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APPLICATION FOR SMALL POWER PLANT EXEMPTION

Sequoia Backup Generating Facility

Submitted to:

California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Submitted by:

Circlepoint

August 9, 2019

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1 INTRODUCTION

C1-Santa Clara, LLC (C1)1 files this Application for a Small Power Plant Exemption (SPPE Application) pursuant to Public Resources Code (PRC) Section 25541 and Section 1934 et seq. of the California Energy Commission (Commission) regulations for the 96.5 megawatt (MW)2 Sequoia Backup Generating Facility (SBGF). The SBGF would consist of a total of fifty-four (54) diesel-fired generators that would be used exclusively to provide backup generation to support the Sequoia Data Center (SDC), to be located at 2600 De La Cruz Boulevard, Santa Clara, California. The SBGF has been designed to operate during emergency loss of utility power with fifty-four (54) 2.25-MW generators to support the Critical Information Technology (IT) load of the server bays, mechanical cooling loads, and house power backup. **Figure 1** depicts the project location and **Figure 2** demonstrates the proposed SDC and SBGF.

Unlike the typical electrical-generating facility reviewed by the Commission, the SBGF is designed to operate only when electricity from Silicon Valley Power (SVP) is unavailable to the SDC. The SBGF would not be interconnected to the electrical transmission grid. Rather, it would consist of a generation yard electrically interconnected solely to the four-story SDC building. The generation yard would be located on the western and southern sides of the SDC building.

Section 2 of the SPPE Application provides a detailed description of the construction and proposed operation of the SBGF. To describe the context of the SBGF and its role in serving the SDC, Section 2 also includes a general description of the SDC. Additionally, Section 2 contains a list of applicable agencies and contact information with laws, ordinances, regulations, and standards (LORS) that are applicable to the SBGF as required by Subsection (i) of Appendix F of the Commission's SPPE Regulations.

Section 3 of the SPPE Application provides a description of power plant efficiency, reliability and potential energy resource impacts which may result from the construction and operation of the SBGF.

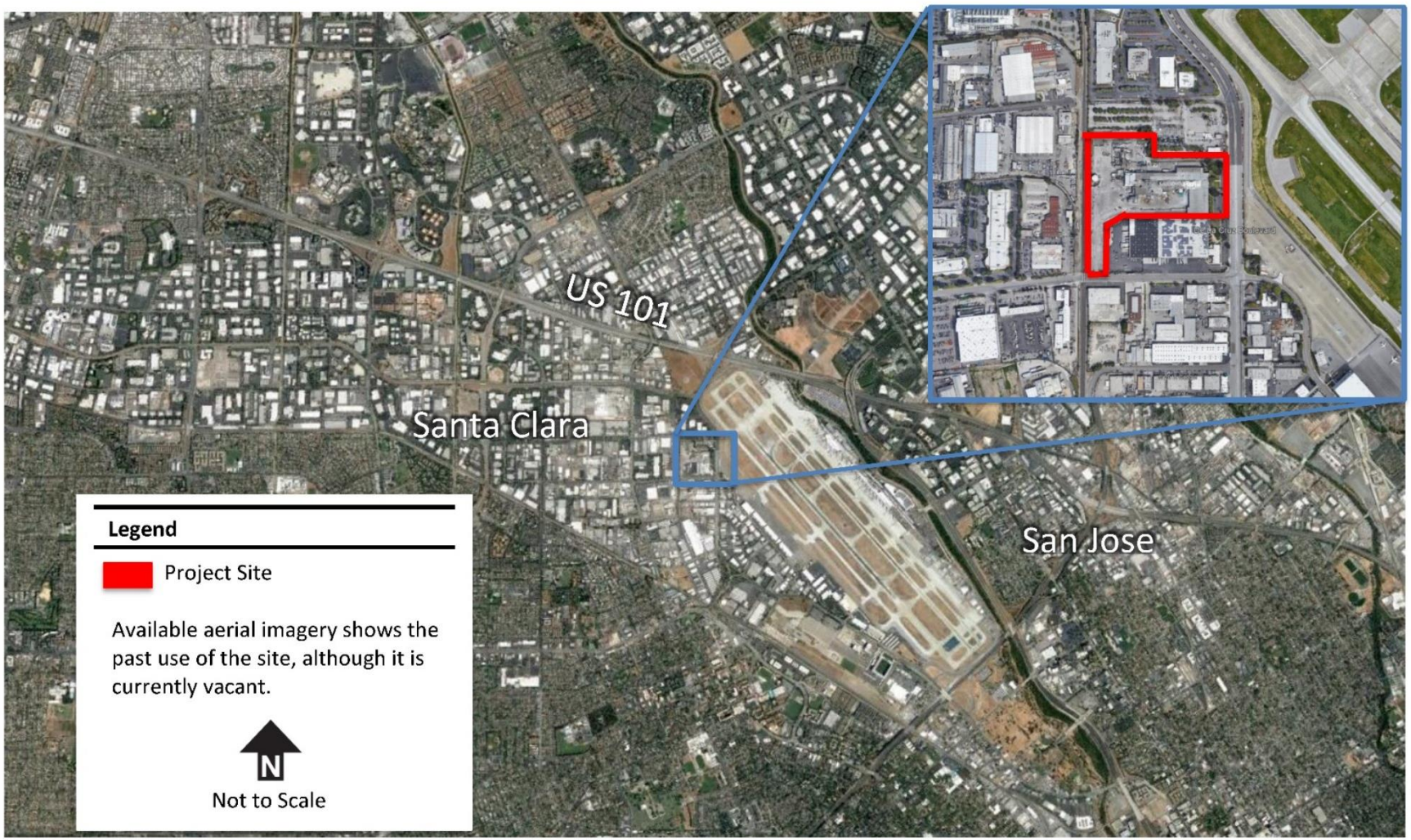
Section 4 of the SPPE Application includes environmental information and analyses in sufficient detail to allow the Commission to conduct an Initial Study consistent with Section 16063(d) of the California Environmental Quality Act (CEQA) Guidelines.

Section 5 of the SPPE Application includes a discussion of alternative backup generation configurations and technology considered by C1 including an evaluation of the No Project Alternative.

Section 6 of the SPPE Application includes a list of reference materials used to prepare the application.

