FAA Form 7640-1 with the FAA thus compelling the applicant to file them accordingly. On October 2, 2023, the applicant submitted a response to Airport staff providing ASN 2023-AWP-12911-OE (GI Partners 2023g). The comment does not impact or alter the facts underlying staff's analysis and determination of impacts of the project on the environment and energy resources. New information added to sections **4.9 Hazards and Hazardous Materials, 4.11 Land Use and Planning**, and **4.17 Transportation** clarifies or makes insignificant modifications to the EIR.

8.3 References

GI Partners 2023g – GI Partners (TN 252461). GI Partners Response to Airport Comments on DEIR – BGF, dated October 2, 2023. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=22-SPPE-01

Appendix A

Project's Jurisdictional and Generating Capacity Analysis

Appendix A: Project's Jurisdictional and Generating Capacity Analysis

The Bowers Data Center (BDC) and Bowers Backup Generating Facility (BBGF), collectively called the "project", as proposed by GI Partners (applicant) would include 32 renewable 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 (SVP) via Pacific Gas and Electric Company (PG&E) transmission lines. The gensets (generators) would be electrically isolated from the PG&E electrical transmission system with no means to deliver electricity offsite of BDC (the distribution line would only allow power to flow in one direction—from PG&E electrical transmission line to the project).

The 32 gensets, which include 8 redundant and admin/life safety gensets, would have a nameplate output capacity of 3.0 megawatt (MW). Thus, the maximum generating capacity of this project would not exceed 72 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 center customers.

The California Energy Commision (CEC) staff (staff) evaluated and concluded that the net deliverable or useable electricity capacity is more than 50 MW and less than 100 MW from BDC genset. The following provides a summary of the factors supporting this conclusion:

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. The 32 gensets should be aggregated and considered as one thermal power generating facility with a generation capacity of greater than 50 MW.
3. 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. Net capacity ratings are never larger than gross capacity ratings. This project's maximum gross and nameplate capacity ratings, including all the redundant gensets, would not reach 100 MWs (72 MW) and therefore, its maximum net capacity would also be less than 100 MW and would not exceed 72 MW.
4. The gensets would be exclusively connected to the BDC 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.

The following paragraphs provide the detailed analysis explaining how staff reached the conclusion that the project is within the CEC's jurisdiction:

1. BBGF 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). BDC's backup generating facility, the BBGF, would be made up of gensets that use diesel engines to convert the thermal energy in the renewable 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 32 such gensets to service BDC.

BBGF's 32 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 gensets would operate to provide backup electricity to the project when its connection to the grid is lost. The genset system configuration includes a 4-to-make-3, meaning that for every four gensets that would support load in the event of a utility failure, there is one redundant genset. Any genset can function either as a back-up to the grid or a back-up to the grid back-up gensets. Therefore, there is no 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 BDC 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 more than 50 MW, the project meets the statutory definition of a thermal power plant.

Note that the total generating capacity of this data center, even if all the primary and redundant gensets operate at full load simultaneously, remains below 100 MW. This qualifies this project for a SPPE.

2. California Code of Regulations, Title 20, section 2003 requires the generating capacity to be the net generating capacity.

For BDC, 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 the data center would need the full capacity of gensets; the exact timing of individual leases that fill

1 Renewable diesel fuel is composed of a mixture of hydrocarbons, containing chemical energy. When ignited, this chemical energy is converted to thermal energy.

server bay space is subject to the market decisions of disparate customers. Therefore, it may be years before the data center is fully leased and requiring the full capacity of the gensets. 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. As mentioned above, 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. Net capacity ratings are never larger than gross capacity ratings. This project's maximum gross and nameplate capacity ratings, including all the redundant gensets, would not reach 100 MWs (72 MW) and therefore, its maximum net installed capacity would also be less than 100 MW and would not exceed 72 MW.

Thus, BBGF's gross and net capacities are below 100 MW, even when considering the combined MW capacities of all the primary and redundant gensets operating at full load simultaneously. Therefore, BBGF qualifies for a SPPE.

References

GI Partners 2022e – GI Partners. (TN 245769). Bowers Backup Generating Facility Application for SPPE Main, dated August 31, 2022. Available online at: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=22-SPPE-01

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 Bowers Backup Generating Facility (BBGF) emergency backup generators (gensets) are designed to operate only when the electric system is unable to provide power to the Bowers Data Center (BDC). 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 BDC. 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 BDC to the SVP 60 kV loop system, and BDC'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 BDC.
3. A Public Safety Power Shutoff (PSPS) impacts the utility transmission system, and BDC is not able to receive power from SVP.
4. An energy shortage crisis similar to the one in late Summer 2020 where the utility for transmission (e.g. PG&E) is unable to supply electricity to SVP or BDC's operators voluntarily disconnect from the utility and rely on gensets to provide the needed electricity.
5. The gensets could also run when the utility/the California Independent System Operator (CAISO) 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 even under contingency conditions, when one part of the electric network is not functioning. The interconnections for data centers, like BDC, 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 most 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 BDC's electricity needs and BDC 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 utilities 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. The ELRP does not affect the likelihood of emergency events. The last time an emergency event occurred, like those in 2020, was 2001. Given the state's efforts to address the causes of past energy emergencies, we expect energy emergencies to continue to be rare events. In addition, in the text below, the California Energy Commission (CEC) staff discussed that BDC 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. ELRP has been dispatched multiple times in the summers of 2021 and 2022, lowering electricity demand statewide during critical conditions. Lastly, it is unclear whether the United States Environmental Protection Agency (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 BBGF backup generators operating outside of testing and maintenance.

Still, staff expects the BBGF 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, BBGF 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 the BBGF. More than 12 years of historical data of past outages of data centers in the SVP service territory is available. Staff has used this data to estimate the frequency and duration of reasonably 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.

The 2018 IRP states, "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 System Average Interruption Frequency Index (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 BDC 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 (DayZenLLC 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 BDC to the SVP looped 60 kV system, a limited number of commercial customers on the looped 60 kV system, redundant transformers to supply BDC, and BDC'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 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.

BAAQMD's Review of Data Center Diesel Genset Engine Operations

Scoping 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 types of 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 2021a).

The scope of BAAQMD's review can be summarized as follows:

- Period covered: 13 months (9,504 hours)
- Facilities (data centers) under BAAQMD jurisdiction: 66 data centers
- Facilities from which information was collected: 45 data centers
- Facilities responding with some "non-testing/non-maintenance" use: 20 data centers
- Permitted genset engines at the 20 facilities responding: 288 engines
- Installed generating capacity of genset engines at the 20 facilities responding: 686.5 MW
- 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.

The 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.

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.

Staff used the data in BAAQMD's review (BAAQMD 2021b) and a clarifying email of BAAQMD results (CEC 2021a) to estimate the power production during "non-testing/non-maintenance" diesel genset engine use and found that approximately 1,575 megawatt hours (MWh)were 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 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) 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 reasonably 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 - at 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 period; 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 that 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 to re-occur with such 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: The 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 and Electric to Take Actions to Prepare for Potential Extreme Weather in the Summers of 2021 and 2022

On March 25, 2021, the 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, the 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:

- Flex Alert program authorization and design
- Modifications to and expansion of Critical Peak Pricing (CPP) Program
- The development of an ELRP
- Modifications to existing demand response (DR) programs
- Expedited IRP procurement
- Modifications to the planning reserve margin (PRM)
- Parameters for supply side capacity procurement
- 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 2022 or 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 is expected to be initiated May 2022.[1] 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 BDC would be operational until after the summer of 2025, based on these factors: 1) estimated construction schedule of 24 months to the initial occupancy of the building; 2) estimated completion of the CEC exemption proceeding in late 2023; 3) additional time needed for the City of Santa Clara and BAAQMD to permit the project. Thus, BDC 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.

1 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 Bowers Backup Generators 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 BDC 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)

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 SPPEApplication 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 to the specific location and preventing an extended outage to adjacent transformers 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 in the 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 future PSPS 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 46 Min	0
11/22/18	HOM-SER	Pole Fire HS9 (force out)	1 Hour 27 Min	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

DATE	LINE (S)	CAUSE	DURATION	CUSTOMERS OUT OF POWER
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
12/02/16	RAY T1 & T2	Dropped both transformers during restoration switching due to relay not reset	12 Min	257
09/06/16	SRS-CEN	Bird Contact	40 Min	0
06/30/16	WAL-FIB	Bird nest contact	12 Hours 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

SILICON VALLEY POWER.
CITY OF SANTA CLARA

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:

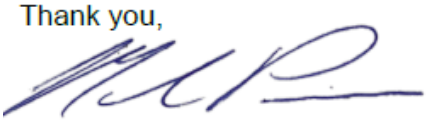
- Up to 126.5 MVA from the current date to the end of Second Quarter of 2022
- Up to 192.5 MVA at Third Quarter of 2022 upon completion of the South Loop Project.
    - If there are delays on the South Loop Project, it will affect the timeline to increase from 126.5 to 192.5.
    - 737 Mathew is limited 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

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.