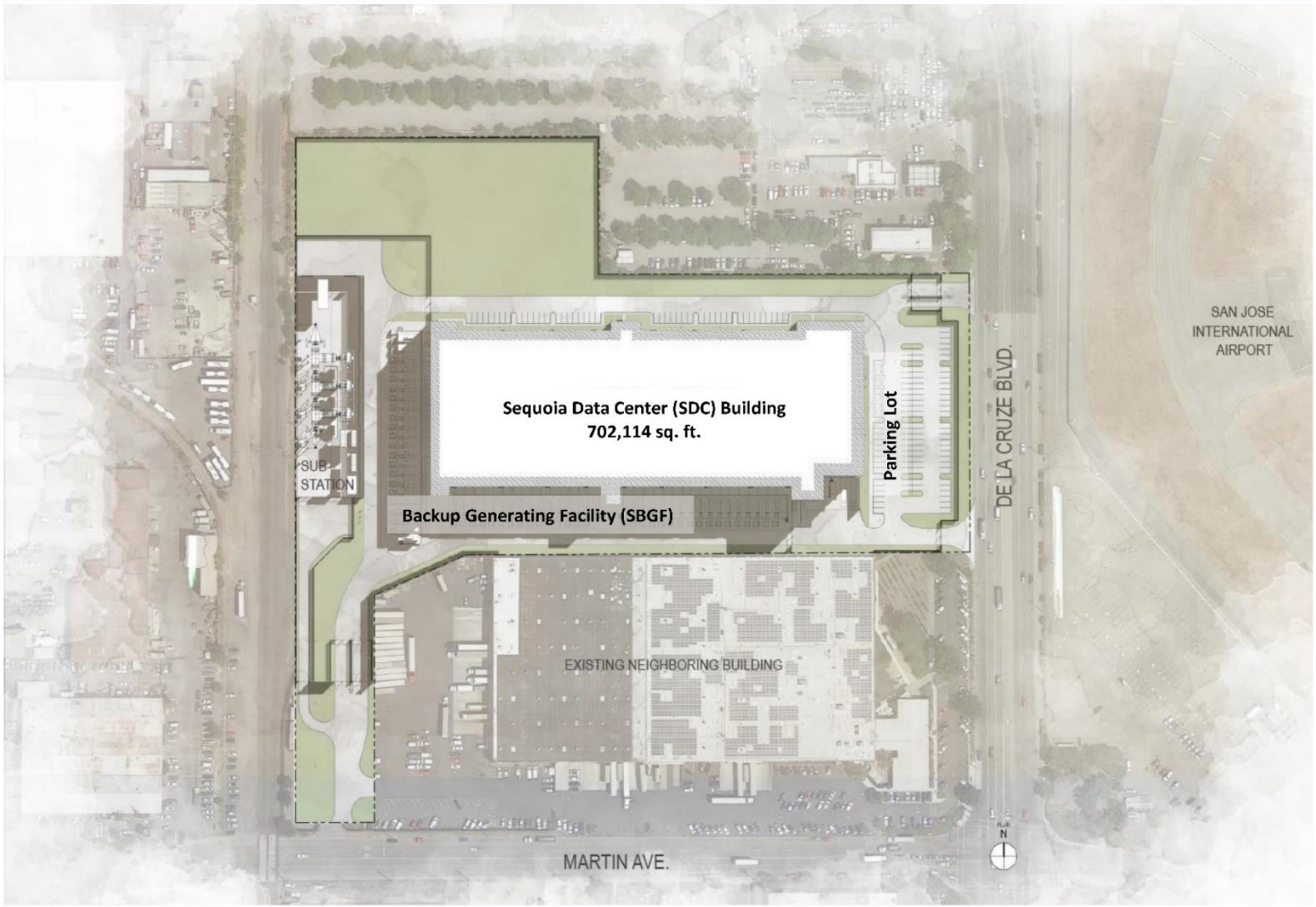
Section 7 of the SPPE Application provides a list of preparers.

[1] C1 is owned by the same parent company that owns CyrusOne.
[2] Maximum electrical demand of the SDC.



Regional Location Figure **1**

Source: Google Earth, 2019



Not to Scale

Proposed Improvements Figure **2**

Source: Corgan, 2019

1.1 Need for Backup Generation

The SDC's purpose is to provide its customers with mission-critical space to support their servers, including space conditioning (temperature control) and a steady stream of high-quality power supply. Interruptions of power could lead to server damage or corruption of the data and software stored on the servers. SVP would supply power to the SDC through a new distribution substation constructed on the SDC site and owned and operated by C1.

To ensure a reliable supply of high-quality power, the SBGF was designed to provide backup electricity to the SDC only in the event electricity cannot be supplied from SVP and delivered to the SDC building. To ensure no interruption of electricity service to the servers housed in the SDC building, the servers would be connected to uninterruptible power supply (UPS) systems that store energy and provide near-instantaneous protection from power interruptions. However, to provide electricity during a prolonged electrical interruption, a backup power generation source is required to continue supplying steady power to the servers and other equipment. The SBGF would provide that backup power.

1.2 Commission SPPE Jurisdiction

C1 acknowledges that the Commission's authorizing statute grants exclusive authority for the Commission to issue licenses for the construction and operation of thermal power plants with generating capacities in excess of 50 MW.[3] For thermal power plants with generating capacities greater than 50 MW but less than 100 MW, the Commission can grant an exemption from its licensing authority.[4] The SBGF is not a typical power-generating facility in that it would consist of generators that operate independent of the power grid. The generators would be arranged to support individual portions of the building within the SDC. None of the generators would be interconnected to the electrical transmission system and therefore no electricity could be delivered off site.[5]

1.2.1 Emergency Backup Power Facility

The SBGF would consist of a total of fifty-four (54) backup generators. The SBGF has been designed to operate during emergency loss of utility power with fifty four (54) MTU model 16V4000 DS2250 generators, each with a peak rated output capacity of 2.25 MW and a continuous steady-state output capacity of 1.91 MW.[6] The backup generators would be arranged in a generation yard located on the west and south sides of the SDC.

[3] Public Resources Code (PRC) Section 25500.
[4] PRC Section 25541 and Title 20 California Code of Regulations (CCR) Section 1934.
[5] C1 reserves all its rights regarding whether or not the Commission has jurisdiction over the SBGF and the filing of this SPPE Application is not an admission by C1 that the Commission has exclusive jurisdiction over the SBGF or the SDC.
[6] Steady state continuous generating capacity is 85 percent of the peak generating capacity. See **Appendix C**.

Based on the methodology adopted by the Commission's Final Decision Granting a SPPE for the McLaren Backup Generating Facility, the maximum generating capacity of the SBGF is determined by the maximum of capacity of the load being served.[7] In other words, the maximum generating capacity of the SBGF is limited by the combined load of the SDC building, since the SBGF is exclusively interconnected to the SDC and is not capable of delivering electricity to any other user or to the electrical transmission system. In the case of the SBGF, the maximum load for the SDC building is 96.5 MW. Therefore, the SBGF's generating capacity is below the 100 MW regulatory threshold and would qualify for consideration under the Commission's SPPE authority.

1.2.2 Data Center Facilities Not Within Scope of SPPE

The SDC is not within the scope of the Commission's jurisdiction because it is not a thermal power plant. The SDC would be the sole consumer of the electricity produced by the SBGF. C1 will submit a planning application to construct and operate the SDC to the City of Santa Clara (City) for review in August of 2019. It is anticipated that the City's review of the project will begin at this time, with the project first being evaluated by the Project Clearance Committee in August 2019.

C1 believes that although the Commission is the lead agency for making a determination of whether the SBGF is a thermal power plant that can qualify for a SPPE; that ultimate decision does not extend to the SDC facilities. C1 does acknowledge that the Commission should include the potential effects of the SDC in its CEQA analysis, but the ultimate determination of whether the SDC should be approved, denied, or subject to mitigation measures is solely within the City's jurisdiction. To assist the Commission in preparing the Initial Study with Mitigated Negative Declaration (IS/MND), C1 has provided a description of the SDC in Section 2. The potential environmental effects of the SDC are considered in Section 4 and are presented in a manner to assist the Commission in evaluating the full environmental impact associated with the co-location of the SBGF and the SDC.

To enable the City to timely conduct its review of the SDC, C1 requests the Commission complete its review of the SBGF by January 1, 2020.

[7] Final Decision Granting SPPE for the McLaren Backup Generating Facility, 17-SPPE-01, CEC-800-2018-003-CMF, page 8.

2 PROJECT DESCRIPTION

2.3 Overview of Proposed Generating Facilities

SBGF would be a backup generating facility with a generation capacity of up to 96.5 MW to support the SDC's purpose of providing uninterruptible power supply for its tenant's servers. The SBGF would consist of 54 diesel-fired backup generators arranged in a generation yard located on the west and south sides of the SDC. Project elements will also include switchgear and distribution cabling to interconnect the generators to their respective portion of the buildings.

2.4 Generating Facility Description, Construction and Operation

2.4.1 Site Description

The proposed SDC site encompasses 15 acres and is located at 2600 De La Cruz Boulevard in the City, California, assessor's parcel number (APN) 230-03-105. The property is zoned Heavy Industrial. The site was previously developed with a one-story recycled paperboard mill and warehouse. The mill utilized a combined-cycle cogeneration plant with a natural gas turbine. The majority of the site surfaces were paved. The initial development of the site appears to have been begun in the late 1940s and early 1950s. The site is currently vacant and unpaved.[8]

The property is bound to the north by an Enterprise Rent-a-Car Facility, to the south by a furniture warehouse, to the east by San Jose International Airport (SJC), and to the west by warehouse structures. The project area consists primarily of industrial land uses. Buildings in the area are generally similar in height and scale. SJC is approximately 100 feet east of the site. A list of all property owners within 1,000 feet of the site was generated by the City in July 2019 and is included as **Appendix A**.

2.4.2 General Site Arrangement and Layout

The 54 backup generators would be located in a generation yard along the west and south sides of the SDC building. **Figure 2** shows the general arrangement and site layout of the SBGF within the SDC site.

Each backup generator is proposed as a fully independent package system with a dedicated and integrated fuel tank located below the bottom level of the generator. The generation yard would be electrically interconnected to the SDC building through above-ground cables to a location within the building that houses electrical distribution equipment.

[8] The City of Santa Clara issued a demolition permit to C1 on February 7, 2019 and at the time of the filing of this SPPE, demolition activities have been completed for every project feature except for piping and miscellaneous infrastructure associated with the former cogeneration facility.

2.4.3 Generating Capacity

The following facts are relevant to determining the generating capacity of the SBGF.

1. The SBGF uses internal combustion engines.
2. The SBGF internal combustion engines have a peak rating and a continuous rating.
3. The SBGF through software technology and electronic devices is controlled exclusively by the SDC.
4. The SBGF has been designed with a "6 to make 5" design basis to ensure redundancy, making 9 generators redundant.
5. The SBGF would only be operated for maintenance and testing and during emergencies.
6. The SBGF during an emergency would only operate at a load equal to the demand by the SDC.
7. The SBGF would not be interconnected to the transmission grid or anything else, including connection through the SDC.

C1 offers the following methodologies for the Commission to use to determine generating capacity that would be reasonable, not arbitrary and capricious, and would take into account the unique features of a backup generating facility such as the SBGF.

Data Center Load Demand

The preferred and most accurate way to calculate the generating capacity of the SBGF is to recognize that the load of the backup generators would be completely dictated by the demand of the data center. Using this methodology reflects the most accurate way of describing the relationship between the SBGF and the SDC and describes the actual physical constraint to the generating capacity. In other words, the SDC would employ physical electronic devices and software technology (Automatic Transfer Switches, Building Load Management System) that limit the output of the SBGF.

The SDC would include load-shedding software and electronic equipment that would automatically adjust the output of the SBGF based only on the demand of the SDC. The demand of the data center is not some ethereal concept derived for purposes of determining generating capacity. It is instead a physical constraint not controlled by C1, but rather controlled through software and electronic control devices. The software and electronic control devices would match the output of the SBGF during an emergency where SVP cannot serve the SDC load. The fact that the SBGF is not electrically connected to anything other than the data center creates this unique factual circumstance.

This unique situation must be distinguished from the case of a conventional power facility that is interconnected to the transmission grid and responds to calls from the California Independent System Operator (CaISO). In the case of a conventional power facility, the CaISO can call on any portion of the generator's capacity, including its maximum generating capacity, as the CaISO can direct the electricity to different parts of the system. For the SBGF, there would be one place the electricity can go – the SDC.

Therefore, the most accurate way of calculating generating capacity from a backup generating facility that solely supports a data center is to understand the potential load of the receiving data center. It is also important to note that the design demand of the SDC, which the SBGF has been designed to reliably supply with redundant components during an emergency, is based on the maximum Critical IT load occurring during the hottest hour in the last 20 years. Such conditions are possible but extremely unlikely to ever occur. The SDC load on that worst-case day is just under 97 MW, below the SPPE threshold.

Each set of 6 generators would be dedicated to serve the Critical IT requirement of a data hall. In addition, each set of six generators would share a portion of the overall building mechanical load, which is primarily driven by cooling of the data hall and the common space of the building (lobby, conference area, hallways, etc.). The SDC would have seven data halls, each designed to provide 7.5 MW of Critical IT as well as four data halls each designed to provide 3.75 MW of Critical IT, for a total Critical IT load of 67.5 MW. The total mechanical building load for the SDC for the hottest day in the last 20 years is 29 MW. Therefore, the maximum SDC building load would be 67.5 MW Critical IT plus 29 MW of Total Mechanical Building Load, or 96.5 MW.

It is important to note that while the SDC has been designed to accommodate full Critical IT load, it is C1's experience that clients rarely utilize the entire Critical IT load available inside a data hall(s) that it rents. Also, the average ambient temperature conditions for a data center in the City area are much lower than the design day. The average Critical IT load is expected to be more on the order of 47 MW and the average total mechanical building load is expected to be approximately 11 MW.

The data center industry utilizes a factor called the Power Utilization Efficiency Factor (PUE) to estimate the efficiency of data centers. The PUE is calculated by dividing the total demand of the data center by the Critical IT load. For the worst-case day, the peak PUE for the SDC would be 1.43 (total 96.5 MW demand of building on worst-case day divided by 67.5 MW total Critical IT load). The average PUE for the SDC would be 1.23 (total 58 MW demand of building average conditions divided by 47 MW expected Critical IT load).

Regulatory Capacity Restriction

The Commission should also consider that C1 is currently in negotiations with SVP to supply electricity to the SDC. SVP has provided a will-serve letter (**Appendix B**) that confirms its ability to provide up to 99 MW to C1 for the SDC. C1 and SVP are currently negotiating an agreement that will contractually limit the amount of deliverable electricity to the SDC to less than 100 MW. In other words, if the SDC cannot take delivery of more than 100 MW from SVP, the SBGF, which replaces the electricity that SVP is unable to deliver, would never exceed 100 MW.

2.4.4 Backup Electrical System Design

Overview

To place the role of the SBGF into context, the following information about the overall SDC design is provided. The design objective of the backup electrical system is to provide sufficient equipment and redundancy to ensure that the servers housed in the SDC buildings would never be without electricity to support critical loads. The critical loads include the load systems to support the building operation in addition to the electricity consumed by the servers themselves. The largest of these building loads is the mechanical systems to provide cooling for the server rooms.

For backup supply for a data center, it is commonplace to build levels of systems and equipment redundancy and concurrent maintainability into the overall electrical and mechanical infrastructure. The base quantity of systems that are required to serve the design load of the facility is referred to as "N". When reliability requirements dictate that redundant systems are added to the base quantity of systems, it is commonplace in the industry to refer to the number of redundant systems as "X" in the representation "N+X".

Each electrical system would consist of a UPS system that would be supported by batteries, electrical switchgear, an electrical inverter, and portions of the SBGF backup generation. The UPS systems that would be deployed at the SDC would consist of one (1) 1500 kilo-volt ampere (KVA) UPS unit to provide "N Unit" of redundancy for a critical capacity of 1.5 MW. This UPS unit would power a potential 1.5 MW of critical load by employing load-sharing capabilities inherent to the UPS design. The power inputs of the UPS unit would be electrically connected to a single main switchboard. This main switchboard would be connected to a dedicated 2500 KVA utility transformer as well as dedicated to one of the SBGF backup generators.

Six 1.5 MW UPS systems would equally share a maximum 7.5 MW critical load. The system would work as a distributive redundant (6 to make 5) N+1 system such that if any single N system were to catastrophically fail, the surviving 5 would have sufficient capacity to provide power to the maximum critical load. There are nine of these 6-to-make-5 systems proposed in the SDC.