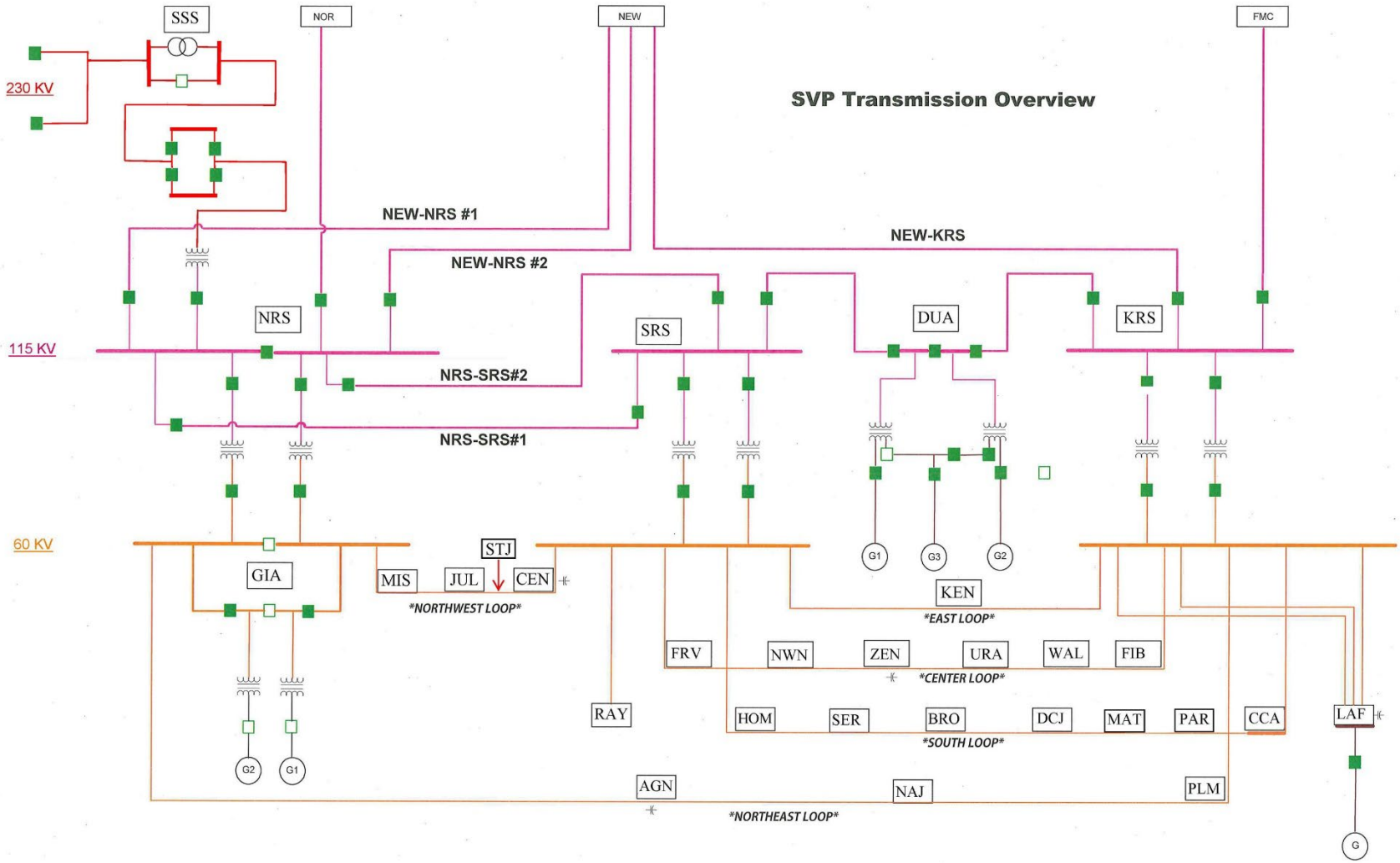
Thank you,

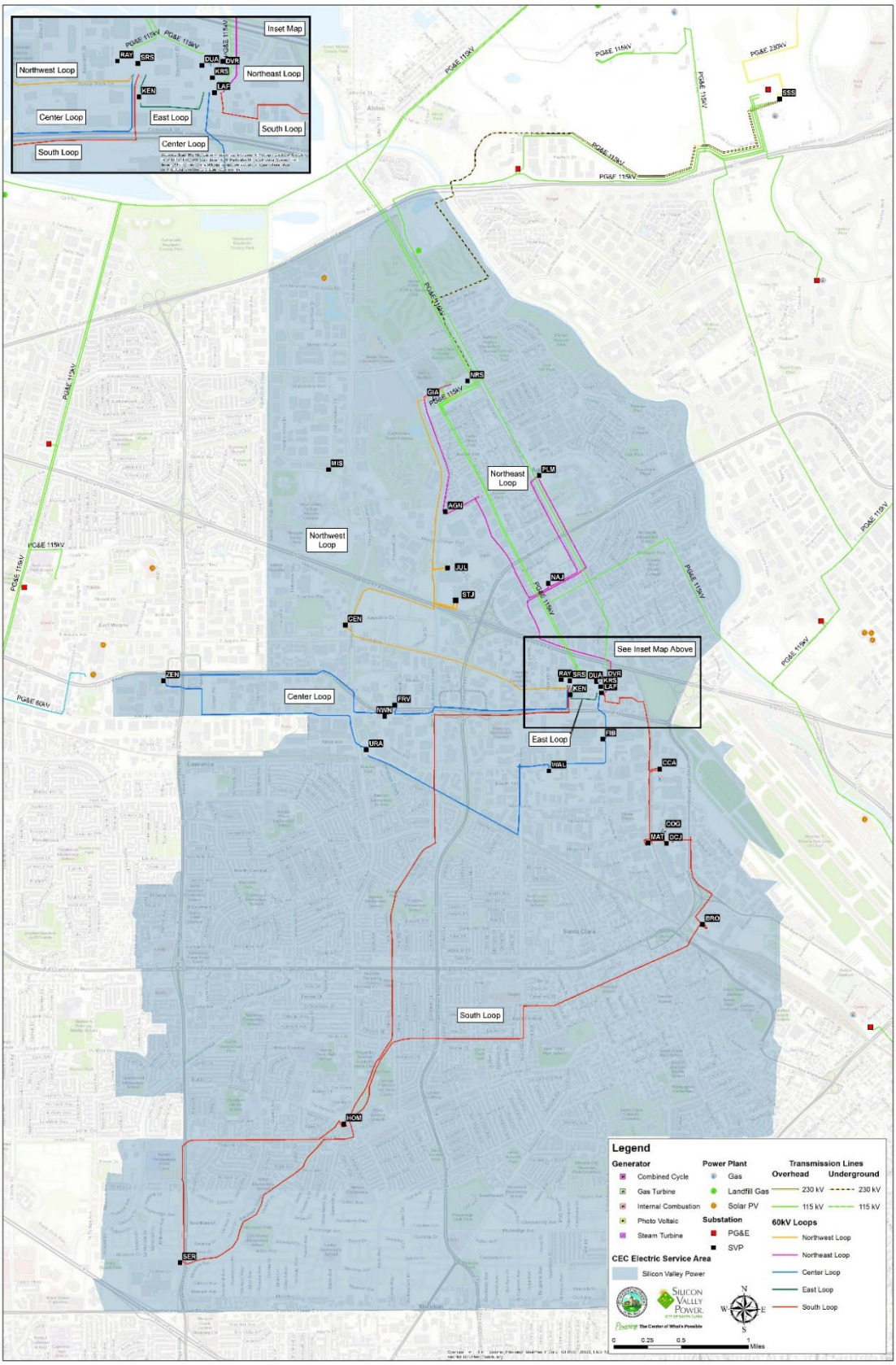


Manuel Pineda
Chief Electric Utility Officer
City of Santa Clara – Silicon Valley Power

cc: Michael Stoner

B. Schematic diagram of the SVP 230 kV, 115 kV and 60 kV transmission system, and SVP System Map




Inset Map
Northwest Loop
Northeast Loop
Center Loop
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South Loop
Center Loop
South Loop
RAY
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DUA
DVR
KKR
KEN
LAF
BSS
PG&E 115kV
PG&E 230kV
GIA
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MIS
PLM
Northeast Loop
AGN
Northwest Loop
JUL
NAJ
STJ
GEN
See Inset Map Above
ZEN
Center Loop
FRV
NWN
URA
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FIS
WAL
CCA
COC
MAT
OCJ
BRO
South Loop
HOM
SER
Legend
Generator
Combined Cycle
Gas Turbine
Internal Combustion
Photo Voltaic
Steam Turbine
Power Plant
Gas
Landfill Gas
Solar PV
Substation
PG&E
SVP
CEC Electric Service Area
Silicon Valley Power
Transmission Lines
Overhead
Underground
230 kV
115 kV
60kV Loops
Northwest Loop
Northeast Loop
Center Loop
East Loop
South Loop
Silicon Valley Power
Powering The Center of What's Possible
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0.5
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