UPS System and Batteries

The UPS System and Batteries are part of the SDC and are not part of the SBGF. However, the following description is provided to describe how the UPS would dispatch the individual generators of the SBGF. The UPS would protect the load against surges, sags, under voltage, and voltage fluctuation. The UPS would have built-in protection against permanent damage to itself and the connected load for all predictable types of malfunctions. The load would be automatically transferred to the bypass line without interruption in the event of an internal UPS malfunction. The status of protective devices would be indicated on a liquid crystal display (LCD) graphic display screen on the front of the UPS. The UPS would operate in the following modes:

- **Normal** – Insulated Gate Bipolar Transistor (IGBT) Rectifier converts alternating current (AC) input power to DC power for the inverter and for charging the batteries. The IGBT inverter supplies clean and stable AC power continuously to the critical load. The UPS Inverter output shall be synchronized with the bypass AC source when the bypass source is within the AC input voltage and frequency specifications.

- **Loss of Main Power** - When main power is lost, the battery option shall automatically back up the inverter so there is no interruption of AC power to the critical load.

- **Return of Main Power or Generator Power** - The system shall recover to the Normal Operating Mode and shall cause no disturbance to the critical load while simultaneously recharging the backup battery.

- **Transfer to Bypass AC source** - If the UPS becomes overloaded, or an internal fault is detected, the UPS controls shall automatically transfer the critical load from the inverter output to the bypass AC source without interruption. When the overload or internal warning condition is removed, after a preset "hold" period the UPS will automatically re-transfer the critical load from the bypass to the inverter output without interruption of power to the critical load.

- **Maintenance Bypass** - An optional manual make-before-break maintenance bypass panel may be provided to electrically isolate the UPS for maintenance or test without affecting load operation.

Similarly, the batteries and battery banks would not be a part of the SBGF and are described here for informational purposes only. The batteries would be configured in banks of eight cabinets. The banks would be connected to the UPS units as described above. The batteries would have tab washers mounted on front terminal posts capable of accepting the wiring components of a battery monitoring system. Batteries would have a minimum design life of 10 years in float applications at 77 degrees Fahrenheit. The battery containers and covers are polypropylene, are hermetically sealed to provide leak resistance over the life of the product, and are flame retardant to meet UL standard 1778.[9]

The batteries would be configured in banks with matching stand-alone valve-regulated battery banks with the following characteristics.

- Each battery bank would provide a minimum of 10 minutes of backup at 75 percent rated inverter load of 1500 kilowatts (kW), at 77°F/25°C, end of life
- Internal cabinet temperature sensor to be wired back to the UPS module
- Conductor terminations will be NEMA two-hole long barrel compression lugs

[9] Underwriters Laboratories, or UL, is a national leader in producing electrical and fire safety standards.

2.4.5 Electrical Generation Equipment

Each of the 54 generators would be a Tier-2 standby diesel-fired generator equipped with diesel particulate filters (DPF). The generators would be MTU model 16V4000 DS2250. The maximum peak rating of the DS2250 is 2250 kW with a steady-state continuous generating capacity of 1.91 MW. Specification sheets for each manufacturer and evidence of the steady-state continuous ratings of the generators are provided in **Appendix C**.

Each individual generator would be provided with its own package system. Within that package, the prime mover and alternator would be made ready for the immediate call for the request for power controlled by the UPS. The generator package would integrate a dedicated fuel tank with a capacity of 6,800 gallons. The generators would be located in a generator yard along the west and south sides of the building. The generators are approximately 13 feet wide, 37 feet long, and 17 feet high. Each generator on the western side of the SDC would have a stack height of approximately 38 feet 9 inches. Each generator along the southern side of the SDC would have a stack height of approximately 24 feet 9 inches. When placed on slab, they would be spaced approximately 5 feet apart horizontally. The generator yards would have 20-foot-high precast concrete screen walls and 8-foot-high decorative metal fence.

2.4.6 Major Electrical Equipment and Systems

There would be a load disconnect breaker at the generator alternator that is normally closed while the generator is both in and out of operation. From that load disconnect, a 600-volt rated power cable bus would traverse from the generator into the data center facility (SDC building) terminating on a dedicated main generator input breaker. The power cable bus would be rated for the full ampacity output rating of the generator. The generator would also include a load bank connection, allowing each generator to be individually connected to a load bank for periodic maintenance and testing. The generator main breaker would be electrically interlocked with an adjacent utility transformer main breaker within the main switchboard, such that the generator main breaker can never close unless the utility transformer main breaker is in the open state. The generator main breaker would only close based upon a generator start request from a Programmable Logic Controller (PLC) control logic that indicates that:

- The utility transformer main breaker's source power is unavailable,
- The generator has started and is producing 480-volt AC power, and
- The utility transformer main breaker is in the open state

Once the generator main breaker is closed, the power created from the individual generator is then transmitted to the dedicated load of the 1.5 MW critical UPS load system and connected mechanical equipment. This load would be the exact same load that the dedicated utility transformer was supplying power to prior to the utility interruption. Power from this individual generator could not be transferred to any other load or system or anywhere outside the facility.

2.4.7 Fuel System

The backup generators would use ultra-low sulfur diesel as fuel (<15 parts per million sulfur by weight). The 54 generators would have a combined diesel fuel storage capacity of 367,200 gallons, designed to provide 24 hours of emergency generation at full demand of the SDC.

2.4.8 Cooling System

Each generator would be air cooled independently as part of its integrated package and therefore there is no common cooling system for the SBGF.

2.4.9 Water Supply and Use

The SBGF would not require any consumption of water. The SDC will use approximately 5 acre-feet per year of potable water for domestic and irrigation uses to be supplied by the City via a new pipeline from the building to an interconnection with an existing water pipeline located in De La Cruz Boulevard. Chilled hydronic water piping would require an initial one-time water use of approximately 0.5 acre-feet prior to commercial operation.

2.4.10 Waste Management

The SBGF would not create any waste materials other than minor amounts of solid waste created during construction and maintenance activities. The SDC would generate sanitary sewage which would be sent via underground pipeline from the building to an interconnection with an existing sewer pipeline located in De La Cruz Boulevard.

2.4.11 Hazardous Materials Management

The project would require the preparation of a Spill Prevention, Control and Countermeasure Plan (SPCC) to address the storage, use, and delivery of diesel fuel for the generators.

Each generator unit and its integrated fuel tanks have been designed with doublewalls. The interstitial space between the walls of each tank would be continuously monitored electronically for the presence of liquids. This monitoring system would be electronically linked to an alarm system in the security office. This system would alert personnel if a leak is detected. Additionally, the standby generator units would be housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel would be delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of 8,500 gallons. The tanker truck would park at the gated entrances to the generator yard for re-fueling.

The SBGF would not include loading/unloading racks or containment for re-fueling events; however, a spill catch basin would be located at each fill port for the generators. To prevent a release from entering the storm drain system, drains would be blocked off by the truck driver and/or facility staff during fueling events. Rubber pads or similar devices would be kept in the generation yard to allow quick blockage of the storm sewer drains during fueling events.

To further minimize the potential for diesel fuel to come into contact with stormwater, to the extent feasible, fueling operations would be scheduled at times when storm events are improbable.

Warning signs and/or wheel chocks would be used in the loading and/or unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off would be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures would be posted at the loading and unloading areas.