SVP Loop Customers and Loading Peak - Substation

Substation	Loop	Customer/Industry	Substation	Loop	Customer/Industry
Walsh	Center	Education6	Raymond	Northwest	Datacenter34
Walsh	Center	Datacenter14	Brokaw	South	Government3
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	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/ Telecommunications				
Semiconductor/R&D/Mfg				

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Appendix C

Biological Resources Site Visit Report

Appendix C: Biological Resources Site Visit Report

Purpose of Site Visit

GI Partners proposes to develop the Bowers Backup Generating Facility (BBGF) at 2805 Bowers Avenue, Santa Clara, California. The BBGF would be an emergency backup generating facility with a generation capacity of up to 72 megawatts (MW) to provide an uninterrupted power supply for its tenant's servers at the Bowers Data Center (BDC) which together constitute the "project".

The purpose of this site visit was to identify if sensitive natural resources occurred at or near the site and to determine habitat suitability for special-status plants and wildlife that may have the potential to occur at or near the proposed project site. The project site is located at the eastern side of Bowers Avenue, south of Walsh Avenue and north of the Union Pacific Railroad in Santa Clara, California. The project site encompasses approximately 5.12 acres. The Santa Clara County Assessor's Parcel Number (APN) is 216-28-063 and the site occurs on the San Jose West U.S. Geological Survey (USGS) topographic map quadrangle (quad map). The project site is developed and consists of an existing building, driveway, and parking lot. Vegetation consists of commercial landscaping and a mix of native and non-native trees. Cathy Conner, RPA FMA and Real Estate Manager with Coldwell Banker Richard Ellis (CBRE) Group Inc., was met on-site prior to the start of the site visit. No meetings were scheduled with applicant representatives.

Staff/Consultant Observations

Methods

Leane Dunn, MF, Senior Biologist with Aspen Environmental Group, conducted a biological site visit of the project site on December 23, 2022, to document existing site conditions. Prior to the site visit and during the preparation of this report, staff reviewed the following databases listed below for nearby occurrences of species and habitat in the project area:

- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) RareFind 6 Data (Nine Quad Summary Table) and Biogeographic Information and Observation System (BIOS) Viewer (Map) (https://wildlife.ca.gov/Data/CNDDB/Maps-and-Data)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) federal resource list (https://ipac.ecosphere.fws.gov/)
- USFWS National Wetlands Inventory (NWI) Wetlands Mapper (https://www.fws.gov/program/national-wetlands-inventory/wetlands-mapper)
- California Native Plant Society (CNPS) Rare Plant Inventory species list (https://rareplants.cnps.org/)

- California Academy of Sciences and National Geographic Society - iNaturalist (https://www.inaturalist.org/)
- The Cornell Lap of Ornithology eBird (https://ebird.org/home)
- USGS National Geologic Map Database topoView (https://ngmdb.usgs.gov/topoview/)
- Google Earth® aerial photographs (https://earth.google.com/web/)

Records searches of the CNDDB and CNPS species lists consisted of the San Jose West quad and eight surrounding quads. The evaluation of the potential for special status species or sensitive natural resources to be present at the site is provided in **Attachment A**.

The site visit began at 9:53 AM and ended at 12:32 PM. Weather was sunny and clear with a constant temperature of 71 degrees Fahrenheit (˚F) and a wind speed between 0 and 1.5 miles per hour (mph). The site visit began at the southern part of the project and continued counterclockwise around the existing building. The site visit consisted of surveying the exterior building and surrounding property (i.e., the inside of the building was not accessed). Tree species, their location, and condition were reviewed against the Certified Arborist Report (GI Partners 2022a). Plants and wildlife species were identified.

Results

Vegetation Communities: The site consists of an existing building and building amenities (such as garbage bins, electrical units, etc.), a driveway, parking lot, picnic tables and grass area, basketball hoop, landscaping, and urban trees. The site does not contain any natural community vegetation alliances as described in A Manual of California Vegetation (Sawyer et al., 2009) or listed on the CDFW California Natural Community List (CDFW 2022a). A list of species observed during the site visit is provided in **Attachment A**.

Wetlands and Waters: Wetlands or waters were not observed on the site. The USFWS NWI Wetlands Mapper and CNDDB/BIOS results indicate the presence of a creek (labeled Saratoga Creek on the BIOS map) that traverses the site from north to south along the eastern side of the existing building. However, no evidence of a creek or riparian area was observed within the project limits.

A review of current and past USGS topographic maps for the project site was reviewed for the presence of Saratoga Creek. Historically it appears that the 2018 San Jose West topographic map shows a blue line intermittent Saratoga Creek within the project site, connecting to San Tomas Aquinas Creek to the south. The most current 2021 Milpitas and San Jose West topographic map show Saratoga Creek originating from Guadalupe Slough to the north, flowing into San Tomas Aquinas Creek, and back into Saratoga Creek, approximately 0.40 miles east of the project site. The 2021 San Jose West topographic map does not show a creek at the project site.

Special Status Plants: No special-status plant species were observed at the site. The project area is highly developed and does not provide suitable habitat for special status plant species.

Special Status Wildlife Species: Native bird species were observed at the site. No other special-status wildlife species were observed. Introduced wildlife was observed at the site. The site may provide habitat for roosting bats.

An occurrence of American peregrine falcon (*Falco peregrinus anatum*) is within the San Jose West quad. The record is considered sensitive, and the exact location is suppressed by the CDFW. Habitat for the record is described as a high-rise office building. The record further states that the Santa Cruz Predatory Bird Research Group built a nest box in 2006 and started a nest webcam in 2007. The record was last updated in 2016, and as of 2015, the site has been occupied since 2006. The Santa Cruz Predatory Bird Research Group website (https://pbrg.pbsci.ucsc.edu/) states they manage two live streaming Peregrine Falcon nest cams in partnership with PG&E in San Francisco and San Jose City Hall in San Jose. San Jose City Hall is located on the San Jose West Quad, approximately 5.5 miles southeast of the project site.

The site provides marginal foraging habitat for Cooper's hawk (*Accipiter cooperii*) and there are multiple observations recorded within five miles of the project site. This species typically nests in second-growth conifer stands, riparian vegetation, and usually near streams (CWHR 2023). They are often seen in parks, quiet neighborhoods, over fields, at backyard feeders, and along busy streets with trees (AAB 2023). Nesting at the site by Cooper's hawk is not anticipated due to the lack of dense forests or nearby streams.

There are numerous nearby records for burrowing owl *(Athene cunicularia)* surrounding the project site. Burrowing owls typically nest in old burrows of ground squirrels or other mammals. They are also known to use pipes, culverts, and nest boxes (CWHR 2023). Though primarily a grassland species, it persists and even thrives in landscapes highly altered by human activity. Burrows for roosting and nesting, and relatively short vegetation with sparse shrubs and taller vegetation, is the overriding characteristic of suitable habitat (Shuford & Gardali 2008). The site does not provide suitable nesting habitat for this species. No ground squirrel or other mammal burrows were observed at the project site. Urban habitat, such as pipes, culverts and nest boxes that could also be used by burrowing owls, were not observed at the site. The potential for mammal burrows to be created at the site in the future is low.

Purple martin (*Progne subis*) has been observed two miles away in open barren areas at San Jose International Airport. Concentrations of nesting cavities is a common characteristic of all nesting areas, as well as relatively open-air space above accessible nest sites, and an abundance of aerial insect prey. A wide variety of nesting habitat substrates are used, such as tree cavities, bridges, utility poles, lava tubes and buildings (Shuford & Gardali 2008). The site does not support a high concentration of nesting

cavities but does support some cavities and nesting opportunities on the buildings, and potential foraging habitat. The likelihood of this species nesting at the project site is low.