2.4.12 SBGF Project Construction

Construction activities for the SDC are expected to begin in January 2020 and are discussed in more detail in **Section 2.5, Sequoia Data Center Facilities Description**. Since the site preparation activities for the SDC would include the ground preparation and grading of the entire SDC site, the only construction activities for the SBGF would involve construction of the generation yard. This would include construction of concrete slabs, fencing, installation of above-ground conduit and electrical cabling to interconnect to the SDC Building switchgear, and placement and securing of the generators.

The generators themselves would be assembled offsite and delivered to the site by truck. Each generator would be placed within the generation yard by a crane.

Construction of the generation yard and placement of the generators is expected to take 6 months. Construction personnel are estimated to range from 10 to 15 workers including one crane operator.

2.4.13 SBGF Facility Operation

The backup generators would be run for short periods for testing and maintenance purposes. Other than maintenance and testing, the generators would not be operated unless there is a disturbance or interruption of the utility supply. The Bay Area Air Quality Management District (BAAQMD)'s Authority to Construct and the California Air Resources Board's (CARB) Airborne Toxic Control Measures (ATCM) limits each engine to no more than 50 hours of operation annually for reliability purposes (i.e., testing and maintenance). However, it is C1's experience that maintenance and testing of each engine rarely exceeds 10 hours annually. In addition, C1 will only operate one engine at a time for maintenance and testing activities. Please see **Section 4.3, Air Quality** for additional description of the testing and maintenance frequencies and loading proposed for the SBGF.

2.5 Sequoia Data Center Facilities Description

2.5.1 Overview

As described in **Section 1.2, Commission SPPE Jurisdiction** the Commission SPPE's determination is limited to solely to the SBGF. However, in order for the Commission to inform the decision-makers of the potential environmental effects of the SBGF in combination with the SDC, we have included a complete description of the SDC.

The 15-acre project site is located at 2600 De La Cruz Boulevard in the City, California, APN 230-03-105. The SDC site is currently vacant. The data center building would house computer servers for private clients in a secure and environmentally controlled structure and would be designed to provide 67.5 MW of information technology (Critical IT) power. A site plan of the proposed development is shown on **Figure 2**. The data center building would be oriented generally east to west, with surface parking on the northern and eastern sides. The SBGF would be along the western and southern exterior of the data center building. Total permanent employees for operation of the SDC is anticipated to be 25.

The SDC building would include 4 stories and would encompass approximately 702,114 square feet of gross area, of which approximately 70,000 square feet would be dedicated for administrative and office uses. The SDC building would employ a steel structure and insulated pre-cast panel cladding, and has been designed to California Building Code (CBC) seismic standards. The SDC will be supported on a mat slab foundation.

The SDC would include construction of a new 100 megavolt amps (MVA) electrical substation in the western portion of the site. The three-bay substation (two 60/80/100 MVA 60 kV-25 kV step-down transformers with future spare bay) would have an all-weather asphalt surface underlain by an aggregate base. A concrete masonry unit screen wall, 12 feet in height, would surround three sides of the substation with an 8-foot security fence on the remaining side. The substation would be capable of delivering electricity to the SDC from SVP but would not allow any electricity generated from the SBGF to be delivered to the transmission grid.

2.5.2 Building Heights and Setbacks

SDC has a typical height of 85 feet from adjacent grade to the top of the main parapet, with a 20-foot floor-to-floor height at each of its four stories. Top of screening, when applicable according to sight lines, will be at 99 feet from adjacent grade. A stair and freight elevator tower at the southeast corner of the site exceed the building in height to allow roof access – the parapet of this element is at a 105-foot elevation.

The building footprint is set back in the following dimensions from the property line:

- East elevation: 76 feet from property line, required setback 15 feet per zoning ordinance
- North elevation: 77 feet from property line, required setback 10 feet per zoning ordinance
- South elevation: 93 feet from property line, required setback 10 feet per zoning ordinance
- West elevation: 216 feet from property line, required setback 0’ feet per zoning ordinance (rear)

2.5.3 Site Access and Parking

The main site access would be provided from De La Cruz Boulevard at two access points. At the north De La Cruz Boulevard access point, access would be controlled through security clearance. This clearance occurs through multiple layers on the entry lane, including a gate and an arm barrier with card reader authorization. The secondary De La Cruz Boulevard access would be slightly farther to the south and

would allow for exiting only, no entry. In addition, a third secure access for trucks would be constructed on the site from Martin Avenue (along the southernmost property line). At that location, a dedicated SVP lane would be provided for access to the substation.

A fire loop drive would be located around the building on all four sides and would connect all entrances. On the north side, the fire lane would allow for aerial access by the fire department.

Parking is concentrated along the east elevation of the building near the main entrance, as well as along the north elevation. A total of 140 parking spaces are planned to serve the SDC.

2.5.4 Site Grading, Excavation, and Construction

The site grading plan includes the pad grading for the building, rough and fine grading of parking lot, sidewalks, driveways and landscape areas including bioretention planters. The fills and cuts would be between 2 to 3 feet. The expected volume of cut material is 12,500 cubic yards and the anticipated amount of fill material is 11,300 cubic yards. Excavation spoils for footings and utility trenches would be used within parking lot areas or hauled off. Grindings from existing concrete and asphalt would be reused for parking and building areas.

The project construction schedule is as follows:

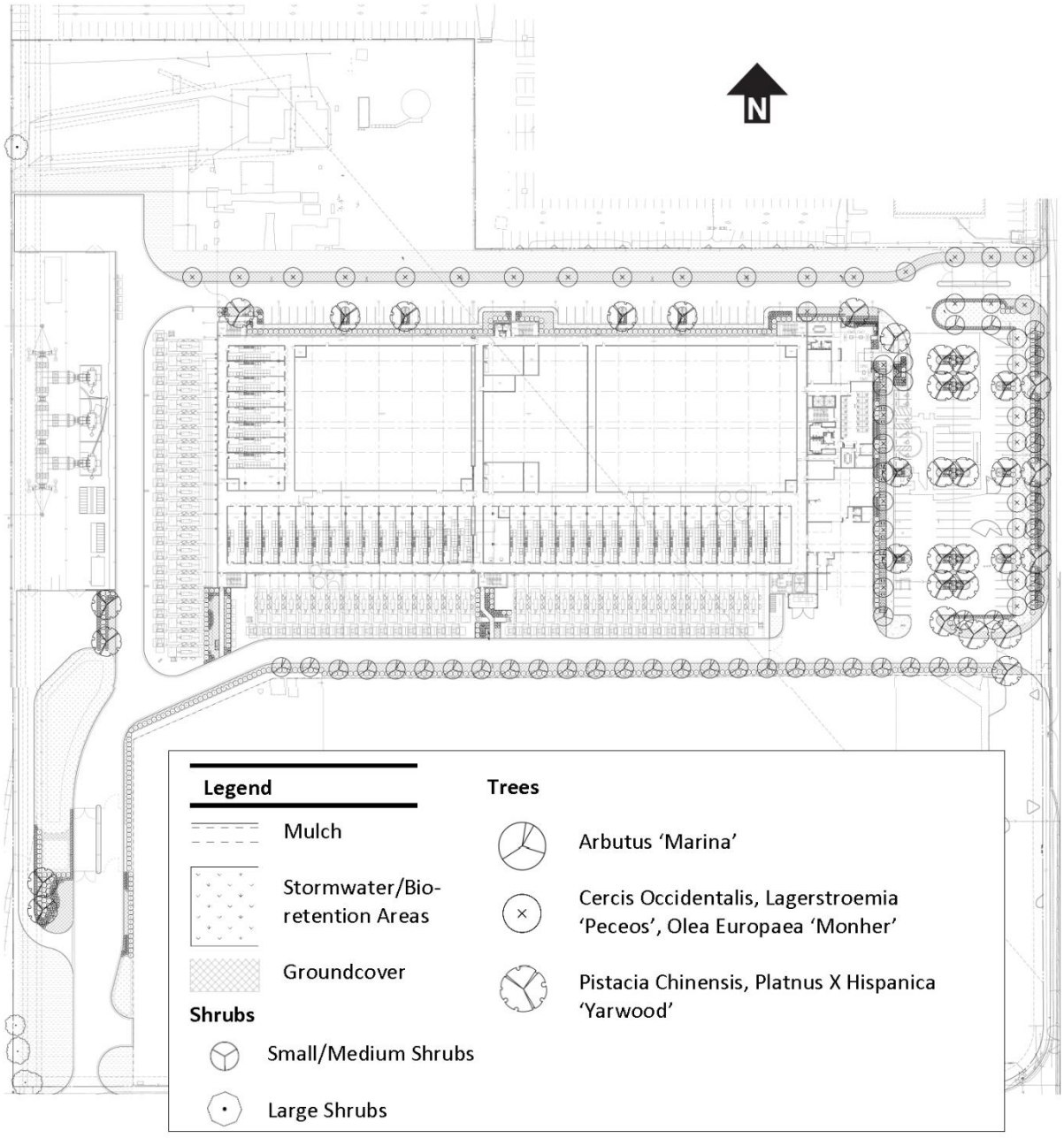
Rough Grading of Site: February 2020- April 2020