The site provides habitat for nesting birds protected under the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code. Nests were observed in several trees within the parking lot. Bird activity was observed throughout the site and was especially high in the red ironbark eucalyptus trees. Birds can also nest in bushes and shrubs located throughout the project site or on the existing building. Bird deterrents spikes were observed at the main entrance to the building but were not observed elsewhere. The site provides moderate habitat for roosting bats. Bats could roost on the existing building, within the Spanish-tile roof crevices, or within cavities found in olive trees. Staining was observed on the overhanging eaves underneath the roof tiles. It is unknown whether this is a result of urban water runoff or roosting bats. Small cavities within olive trees #34, #36 and #40 could provide moderate habitat for roosting bats. Cavities or crevices were not observed within any other trees at the project site. Townsend's big-eared bat (*Corynorhinus townsendii*) is known to use human-made structures for roosting, including buildings, but are extremely sensitive to disturbance of roosting sites (CWHR 2023). Townsend's big-eared bat has a low potential to occur at the project site given the level of human activity. Other bat species have the potential to occur at the site.

Photographs

The following photographs document the site's conditions.

Photograph 1: Facing northwest from the southeastern corner of the Project Site

View of parking lot, medians, and urban trees. Inactive bird nests were observed in several trees in this area. The existing building is in the background. IMG_2498.JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 2: Facing north-northeast from the western side of the Project Site

View of parking lot, existing building, landscape area, and urban trees near the entrance to the building. IMG_2581.JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 3: Facing north-northwest from the eastern side of the Project Site

View of parking lot, existing building, and landscape area on the eastern side of the site. IMG_2532.JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 4: Facing north from the eastern side of the Project Site

View of picnic tables and grassy area on the eastern edge of the site. IMG_2599.JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 5: Facing west from the eastern side of the Project Site

View of parking lot, existing building, landscape area and urban trees on the eastern side of the site. IMG_2555.JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 6: Facing northwest from the western side of the Project Site

View of parking lot adjacent to Bowers Avenue. Some olive trees have small cavities that may provide moderate habitat for roosting bats. IMG_2575JPEG, taken by Leane Dunn, December 23, 2022.

Photograph 7: Facing south from the northern side of the Proposed Site

View of staining underneath Spanish tile roofing. The tile roofing could provide habitat for roosting bats. IMG_2616.JPEG, taken by Leane Dunn, December 23, 2022.

Conclusions

Based on the observations during the site visit, the conditions at the project site are as described in the applicant's arborist report and application. The project site supports an existing structure, parking lots, landscaped areas, and urban trees. There is no evidence of a creek or other jurisdictional features at the site, however water from the area flows into adjacent storm drains. The site provides low to moderate habitat for American peregrine falcon, Cooper's hawk, and purple martin. Burrowing owl is not expected to occur. The site provides potential habitat for nesting birds protected under the MBTA and California Fish and Game Code. The site provides moderate potential to support for roosting bats. No other special status species or sensitive natural resources were observed at the site. The site does not provide habitat for other special status species.

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Attachment A – Species Observed List

Common Name	Scientific Name	Native (N)/ Introduced (I)
Wildlife Species		
Anna's hummingbird	*Calypte anna*	N
American crow	*Corvus brachyrhynchos*	N
House finch	*Haemorhous mexicanus*	N
California towhee	*Melozone crissalis*	N
Black phoebe	*Sayornis nigricans*	N
Eastern gray squirrel	*Sciurus carolinensis*	I
Lesser goldfinch	*Spinus psaltria*	N
*Plant Species**		
Acmadenia	*Acmadenia* sp.	I
Blue lily	*Agapanthus praecox*	I
Common box	*Buxus sempervirens*	I
Bottlebrush	*Callistemon* sp.	I
Carob tree	*Ceratonia siliqua*	I
Cyclamen	*Cyclamen* sp.	I
English ivy	*Hedera helix*	I
Creeping lantana	*Lantana montevidensis*	I
Common lavender	*Lavandula angustifolia*	I
Wax-leaf ligustrum	*Ligustrum japonicum*	I
Myrtle	*Myrtus communis*	I
Oleander	*Nerium oleander*	I
New Zealand flax	*Phormium tenax*	I
Red tip photinia	*Photinia x fraseri*	I
Japanese cheesewood	*Pittosporum tobira*	I
Indian hawthorn	*Rhaphiolepis indica*	I
Asiatic jasmine	*Trachelospermum asiaticum*	I
Ornamental grasses	unknown	I

Note: * Does not include tree species identified in the Certified Arborist Report

Attachment B – Special Status Species Occurrence Potential in the Project

Each of these species was assessed for potential to occur within the Study Area based on the following criteria:

- **Present:** Species (or sign) was observed in the Study Area during recent surveys, or a population has been acknowledged by CDFW, USFWS, or local experts.
- **High:** Habitat (including soils) for the species occurs in the Study Area and a known occurrence occurs within 5 miles within the past 20 years; however, the species was not detected during recent surveys.
- **Moderate:** Habitat (including soils) for the species occurs in the Study Area and a known regional record has been documented, but not within 5 miles of the Project site or within the past 20 years; or there is a documented occurrence within 5 miles of the Study Area within the past 20 years and marginal or limited habitat occurs on site; or the species' range includes the geographic area and suitable habitat exists in the Study Area.
- **Low:** Limited habitat for the species occurs in the Study Area and the species' range includes the geographic area, but there are no documented occurrences within 5 miles of the Study Area within the past 20 years.
- **Not Likely to Occur:** Species or signs not observed in the Study Area, the Study Area is outside of the species' known range, and conditions in the Study Area are not suitable for occurrence.

Habitat conditions include soil type, vegetation, and other factors relevant to each species. The criteria are general guidelines and a species' potential for occurrence may be modified based on biological analysis of habitat quality, isolation, and other factors. In this context, species refers to a taxonomic entity and can include recognized subspecies, population segments, or other genetically or geographically distinct units.

Special-Status Species Occurrence Potential in the Project Vicinity

Species	Status	Lifeform and Habitat	Occurrence in Study Area
Plants			
Alkali milk-vetch *Astragalus tener* var. *tener*	1B.2	Annual herb. Alkali playa, valley and foothill grassland, and vernal pools.	**Not Likely to Occur** The project area is developed/disturbed. No suitable habitat to support this species.
Arcuate bush-mallow *Malacothamnus arcuatus*	1B.2	Perennial deciduous shrub. Chaparral and cismontane woodland.	**Not Likely to Occur** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Species	**Status**	**Lifeform and Habitat**	**Occurrence in Study Area**
Ben Lomond spineflower *Chorizanthe pungens var. hartwegiana*	1B.1	Annual herb. Lower montane coniferous forest.	**Not Likely to Occur** The project area is developed/disturbed. No suitable habitat to support this species.
Bent-flowered fiddleneck *Amsinckia lunaris*	1B.2	Annual herb. Coastal bluff scrub, cismontane woodland, and valley and foothill grassland.	**Not Likely to Occur** The project area is developed/disturbed. No suitable habitat to support this species.
Big-scale balsamroot *Balsamorhiza macrolepis*	1B.2	Perennial herb. Chaparral, cismontane woodland, and valley and foothill grassland.	**Not Likely to Occur** The project area is developed/disturbed. No suitable habitat to support this species.
Bonny doon manzanita *Arctostaphylos silvicola*	1B.2	Perennial evergreen shrub. Closed-cone coniferous forest, chaparral, and lower montane coniferous forest.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Brittlescale *Atriplex depressa*	1B.2	Annual herb. Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California alkali grass *Puccinellia simplex*	1B.2	Annual herb. Chenopod scrub, meadows and seeps, valley and foothill grassland, and vernal pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California seablite *Suaeda californica*	1B.1 FE	Perennial evergreen shrub. Marshes and swamps (coastal salt).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Chaparral harebell *Campanula exigua*	1B.2	Annual herb. Chaparral (rocky, usually serpentinite).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Chaparral ragwort *Senecio aphanactis*	2B.2	Annual herb. Chaparral, cismontane woodland, and coastal scrub.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Species	**Status**	**Lifeform and Habitat**	**Occurrence in Study Area**
Congdon's tarplant *Centromadia parryi* ssp. *Congdonii*	1B.1	Annual herb. Valley and foothill grassland, and alkaline soils sometimes described as heavy white clay.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Contra Costa goldfields *Lasthenia conjugens*	1B.1 FE	Annual herb. Cismontane woodland, playas, valley and foothill grassland, and vernal pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Dudley's lousewort *Pedicularis dudleyi*	1B.2 SR	Perennial herb. Chaparral (maritime), cismontane woodland, North Coast coniferous forest, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Dwarf soaproot *Chlorogalum pomeridianum var. minus*	1B.2	Perennial bulbiferous herb. Chaparral (serpentinite).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Fragrant fritillary *Fritillaria liliacea*	1B.2	Perennial bulbiferous herb. Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Hairless popcornflower *Plagiobothrys glaber*	1A	Annual herb. Meadows and seeps, marshes and swamps, coastal salt marshes, and alkaline meadows.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Hall's bush-mallow *Malacothamnus hallii*	1B.2	Perennial deciduous shrub. Chaparral and some populations on serpentine.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	1B.1	Annual/Perennial herb. Vernal pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Lesser saltscale *Atriplex minuscula*	1B.1	Annual herb. Chenopod scrub, playas, valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Species	**Status**	**Lifeform and Habitat**	**Occurrence in Study Area**
Loma Prieta hoita *Hoita strobilina*	1B.1	Perennial herb. Chaparral, cismontane woodland, and riparian woodland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Metcalf Canyon jewelflower *Streptanthus albidus* ssp.*albidus*	1B.1 FE	Annual herb. Valley and foothill grassland (serpentinite).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	1B.2	Annual herb. Chaparral, cismontane woodland, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Mt. Hamilton thistle *Cirsium 18ontinales* var. *campylon*	1B.2	Perennial herb. Chaparral, cismontane woodland, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Point Reyes salty bird's-beak *Chloropyron maritimum* ssp. *Palustre*	1B.2	Annual herb (hemiparasitic). Coastal salt marsh.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Robust spineflower *Chorizanthe robusta* var. *robust*	1B.1 FE	Cismontane woodland. Coastal dunes, coastal scrub, and sandy substrates including terraces, and bluffs.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Rock sanicle *Sanicula saxatilis*	1B.2	Perennial herb. Broadleaved upland forest, chaparral, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Saline clover *Trifolium hydrophilum*	1B.2	Annual herb. Marshes and swamps, valley and foothill grassland, and vernal pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
San Francisco collinsia *Collinsia multicolor*	1B.2	Annual herb. Closed-cone coniferous forest, and coastal scrub.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Species	**Status**	**Lifeform and Habitat**	**Occurrence in Study Area**
San Joaquin spearscale *Extriplex joaquinana*	1B.2	Annual herb. Chenopod scrub, meadows and seeps, playas, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Sanford's arrowhead *Sagittaria sanfordii*	1B.2	Perennial rhizomatous herb (emergent). Marshes and swamps (shallow freshwater).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Santa Clara Valley dudleya *Dudleya abramsii ssp. Setchellii*	1B.1 FE	Perennial herb. Cismontane woodland, and valley and foothill grassland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Santa Cruz clover *Trifolium buckwestiorum*	1B.1	Annual herb. Broadleaved upland forest, cismontane woodland, and coastal prairie.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae*	1B.1	Annual herb. Opening in chaparral, cismontane woodland, and sometimes gravelly and sandy substrates.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Santa Cruz Mountains beardtongue *Penstemon rattanii* var. *kleei*	1B.2	Perennial herb. Chaparral, lower montane coniferous forest, and North Coast coniferous forest.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Smooth lessingia *Lessingia micradenia* var. *glabrata*	1B.2	Annual herb. Chaparral, cismontane woodland, valley and foothill grassland, often roadsides, and serpentinite.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Western leatherwood *Dirca occidentalis*	1B.2	Perennial deciduous shrub. Broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, North Coast coniferous forest, and riparian forest and woodland.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
White-flowered rein orchid *Piperia candida*	1B.2	Perennial herb. Broadleaved upland forest, Lower montane coniferous forest, North Coast coniferous forest, and sometimes serpentinite.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Species	**Status**	**Lifeform and Habitat**	**Occurrence in Study Area**
White-rayed pentachaeta *Pentachaeta bellidiflora*	1B.1 FE/SE	Annual herb. Cismontane woodland Valley and foothill grassland and often serpentinite.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Woodland woollythreads *Monolopia gracilens*	1B.2	Annual herb. Openings in broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland, and serpentinite.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Prostrate vernal pool navarretia *Navarretia prostrata*	1B.2	Annual herb. Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools, and mesic.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Invertebrates			
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT	San Francisco endemic. Current range is greatly reduced and is patchily distributed in serpentine grasslands or grasslands occurring on similar soil types. Aside from a reintroduction attempt in Edgewood Park in 2007 (San Mateo County), currently restricted to Santa Clara County, California. Primary larval host plant is an annual, native plantain (*Plantago erecta*). Frequently requires the presence of a secondary host plant, either purple owl's-clover (*Castilleja densiflora*) or exserted paintbrush (*Castilleja exserta*).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Monarch Butterfly *Danaus plexippus*	FC	Occur throughout North America in fields, roadside, open, and wet areas or urban gardens where milkweed and flowering plants are present. Adult monarchs feed on the nectar of many flowers during breeding and migration, but they can only lay eggs on milkweed plants. Monarchs living west of the Rocky Mountain range in North America primarily overwinter in California at sites along the Pacific Coast, roosting in eucalyptus, Monterey pines and Monterey cypress trees.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Conservancy fairy shrimp *Branchinecta conservatio*	FE	Restricted to vernal pools found in California's Central Valley from Tehama County in the north to Merced County in the south. With one outlying population in Ventura County's Interior Coast Ranges.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Crotch's bumble bee *Bombus crotchii*	S1, S2	Open grasslands and scrub. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Mimic tryonia (California brackish water snail) *Tryonia imitator*	S2	Brackish water. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species**.**
Obscure bumble bee *Bombus caliginosus*	S1, S2	Coastal scrub and grasslands in humid and foggy areas. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Vernal pool tadpole shrimp *Lepidurus packardi*	FE	Found only in ephemeral freshwater habitats, including alkaline pools, clay flats, vernal lakes, vernal pools, vernal swales and other seasonal wetlands in California. Range encompasses the Central Valley, Delta and eastern San Francisco Bay areas. Sacramento County represents important habitat.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Western bumble bee *Bombus occidentalis*	S1	Underground rodent burrows in open west-southwest slopes bordered by trees. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Zayante band-winged grasshopper *Trimerotropis infantilis*	FE	Open sandy areas with sparse low annual and perennial herbs on high ridges with sparse ponderosa pine. Occurs in Zayanate sandhills and Santa Cruz County.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/ST	Vernal pools or other seasonal water sources for breeding. Upland grasslands with underground refuges (often ground squirrel burrows). Sonoma and Santa Barbara cos., San Francisco Bay Area, Central Valley, Southern San Joaquin Valleyand the Central Coast Range.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Foothill yellow-legged frog *Rana boylii*	SC	Rocky streams in a variety of habitats, including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian, ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. Occurs along the Pacific Coast to the western slopes of the Sierra Nevada and Cascade Mountains.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Fish			