Installation of Utilities: March 2020- June 2020

Building Construction July 2020- March 2021

2.5.5 Landscaping

Construction of the SDC and SBGF would require the removal of 66 trees on-site. A total of 66 replacement trees would be planted in at-grade planters around the site, replacing trees at a 1:1 replacement ratio. New landscaping would be drought tolerant and low maintenance, consisting of native and regionally appropriate trees, shrubs, and groundcover to be installed throughout the SDC site and along the property boundaries in similar hydrozones. Trees would be planted five feet away from new or existing water mains or utility lines. A site plan of the proposed landscaping is shown in **Figure 3.** Irrigation design will comply with the requirements of the California Model Water Efficient Landscape Ordinance, Santa Clara, and Santa Clara County guidelines. The irrigation system will be a fully automatic weather-based system using rain sensor, low flow drip, and bubbler distribution. The system will include a master control valve and flow sensing capability which will shut down all or part of the system if leaks are detected.



Not to Scale

Landscaping Plan Figure **3**

Source: Corgan, 2019

2.5.6 Stormwater Controls

The SDC includes construction of stormwater infiltration treatment areas consisting of 18-inch sand loam and 12-inch rock with perforated pipe. The stormwater treatment areas total approximately 18,250 square feet. The stormwater treatment areas would be located around the perimeter of the site and adjacent to paved parking areas. The existing stormwater lift station located on the southwest corner of the site would be removed, and the existing 24-inch storm connection to De La Cruz Boulevard would be replaced or repaired. Repair would include cleaning out the pipe to remove debris. The existing manhole in street would need to be raised, as it is presently paved over.

No storm drain connections to the new building are proposed, as the runoff from the new building is required to be treated on-site in accordance with C.3 regulations. Runoff from the new building would be collected from the roof downspouts and conveyed via an on-site storm drain system to the stormwater planter areas for treatment. Site runoff is designed to surface flow to the treatment planters. The overflow structures from the treatment planters would then direct the overflow runoff through onsite storm drain system to the public storm system in De La Cruz Boulevard.

2.5.7 Facility Utilities

As part of the construction of the new data center building, domestic water, fire water, sanitary sewer, fiberoptic, and natural gas connections would be installed through an extension of utility lines from City infrastructure systems located along De La Cruz Boulevard.

The potable water system for the building would be served with a 4-inch to 6-inch service to accommodate the data center water demand. A looped 10-inch fire service line would be installed with fire hydrants spaced evenly every 300 feet around building. A new fire pump would be provided to accommodate required sprinkler flows for the building. A 6-inch sanitary sewer connection is proposed for the project from De La Cruz Boulevard. An electrical substation would be constructed on site to meet the electrical requirements of the data center. Gas services would be provided from De La Cruz Boulevard. **Appendix D** shows the utility linears proposed as part of the SDC.

2.5.8 SVP Electrical Distribution Facilities

C1 would construct a new distribution substation to support the SDC. The 60-kV side of the substation would ultimately be owned and operated by SVP as part of its distribution network. The transformers and secondary substation will be owned and operated by C1. The new substation would be interposed on SVP's South Loop between the 115-kV receiving station and an adjacent 60 kV substation. The South Loop terminal ends are comprised of 115 kV receiving stations (#1 and #2) which are connected to the greater SVP Bulk Electric System (BES). Each 115-kV receiving station steps the voltage down to SVP's service territory transmission voltage of 60 kV. Reliability is maintained such that, if there is a fault along any section of the Loop, electric service is still supplied from the receiving stations from either end.

The new conductor that interconnects the new substation to the bulk electrical system will be an aluminum conductor composite reinforced type, size 715 double bundle with a carrying capacity of 310 MVA. SVP's general practice is to use tubular steel transmission poles for the two dead end structures.

While SVP has not yet designed the 60 kV transmission lines that interconnect the new substation, the transmission line that currently passes near the western property line on the railroad right-of-way will be intercepted and rerouted into the new substation to form a loop on the SVP 60 kV transmission system. Each line terminal and transformer tap will be protected by 60 kV breakers.

2.6 Permitting and Regulatory Agencies

The table below outlines public agencies other than the Commission which have responsibility for carrying out the SDC or jurisdiction over natural resources affected by the SDC. This includes agencies responsible for enforcing LORS for the SDC.

Table-1.12-6 Responsible and Trustee Agencies

Agency	Contact	LORS
City of Santa Clara	Debbie Fernandez	National Pollution Discharge Elimination System (NPDES) Permitting. Also see topics listed above.
Silicon Valley Power (City of Santa Clara)	Kevin Keating Electric Division Manager 408-615-6600 1500 Warburton Avenue Santa Clara, CA 95050	Will-Serve Determination
San Francisco Bay Area Regional Water Quality Control Board (RWQCB)	Robert Schlipf Water Resource Control Engineer Robert.Schlipf@waterboards.ca.gov 510-622-2478. 1515 Clay Street, Suite 1400 Oakland, CA 94612	Although the City is responsible for NDPES permitting, the SDC would be required to comply with the RWQCB Municipal Regional Stormwater NPDES Permit (Permit Number CAS612008)

Agency	Contact	LORS
Bay Area Air Quality Management District (BAAQMD)	Gregory Nudd Deputy Air Pollution Control Officer, Executive gnudd@baaqmd.gov 415-749-4786 375 Beale Street, Suite 600 San Francisco, CA 94105	Authority to Construct (ACT) for the SBGF
Federal Aviation Administration (FAA)	Katherine Kennedy Airport Planner katherine.kennedy@faa.gov 650-827-7611 1000 Marina Boulevard, Suite 220 Brisbane, CA 94005	Construction Notification

Source: Circlepoint, 2019

2.7 Project Design Measures

C1 has incorporated the following design measures into the project to avoid environmental impacts. These measures apply to the SDC as a whole, including the SBGF, unless otherwise noted.

Air Quality

To assure fugitive dust impacts are less than significant, the Applicant will incorporate the BAAQMD's recommended BMPs as a project design feature. These project design features will include:

- All exposed surfaces (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved surfaces shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the Airborne Toxic Control Measure to Limit Diesel- Fueled Commercial Motor Vehicle Idling [Title 13, Section 2485, CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.