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Coho salmon – Central California coast ESU	FE/SE	Found in most major river systems in the northern portion of California. From Humboldt County north to the Oregon border, are found in approximately two-thirds of the streams identified as historical habitat. In the southern part of their range, are now absent from all tributaries of San Francisco Bay and many streams south of the Bay. Inhabit small coastal streams, as well as larger rivers, such as the Klamath River system, where they are currently found as far upstream as Iron Gate Dam and the Shasta River. Typically associated with low gradient reaches of tributary streams, which provide suitable spawning areas and good juvenile rearing habitat. Historical records of occurrence of Coho Salmon in 582 California streams, ranging from the Smith River to the Big Sur River on the central coast, but by 1991 had been lost from about half these streams.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Delta smelt *Hypomesus transpacificus*	FT	Endemic to California only occurring in San Francisco Estuary. The life cycle follows the four seasons—spring spawning in fresh water, summer migration/rearing in the low salinity zone, fall maturation in the low salinity zone, and winter upstream migration shortly before spawning. Most spawning happens in tidally influenced backwater sloughs and channel edgewaters. Eggs are adhesive and thought to be released in batches over firm substrates or sand. A euryhaline species, able to tolerate a wide salinity range.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species
Longfin smelt *Spirinchus thaleichthys*	FC/ST	Pelagic fish (occurring mainly in open water habitats) that occur in bays and estuaries from northern CA north along the coast through Alaska. Historically found in the San Francisco Estuary and the Sacramento/San Joaquin Delta (Bay-Delta), Humboldt Bay, and estuaries of the Eel River and Klamath River. Uses a variety of habitats including nearshore waters, sloughs, estuaries, and lower portions of freshwater streams. Reproduction occurs in low salinity to freshwater habitats. The federal candidate status is for the San Francisco Bay-Delta DPS.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
steelhead – central California coast DPS	FT	Anadromous (ocean-going) fish that hatch in gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. DPS includes naturally spawned anadromous steelhead originating below natural and humanmade impassable barriers from the Russian River (Sonoma County) to and including Aptos Creek, and all drainages of San Francisco and San Pablo Bays eastward to Chipps Island at the confluence of the Sacramento and San Joaquin Rivers. Also includes steelhead from two hatchery programs. DPS includes the San Francisco and San Pablo Bay basins but excludes the Sacramento-San Joaquin River basins.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Reptiles			
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT/ST	Chaparral and scrub habitats. Will also use adjacent grassland, oak savanna and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices or abundant rodent burrows. occurs only in a small area on the east side of the San Francisco Bay in western Contra Costa and Alameda counties and possibly the edge of Santa Clara County.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California giant salamander *Dicamptodon ensatus*	SSC	California endemic found in temperate forests, rivers, freshwater lakes, and freshwater marshes in northern California.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Coast horned lizard *Phrynosoma blainvillii*	SSC	Open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Lowlands along sandy washes with scattered shrubs and along dirt roads. Often found near ant hills feeding on ants. Occurs in fragmented populations in the Central Valley and southern coast of California.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Green sea turtle *Chelonia mydas*	FT	Shallow waters of lagoons, bays, estuaries, mangroves, eelgrass and seaweed beds. Prefers abundant aquatic vegetation, such as pastures of sea grasses and algae, in shallow, protected water. Occurs in tropical and subtropical oceans.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Northern California legless lizard *Anniella pulchra*	SSC	Moist warm loose soil with plant cover. Sparsely vegetated areas of beach dunes, chaparral, pine oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Occurs from Contra Costa County south to Baja, California.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Santa Cruz black salamander *Aneides niger*	SSC	Mixed deciduous woodland, coniferous forests, coastal grasslands. Under rocks near streams, in talus, under damp logs, and other objects. Rarely encountered very far from water. Occurs in San Francisco Bay and south of the San Francisco Peninsula in Santa Cruz County, western Santa Clara County, and southern San Mateo County.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Western pond turtle *Emys marmorata*	SSC	Ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Need basking sites and upland habitat up to 0.5 kilometer from water for egg laying. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Birds			
Alameda song sparrow *Melospiza melodia pusillula*	SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
American peregrine falcon *Falco peregriunus anatum*	FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open landscape with cliffs (or skyscrapers). In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed and does not consist of high-rise buildings or skyscrapers. No suitable habitat to support this species.
Burrowing owl *Athene cunicularia*	SSC	Open, dry annual or perennial grasslands, deserts and scrublands characterized by low growing vegetation. Subterranean nester, dependent on burrowing mammals, most notably, the California ground squirrel. In California where habitat is present.	**Low.** There are known populations of burrowing owl at Mission College 1.5 mile north of the project area and two miles east in open barren areas at the San Jose International Airport; however, there is no suitable habitat to support this species in the project area.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Black skimmer *Rynchops niger*	SSC	Coastal areas, usually around sandy beaches and islands, a few colonies can be found in inland locations with very large lake. Nesting birds use open sandy areas, gravel or shell bars with sparse vegetation, or broad mats of wrack (dead vegetation) in saltmarsh. Foraging in tidal waters of bays, estuaries, lagoons, creeks, rivers, ditches, and saltmarsh pools.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Black swift *Cypseloides niger*	SSC	Occur across a wide range of elevations: in British Columbia from sea level to 8,500 feet, in California from sea level to 7,500 feet, and in Oaxaca, Mexico, from 6,800–12,100 feet. Nest on cliff ledges behind or near waterfalls and sea caves. Forage over forests and open areas.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California black rail *Laterallus jamaicensis coturniculus*	ST/FP	Saltwater marshes and shallow freshwater marshes, wet meadows, and flooded grassy vegetation. Occurs in two disjunct regions: the southwestern USA (western Arizona and southern California) and northern California (Sacramento Valley and the San Francisco Bay area).	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California clapper rail *Rallus longirostris obsoletus*	FE	Saltmarshes with extensive vegetation, which they use as refuges, especially at high tide. Prefer low portions of coastal wetlands dominated by cordgrass (spartina), pickleweed, mangroves, and other vegetation. Occurs in remnant tidal marshes of San Francisco Bay.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California condor *Gymnogyps californianus*	FE	Reintroduced to mountains of southern and central California, Arizona, Utah, and Baja California. Nesting habitats range from scrubby chaparral to forested mountain regions up to about 6,000 feet elevation. Foraging areas are in open grasslands and can be far from primary nesting sites, requiring substantial daily commutes. Glide and soar when foraging, so they depend on reliable air movements and terrain that enables extended soaring flight.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
California least tern *Sternula antillarum*	FE/SE	Nest in colonies on sandy, shelly beaches or islands on coastlines and rivers. They sometimes also nest in gravel pits, on dredge spoil, on flat gravel rooftops, or on dry mudflats. On rare occasions, parking lots, agricultural fields, and airports have hosted small colonies. In all of these settings, vegetation is sparse or absent. Generally, return each year to past nest sites, but changes in nearby prey availability, predators, human activity, or substrate conditions can prompt them to move to other sites. Feeding at almost any aquatic environment, including oceans, bays, estuaries, rivers, streams, sloughs, dike fields, marshes, ponds, sand pits, and reservoirs.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
California Ridgway's rail *Rallus obsoletus obsoletus*	FE/SE FP	Tidal and brackish marshes. Occurs in the marshes of the San Francisco Bay Estuary.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Cooper's hawk *Accipiter cooperii*	WL	Wooded habitats from deep forests to leafy subdivisions and backyards. In California where habitat is present.	**Moderate.** Potential for marginal foraging habitat. Multiple observations within five miles of the project area.
Golden eagle *Aquila chrysaetos*	FP	Open and semi open country featuring native vegetation across most of the Northern Hemisphere. They avoid developed areas and uninterrupted stretches of forest. Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nest on cliffs and steep escarpments in grassland, chapparal, shrubland, forest, and other vegetated areas.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Marbled murrlet *Brachyramphus marmoratus*	FT	Nests in moist open canopy coastal coniferous forests, usually within a few miles of the ocean and especially in old-growth forests, where large trees with broad, mossy limbs provide ideal natural nest platforms. Epiphytic moss is important. Key tree species for nesting are Douglas-fir, Alaska yellow cedar, western redcedar, western hemlock, mountain hemlock, Sitka spruce, and coast redwood. May nest up to 4,000 feet elevation, especially where continuous forested habitat is present from the coast into the interior.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
Osprey *Pandion haliaetus*	WL	Any expanse of shallow, fish-filled water, including rivers, lakes, reservoirs, lagoons, swamps, and marshes. Frequenting deep water only where fish school near the surface. Nest in a wide variety of locations, from Alaska to New England, Montana to Mexico, Carolina to California; their habitat includes an adequate supply of accessible fish within a maximum of about 12 miles of the nest.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Purple martin *Progne subis*	SSC	In the West, nest in woodpecker holes in mountain forests or Pacific lowlands. Wintering grounds are savannas and agricultural fields in Bolivia, Brazil, and elsewhere in South America. At night, wintering martins flock into cities and towns to roost, often in the trees of village plazas. Forage over towns, cities, parks, open fields, dunes, streams, wet meadows, beaver ponds, and other open areas.	**Low.** The project area has potential marginal foraging and nesting habitat. Observed two miles east in open barren areas at the San Jose International Airport.
Saltmarsh common yellowthroat *Geothlypis trichas sinuosa*	SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Swainson's hawk *Buteo swainsoni*	ST	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations. Occurs throughout Central Valley.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Tricolored blackbird *Agelaius tricolor*	SSC SC	Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Western snowy plover *Charadrius alexandrines nivosus*	FT/SSC	Coastal beaches, sand spits, dune-back beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	FT/SE	Riparian habitat, cottonwood and willow trees. Occurs along Sacramento River from Red Bluff to Colusa, along the South Fork of the Kern River, and portions of the Lower Colorado River.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
White-tailed kite *Elanus leucurus*	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching. Occurs along the California coast and inland to the Central Valley.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Yellow rail *Coturnicops noveboracensis*	SSC	Shallow marshes, and wet meadows; in winter, drier fresh-water and brackish marshes, as well as dense, deep grass, and rice fields. Occurs in the San Francisco Bay.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Mammals			
Pallid bat *Antrozous pallidus*	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. Occurs throughout California except for high Sierra Nevada from Shasta to Kern cos., and the northwestern corner of California from Del Norte and western Siskiyou cos. to northern Mendocino Co.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Salt-marsh harvest mouse *Reithrodontomys raviventris*	FE/SE FP	Saltmarshes, diked and tidal wetlands, pickleweed. Occurs in the San Francisco Bay Estuary and some areas of Suisun Bay.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Salt-marsh wandering shrew Sorex vagrans halicoetes	SSC	Saltmarshes and coastal wetlands. In California where habitat is present.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nestbuilding materials. Occurs in the San Francisco Bay area and Santa Cruz County.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.

Special-Status Species Occurrence Potential in the Project Vicinity			
Wildlife Species	**Status**	**Location and Habitat**	**Occurrence in Study Area**
San Joaquin kit fox *Vulpes macrotis mutica*	FE	Occurs throughout much of the valley floor and foothills of the San Joaquin Valley in California, from San Joaquin County in the north to Kern County in the south. Range also includes valleys along the Coast Range, including the Panoche and Cuyama valleys and the Carrizo Plain in San Luis Obispo County. Inhabits grasslands and scrublands, many of which have been extensively modified including areas with oil exploration and extraction equipment and wind turbines, and agricultural mosaics of row crops, irrigated pastures, orchards, vineyards, and grazed annual grasslands.	**Not Likely to Occur.** The project area is developed/disturbed. No suitable habitat to support this species.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**Low.** The project area provides marginal roosting habitat, but species is highly sensitive to human activity.

STATUS CODES:

FT Federally Threatened
FC Federal Candidate
SE State Endangered
SC State Candidate
SSC California Species of Special Concern
FP CDFW Fully Protected
WL CDFW Watch List
CNPS California Native Plant Society Listing
1A Plants presumed extinct in California
1B Plants Rare, Threatened, or Endangered in California and elsewhere
2 Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3 Plants about which we need more information – a review list
4 Plants of limited distribution – a watch list
.1 Seriously threatened in California (high degree/immediacy of threat)
.2 Fairly threatened in California (moderate degree/immediacy of threat)
.3 Not very threatened in California (low degree/immediacy of threats or no current threats known)

STATE RANKING The state rank (S-rank) is assigned much the same way as the global rank, but state ranks refer to the imperilment status only within California's state boundaries.

S1 Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer populations) or because of factor(s) such as very steep declines making it especially vulnerable to extirpation from the state.

S2 Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state.

Appendix D

Natural Gas Supplemental Information

Appendix D: Natural Gas Supplemental Information

Natural Gas Internal Combustion Engines

Introduction

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 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 backup generators 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

The reliability of a system is an important consideration when selecting an emergency backup generator. 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 megawatts (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 [million British thermal unit]) 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.

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 emergency backup generators 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 Figure 2.4 in the SPPE application, staff

1 National Renewable Energy Laboratory report. A Comparison of Fuel Choices for Backup Generators; https://www.nrel.gov/docs/fy19osti/72509.pdf.

estimated the footprint of the 32 engines proposed at the project site as approximately 0.44 acres for 96 MW (peak power) or approximately 218 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 (CO_2) emissions of natural gas ICEs against the proposed diesel-fired engines for the project. The proposed diesel engines would be equipped with selective catalytic reduction (SCR) and diesel particulate filter (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 oxides of nitrogen (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 2021a). The natural gas ICEs for the recently exempted San Jose Data Center (19-SPPE-04) would be equipped with a 3-way catalyst system to reduce emissions of NOx, carbon monoxide (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 2021b).

Table D-1 compares the emission factors in pounds per megawatt electrical-hour (lbs/MWe-hr) for the proposed Cumming QSK95 engines, which are the majority of the diesel engines proposed 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 Cumming QSK95 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.

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.

TABLE D-1 CRITERIA AIR POLLUTANT AND CARBON DIOXIDE EMISSIONS NATURAL GAS ICE VERSUS PETROLEUM DIESEL ICE

	Units	Proposed Engine (Cumming QSK95) with Petroleum Diesel	Natural Gas ICE	Difference	Percent Difference (%)
NOx	Lbs/MWe-hr	4.83	0.09	-4.74	-98.2
PM	Lbs/MWe-hr	0.05	0.01	-0.04	-78.9
VOC	Lbs/MWe-hr	0.44	0.10	-0.34	-76.9
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	1,573	1,440	-133	-8.4

Sources: GI Partners 2022c, Jacobs 2021a, and California Energy Commission staff analysis

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. The 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 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 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

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 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.

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 into a fuel would provide substantial societal benefits since the feedstock would otherwise be contributing directly to global warming. In order 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] 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 D-2 CARBON INTENSITY VALUES COMPUTED FROM CA-GREET MODEL

Feedstock	Carbon Intensity	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

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.June 2019. Available online at: https://www.waterboards.ca.gov/water_issues/programs/climate/docs/co_digestion/final_co_digestion_capacity_in_california_report_only.pdf.

TABLE D-2 CARBON INTENSITY VALUES COMPUTED FROM CA-GREET MODEL		
Feedstock	**Carbon Intensity**	**Percent Reduction from Petroleum Diesel (%)**
Renewable Natural Gas	-630.72 to -151.41	-728 to -251
Ultra-Low Sulfur Diesel/CARB Diesel	100.45	0

While renewable natural gas would result in a net reduction in fuel-cycle carbon emissions, a 2018 report funded by the California 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 (Gatto, 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 increasing the specified minimum allowable biomethane heating value from 970 British thermal unit 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 (mg/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 a heating value as low as 970 BTU/scf, which is the value that was allowed before the 2006 CPUC decision to increase the heating value 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 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.

6 See: https://ccst.us/wp-content/uploads/2018biomethane.pdf

As shown in **Table D-2**, fossil natural gas and some forms of renewable natural gas still has 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 the project would be considered a carbon-free facility.

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Appendix E

Mailing List

Appendix E: Mailing List

The following is the mailing list for the Bowers Backup Generating project.

The following is a list of the State agencies that received State Clearinghouse notices and documents:

- California Air Resources Board (ARB)
- California Department of Transportation, District 4 (DOT)
- California Department of Water Resources (DWR)
- California Energy Commission
- 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, Office of Historic Preservation
- San Francisco Bay Conservation and Development Commission (BCDC)
- 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)

Table E-1 presents the list of occupants and property owners contiguous to the project site.

Table E-2 presents the list of agencies, including responsible and trustee agencies and libraries.

Table E-3 presents the list of interested parties.

TABLE E-1 OWNERS AND OCCUPANTS OF PROPERTY CONTIGUOUS TO PROJECT SITE				
Name	**Address**	**City**	**State**	**Zip**
SANTA CLARA CITY OF	1500 WARBURTON AVE	SANTA CLARA	CA	95050
OCCUPANT	2855 BOWERS AVE	SANTA CLARA	CA	95051-0917
OCCUPANT	2845 BOWERS AVE	SANTA CLARA	CA	95051-0917
OCCUPANT	2790 WALSH AVE	SANTA CLARA	CA	95051-0963
OCCUPANT	2710 WALSH AVE	SANTA CLARA	CA	95051-0963
GI ETS SANTA CLARA WB LLC	188 THE EMBARCADERO	SAN FRANCISCO	CA	94105-1247
WALSH INVESTMENT PROPERTIES LLC	2630 WALSH AVE	SANTA CLARA	CA	95051-0905
OCCUPANT	2590 WALSH AVE	SANTA CLARA	CA	95051-1315
VANTAGE DATA CENTERS CA31 LLC	2820 NORTHWESTERN PKWY	SANTA CLARA	CA	95051-0904
OCCUPANT	2975 BOWERS AVE	SANTA CLARA	CA	95051-0955
ARTI INVESTMENT PROPERTIES LLC +PANOMARK PROPERTIES LLC	39 VICTORIA RD	BURLINGAME	CA	94010-2956
OCCUPANT	2737 WALSH AVE	SANTA CLARA	CA	95051-0965
FLOVIN RICK A (TRUSTEE) & FLOVIN RENA A (TRUSTEE)	1293 PALAMOS AVE	SUNNYVALE	CA	94089-2309
OCCUPANT	2727 WALSH AVE	SANTA CLARA	CA	95051-0956
WALSH PROFESSIONAL BUILDING LLC	1241 W HEDDING ST	SAN JOSE	CA	95126-1760
BODO MARTIN (TRUSTEE)	2695 WALSH AVE	SANTA CLARA	CA	95051-0920
VANTAGE DATA CENTERS 4 LLC	2820 NORTHWESTERN PKWY	SANTA CLARA	CA	95051-0904
VANTAGE DATA CENTERS 3 LLC	2880 NORTHWESTERN PKWY	SANTA CLARA	CA	95051-0904
OCCUPANT	2550 WALSH AVE	SANTA CLARA	CA	95051-1345
JJ & W-WALSH LLC	2490 CHARLESTON RD	MOUNTAIN VIEW	CA	94043-1627
OCCUPANT	2500 WALSH AVE	SANTA CLARA	CA	95051-1315
COLE OFC SANTA CLARA (WALSH) CA LP	PO BOX 847	CARLSBAD	CA	92018-0847
OCCUPANT	2551 WALSH AVE	SANTA CLARA	CA	95051-1316
CHUNYUAN PHOTONICS LLC	2701 NORTHWESTERN PKWY	SANTA CLARA	CA	95051-0947