- A publicly visible sign shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

C1 commits to standard operating procedures that will limit operation for maintenance and testing to one generator at a time. It is C1's experience that maintenance and testing of each engine rarely exceeds 10 hours annually. **[SBGF only]**

Biological Resources

In order to reduce impacts to biological systems and communities, the following measures shall be implemented:

- Schedule tree removal activities between September 1 and January 31 (inclusive) to avoid the nesting season (including for raptors) and no additional surveys would be required.
- If construction tree removal would take place between February 1 and August 31, pre-construction surveys for nesting birds shall be completed by a qualified ornithologist to ensure that no nests will be disturbed.
- Surveys will be completed no more than seven days prior to the initiation of site clearing or construction activities. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g., shrubs) in and immediately adjacent to the construction area for nests.
- If an active nest is found sufficiently close to work areas to be disturbed by construction, the ornithologist will determine the extent of a disturbance-free buffer zone to be established around the nest (typically 250 feet for raptors and 50-100 feet for other species). This will ensure that no nests of species protected by the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code will be disturbed during project implementation.
- A report indicating the result of the survey and any designated buffer zones shall be submitted to the satisfaction of the Planning Department prior to the start of construction.

The following pre-construction and construction period measures shall be undertaken to avoid impacts to sensitive wildlife species:

- A qualified biologist shall conduct preconstruction surveys for burrowing owls prior to construction. Should these surveys identify burrowing owls on or near the SDC site, avoidance of disturbance to the burrow will be conducted as outlined below:
    - If an active burrowing owl nest is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1).
    - If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a qualified biologist will establish a no-activity zone. The no activity zone will be large enough to avoid nest abandonment and will at minimum be 250-foot radius from the nest.

    - If burrowing owls are present within the construction footprint during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet.
    - If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, and the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.
- Prior to construction, employees and contractors performing construction activities will receive environmental sensitivity training from a qualified wildlife biologist. Training will include review of environmental laws and avoidance and minimization measures that must be followed by all personnel to reduce or avoid effects on covered species during construction activities. A brief presentation by a qualified wildlife biologist will explain potential wildlife concerns to contractors, their employees, and agency personnel involved in the project. Fact sheets conveying this information and an educational brochure containing color photographs of burrowing owls will be prepared for distribution to the above-mentioned people and anyone else who may enter the project area.
- Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects on these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

Cultural Resources

A qualified archaeologist shall be on site to monitor grading and excavation of soil. The project applicant shall submit the name and qualifications of the selected archeologist to the Director of Community Development prior to the issuance of a grading permit. After monitoring the grading phase, the archaeologist shall make recommendations for further monitoring if it is determined that the site has or may have cultural resources. Recommendations for further monitoring shall be implemented during any remaining ground-disturbing activities. If the archaeologist determines that no resources are likely to be found on site, no additional monitoring shall be required. A letter report summarizing the results of the initial monitoring during site grading and any recommendations for further monitoring shall be provided to the Director of Community Development prior to onset of building construction.

If buried archeological resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Community Development shall be notified, and a qualified archaeologist shall examine the find and make appropriate recommendations. Recommendations could include collection, recordation, and analysis of any significant cultural materials. A report of findings documenting any data recovery during monitoring shall then be submitted to the Director of Community Development.

In the event that human remains are discovered during SDC construction, all activity within a 50-foot radius of the site shall be halted. The Santa Clara County Coroner will be notified and shall make a determination as to whether the remains are of Native American origin or whether an investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner will notify the Native American Heritage Commission (NAHC) immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the CEQA Guidelines. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site.

Geology and Soils

To reduce the risk of damage to the SDC and SBGF as a result of geologic conditions at and near the SDC site, all recommendations outlined in the site-specific geotechnical investigation performed by Kleinfelder in October 2018 will be incorporated into the SDC and SBGF. These measures have been designed and will be incorporated to reduce the risk of settlement, liquefaction, and damage from expansive soils to ensure that users of the project are not exposed to a significant safety risks as a result of the SDC and SBGF. These measures are listed in full in **Appendix E**. The mat slab foundation has been designed to CBC seismic standards.

A Worker Environmental Awareness Training Program will be implemented, which will provide training to construction personnel regarding proper procedures (including identification and notification) in the event fossil materials are encountered during construction.

Greenhouse Gas Emissions

BAAQMD construction-period BMPs would be implemented to reduce GHG emissions during construction, as feasible and applicable. BMPs may include use of alternative-fueled (for example, biodiesel or electric) construction vehicles and equipment for at least 15 percent of the fleet, use of at least 10 percent of local building materials, and recycling or reusing at least 50 percent of construction waste.

To reduce GHG emissions and the use of energy related to building operations, the SDC chillers would be installed with variable frequency drives to provide efficient operation. **[SDC only]**

Water use reduction measures are also be incorporated in the building design, including the use of air-cooled chillers. Development standards for water conservation would be applied to increase efficiency in indoor and outdoor water use areas. Furthermore, SDC and SBGF would comply with all applicable City and state water conservation (indoor and outdoor) measures, including Title 24 baseline standard requirements for energy efficiency, based on the 2019 Energy Efficiency Standards requirements, and CALGreen. For SDC and SBGF, these measures would include **[SDC only]**:

- Water efficient landscaping that is drought tolerant and low maintenance, consisting of native and regionally appropriate trees, shrubs, and groundcover to minimize irrigation requirements
- Use of air-cooled chillers that do not consume water annually

SDC and SBGF would be required to participate in the City's Construction and Demolition Debris Recycling Program by recycling or diverting at least 50 percent of waste materials generated. Additionally, as mitigation incorporated into the project, at least 75 percent of construction waste would be diverted and high-recycled content material would be used where feasible.

As a condition of approval, SDC and SBGF construction would follow BAAQMD construction BMPs including limiting idling times to 5 minutes or less and limiting vehicle speeds to 15 miles per hour or less.

If required by the City as a design review condition, solar panels would be installed at the SDC. **[SDC only]**

SDC would include bicycle and pedestrian amenities consistent with the City's requirements. **[SDC only]**

SDC would include electrical vehicle charging stations. **[SDC only]**

SDC would use lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. Water efficient landscaping and ultra-low flow plumbing fixtures in the proposed building would limit water consumption. In addition, SDC would have a "Cool Roof," using reflective surfaces to reduce heat gains. Waterside economizers would be used to cool data center loads. **[SDC only]**

SDC has a Power Usage Effectiveness of 1.23 and an average rack power rating range of 8 to 10 kilowatts. **[SDC only]**

Hazards and Hazardous Materials

If contaminated soils from agricultural or industrial use are unexpectedly encountered during any construction activities, work in the area shall be temporarily halted and the corresponding jurisdiction (the City) shall coordinate with the contractor and the Alameda County Environmental Health Department to determine appropriate treatment and removal of contaminated soils.

Noise and Vibration

The applicant shall complete a design level acoustical analysis and include appropriate site and building design, building construction, and noise attenuation techniques to ensure that the SDC's rooftop mechanical equipment meets the City's applicable exterior noise standard at the adjacent land uses. A qualified acoustical consultant shall review the final site plan, building elevations, and roof plan prior to issuance of a building permit to calculate the expected exterior noise levels at nearby land uses and require appropriate noise shielding. The applicant shall implement all recommendations of the

acoustical analysis, which may include but not be limited to rooftop screening and/or acoustical wraps. In addition to the noise attenuation techniques that may be identified in the design level acoustical analysis, C1 shall consider the following potential feasible measures that are capable of meeting the City's applicable noise performance standard **[SDC only]**:

> In the realm of physical acoustical screening (like a noise wall), the use of a Perforated Fiberglass Sound-Absorptive Noise Barrier System would allow for a lightweight screening. This solution would provide efficient performance, as the wall system contains no gaps due to its tongue-and-groove design in 12-inch wide segments. This material features a noise reduction coefficient (NRC) rating of 1.05 and sound transmission class (STC) rating of 35. This results in a noise reduction of up to 25 dBA. For application at the SDC, screening would be provided at the perimeter of the rooftop platforms surrounding the air-cooled chillers. The screening walls would be approximately 8 feet high to align with the top of the chiller units.
>
> Noise attenuation wraps for air cooled chillers can be used to produce noise reductions of 4 dBA to about 10 dBA. HUSH COVER™ removable sound blankets attenuate overall decibels and some tonal frequencies. Each chiller would be fitted with the HUSH CORE screw chiller noise reduction system or equal. The chiller noise reduction system to be applied to the suction and discharge piping, compressor housing, and oil separators would be a removable blanket insulation with Velcro flaps. The insulation mass shall be 3 pounds per square foot and shall be applied with 100 percent coverage. The noise reduction product shall be furnished and installed by the manufacturer.