TABLE E-2 AGENCIES AND LIBRARIES							
First Name	**Last Name**	**Title**	**Agency**	**Address**	**City**	**State**	**Zip**
XUNA	CAI	SUPERVISING AIR QUALITY ENGINEER	BAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
PAMELA	LEONG	DIRECTOR, OFFICER	BAAQMD, ENGINEERING DIVISION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
WENDY	GOODFRIEND		BAAQMD, PLANNING AND CLIMATE PROTECTION	375 BEALE STREET, SUITE 600	SAN FRANCISCO	CA	94105
ERIN	CHAPPELL	REGIONAL MANAGER	CA. DEPT. OF FISH AND WILDLIFE, BAY DELTA REGION (REGION 3)	2825 CORDELIA ROAD SUITE 100	FAIRFIELD	CA	94534
REBECCA	FANCHER	STAFF AIR POLLUTION SPECIALIST	CALIFORNIA AIR RESOURCES BOARD	1001 I ST	SACRAMENTO	CA	95814
COURTNEY	GRAHAM	MANAGER	CALIFORNIA AIR RESOURCES BOARD, ENFORCEMENT DIVISION	1001 I ST	SACRAMENTO	CA	95814
KERRI	KISKO	ENVIRONMENTAL SCIENTIST	CALIFORNIA DEPARTMENT OF CONSERVATION	801 K STREET, MS 14-15	SACRAMENTO	CA	95814
			CALIFORNIA INDEPENDENT SYSTEM OPERATOR	250 OUTCROPPING WAY	FOLSOM	CA	95630
ELAINE	SISON-LEBRILLA	MANAGER--CEQA AND FERC BRANCH	CALIFORNIA PUBLIC UTILITIES COMMISSION	505 VAN NESS AVENUE	SAN FRANCISCO	CA	94102
GLORIA	SCIARA	DEVELOPMENT REVIEW OFFICER	CITY OF SANTA CLARA PLANNING DIVISION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
FREDERICK	CHUN	ASSISTANT FIRE MARSHALL	CITY OF SANTA CLARA--FIRE PREVENTION/HAZARDOUS MATERIALS	1675 LINCOLN STREET	SANTA CLARA	CA	95050 -4653
BEN	AGHEGNEHU		COUNTY OF SANTA CLARA ROADS AND AIRPORT DEPARTMENT	101 SKYPORT DRIVE	SAN JOSE	CA	95110
			COUNTY OF SANTA CLARA, OFFICE OF THE CLERK RECORDER	70 WEST HEDDING STREET	SAN JOSE	CA	95110

TABLE E-2 AGENCIES AND LIBRARIES							
First Name	**Last Name**	**Title**	**Agency**	**Address**	**City**	**State**	**Zip**
SHAUNN	MENDRIN	PLANNING OFFICER	CITY OF SUNNYVALE	456 W. OLIVE AVE.	SUNNVALE	CA	94086
KARLA	NEMETH	DIRECTOR	DEPARTMENT OF WATER RESOURCES	P.O. BOX 942836	SACRAMENTO	CA	94236 -0001
BRIAN	MCALOON		DEPARTMENT OF TOXIC SUBSTANCES CONTROL	8800 CAL CENTER DRIVE	SACRAMENTO	CA	95826 -3200
JULIE	PETTIJOHN	BRANCH CHIEF BERKELEY/HQ	DEPARTMENT OF TOXIC SUBSTANCES CONTROL	700 HEINZ AVENUE SUITE 200	BERKELEY	CA	94710 -2721
KATHERINE	KENNEDY	AIRPORT PLANNER	FEDERAL AVIATION ADMINISTRATION (FAA)	1000 MARINA BOULEVARD, SUITE 220	BRISBANE	CA	94005
REBECCA	BUSTOS	STAFF LIAISON	HISTORICAL AND LANDMARKS COMMISSION	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
DAN	RIVAS		CALTRANS DISTRICT 4, OFFICE OF LOCAL ASSISTANCE	P.O. BOX 23660	OAKLAND	CA	94623 -0660
LAURA	MIRANDA	COMMISSIONER	NATIVE AMERICAN HERITAGE COMMISSION	1550 HARBOR BLVD, SUITE 100	WEST SACRAMENTO	CA	95691
WADE	CROWFOOT	SECRETARY	CALIFORNIA NATURAL RESOURCES AGENCY	715 P STREET	SACRAMENTO	CA	95814
JAMES	BOOTH	DISTRICT CONSERVATIONIST	NATURAL RESOURCES CONSERVATION SERVICES	2337 TECHNOLOGY PKWY., SUITE C	HOLLISTER	CA	95023 -2544
FAIYAZ	ALI	DEPUTY DIRECTOR	NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT, AVIATION DEPARTMENT	1701 AIRPORT BOULEVARD, SUITE B-1130	SAN JOSE	CA	95110 -1206
			SAN FRANCISCO BAY CONSERVATION & DEVELOPMENT COMMISSION	375 BEALE STREET, SUITE 510	SAN FRANCISCO	CA	94105
KEITH	LICHTEN	DIVISION CHIEF	SAN FRANCISCO BAY RWQCB, REGION 2	1515 CLAY SUITE 1400	OAKLAND	CA	94612
DANIEL	WELSH	DEPUTY FIELD SUPERVISOR	SAN FRANCISCO BAY-DELTA FISH AND WILDLIFE OFFICE	650 CAPITOL MALL, SUITE 8-300	SACRAMENTO	CA	95814

TABLE E-2 AGENCIES AND LIBRARIES							
First Name	**Last Name**	**Title**	**Agency**	**Address**	**City**	**State**	**Zip**
			COUNTY OF SANTA CLARA ROADS AND AIRPORT DEPARTMENT	101 SKYPORT DRIVE	SAN JOSE	CA	95110
RUBEN	TORRES	FIRE CHIEF	SANTA CLARA FIRE DEPARTMENT, FIRE STATION NO. 1 /FIRE ADMINISTRATION	777 BENTON STREET	SANTA CLARA	CA	95050
			SANTA CLARA FIRE STATION #2	1900 WALSH AVE	SANTA CLARA	CA	95050
GERRY	HAAS	PROGRAM MANAGER	SANTA CLARA VALLEY HABITAT AGENCY	535 ALKIRE AVENUE	MORGAN HILL	CA	95037
			SANTA CLARA VALLEY TRANSPORTATION AUTHORITY	3331 NORTH FIRST STREET	SAN JOSE	CA	95134 -1927
COLLEEN	HAGGERTY		SANTA CLARA VALLEY WATER DISTRICT-- COMMUNITY PROJECTS REVIEW UNIT	5750 ALMADEN EXPRESSWAY	SAN JOSE	CA	95118
WENDY	STONE	PROGRAM MANAGER, CUSTOMER DEVELOPMENT	SILICON VALLEY POWER	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
KEVIN	KEATING	ELECTRIC DIVISION MANAGER	SILICON VALLEY POWER (CITY OF SANTA CLARA)	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
PHILLIP	CRADER	ASST. DEPUTY DIRECTOR	STATE WATER RESOURCES CONTROL BOARD, WATER QUALITY DIVISION	P.O. BOX 100	SACRAMENTO	CA	95812 -0100
RYAN	OLAH	DIVISION SUPERVISOR	US FISH & WILDLIFE SERVICE, SACRAMENTO FISH & WILDLIFE OFFICE, COAST BAY DIVISION	2800 COTTAGE WAY RM W-2605	SACRAMENTO	CA	95825
RYAN	SHEELEN	AIRPORT PLANNER	NORMAN Y. MINETA SAN JOSÉ INTERNATIONAL AIRPORT, PLANNING & DEVELOPMENT	1701 AIRPORT BLVD STE B-1130	SAN JOSE	CA	95110

TABLE E-2 AGENCIES AND LIBRARIES

First Name	Last Name	Title	Agency	Address	City	State	Zip
MARK	CONOLLY	SENIOR PLANNER	SANTA CLARA COUNTY PLANNING COMMISSION, DEPARTMENT OF PLANNING AND DEVELOPMENT	70 WEST HEDDING STREET, 7TH FLOOR	SAN JOSE	CA	95110
NIMISHA	AGRAWAL	ASSOCIATE PLANNER	CITY OF SANTA CLARA COMMUNITY DEVELOPMENT DEPARTMENT	1500 WARBURTON AVENUE	SANTA CLARA	CA	95050
NICOLE	WAUGH		CEC - ENERGY LIBRARY	715 P STREET, MS-10	SACRAMENTO	CA	95814-5504
			MILPITAS LIBRARY	160 N MAIN STREET	MILPITAS	CA	95035
		LIBRARIAN	NORTHSIDE BRANCH LIBRARY	695 MORELAND	SANTA CLARA	CA	95054-5134

TABLE E-3 INTERESTED PARTIES

First Name	Last Name	Organization	Address	City	State	Zip
JANET	LAURAIN	ADAMS BROADWELL JOSEPH & CARDOZO	520 CAPITOL MALL, SUITE 350	SACRAMENTO	CA	95814