Tribal Cultural Resources

A Native American monitor shall be retained to monitor all project-related, ground-disturbing construction activities (e.g., boring, grading, excavation, drilling, trenching). The appropriate Native American monitor shall be selected based on consultation between the City and the NAHC or as a part of AB 52 consultation (if requested).[10] Monitoring procedures and the role and responsibilities of the Native American monitor shall be outlined in a document submitted to the City prior to construction. In the event the Native American monitor identifies cultural or archeological resources, the monitor shall be given the authority to temporarily halt construction (if safe) within 50 feet of the discovery to investigate the find and contact the assigned on-site archeologist (if not present). The Native American monitor shall be provided an opportunity to participate in the documentation and evaluation of the find. If a Treatment Plan or Data Recovery Plan is prepared, the Native American monitor shall be provided an opportunity to review and provide input on the Plan.

[10] In accordance with Section 21080.3.1 of the California Public Resources Code and AB 52, the City has provided a Notice of Opportunity to Native American tribes to request consultation for projects within the city. To date, the City has not received any requests from regional tribes to be included on the AB 52 list.

3 ENERGY RESOURCES

Use of Energy Resources

The SBGF would produce electricity only during an outage. It would only consume diesel fuel during maintenance and testing of the backup generators or when it is producing electricity during an emergency. As described in **Section 4.3**, **Air Quality,** BAAQMD's air permit will limit each backup generator to less than 50 operation hours annually for testing, inspection and maintenance activities. The total amount of diesel fuel consumed if each backup generator was operated at full load for the full 50 hours annually would be 765,000 gallons per year or 18,214 barrels per year. According to the Commission's 2018 Weekly Fuels Watch Report, the annual production of California Air Resources Board (CARB) Diesel Fuel in California was 90,031,000 barrels, and the available CARB diesel reserves were 120,291,000 barrels for a total of 210,322,000 barrels of fuel.[1] The proposed maximum annual consumption of diesel by the SBGF is approximately 0.00008 percent of California's total capacity.[2]

Therefore, the SBGF will not have a significant adverse effect on local or regional energy supplies and will not create a significant adverse impact on California's energy resources.

[1] California Energy Commission. 2018. Weekly Fuels Watch Report. Available at: https://ww2.energy.ca.gov/almanac/petroleum_data/fuels_watch/index_cms.html. Accessed August 2019.
[2] Addition of the total weekly Production Capacity and total weekly Refinery Stock reported in 2018.

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4 ENVIRONMENTAL IMPACT CHECKLIST

4.1 Aesthetics

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

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

The City's 2010-2035 General Plan (General Plan) is the primary source for identifying and determining scenic vistas and scenic resources throughout the City. The General Plan does not identify any scenic vistas or view corridors within the City. The General Plan Integrated Environmental Impact Report lists the Santa Cruz Mountains, Diablo range, San Tomas Aquino Creek, and the Guadalupe River as 'visual resources' within the City, but these resources are not visible from the SDC site. The SDC site is not located within close proximity to any natural or historic features that are considered scenic resources by the City.

Scenic viewsheds are also important factors to consider when analyzing the aesthetic character of a project site. While a scenic vista is typically a singular scene or view, scenic viewsheds are areas of particular scenic or historic value deemed worthy of preservation against development and other changes. According to the General Plan, the SDC site is not located within or near any scenic viewsheds. The California Department of Transportation (Caltrans) Scenic Highway Program has not designated any scenic highways or potentially eligible scenic highways in the SDC site vicinity.[1]

The SDC site is within a fully developed, industrial area of the City, as shown in **Figure 4**. As detailed in **Section 2, Project Description,** surrounding development consists of large one- to two-story office and industrial buildings. The site is bound by an Enterprise Rent-a-Car Facility to the north, a furniture warehouse to the south, SJC to the east, and adjacent railroad tracks to the west. Other warehouse structures exist further west of the railroad tracks. Buildings are generally set back from the street by landscaped areas, fencing, and surface parking. Street trees occur intermittently throughout the area, often breaking up views of existing buildings from the street. Due to existing development, trees, urban infrastructure such as power lines, and slight topographical changes throughout the area, views are generally limited to one or two blocks in each direction when traveling on foot or in a vehicle.

The visual character of the SDC site is an urban built environment. Due to the presence of vegetation and intervening development, the site is only visible from the immediate vicinity along De La Cruz Boulevard. Existing industrial buildings block views of the site from Martin Avenue, and there is no existing public access to the western side of the site. The SDC site is flat and has perimeter landscaping along De La Cruz Boulevard, as described in **Section 2, Project Description**. The site is currently a vacant lot and was previously occupied by a one-story recycled paperboard mill, an electrical cogeneration facility, and a warehouse. The side of the SDC site that fronts De La Cruz Boulevard is set back from the roadway by a landscaped area featuring a small lawn, shrubbery, and a paved parking lot.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

[1]California Department of Transportation. 2017. *California Scenic Highway Mapping System*. Available: http://www.dot.ca.gov/design/lap/livability/scenic-highways/index.html. Accessed: July 2019.

Legend

Project Site

Available aerial imagery shows the past use of the site, although it is currently vacant.

N

Not to Scale

Existing Site and Vicinity Figure **4**

Source: Google Earth, 2019

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

No Impact. The SDC site is not located in or near any scenic vistas identified by the City and therefore would not impede scenic vista viewing. Additionally, views from the SDC site are dominated by other office and industrial buildings. Long-range views from the SDC site are obscured by existing development. Therefore, the SDC and the SBGF would not impact a scenic vista.

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

No Impact. According to Caltrans' state scenic highway maps, there are no designated or eligible scenic highways in the SDC site vicinity.[1] Additionally, the proposed improvements would be entirely confined to the previously developed site. The existing site does not contain any scenic resources, and no scenic resources are within view of the site. Therefore, the SDC and the SBGF would not impact scenic resources, such as rock outcroppings or historic buildings within a state scenic highway.

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

Less than Significant. This specific impact criteria discusses both the SDC and SBGF holistically except where noted. The exterior design of the SDC would be visually consistent with the existing industrial character of the site and surrounding area, as well as within the larger urban context of contemporary office buildings, research and development buildings, and data centers in the City. The SDC would be two to three stories taller than buildings immediately adjacent to the site. However, the SDC would be consistent with local zoning and development regulations including massing and setback limits.[2] The zoning administrator has authority to allow for a minor modification for the proposed building height. This is discussed further in **Section 4.11, Land Use and Planning**. **Figure 2** and **Figure 5** demonstrate the proposed design of the SDC, while the existing site and vicinity are shown in **Figure 4**.

The project would be subject to review by the City's Architectural Committee, which would ensure it conforms to their adopted Community Design Guidelines. The guidelines were developed to support community aesthetic values, preserve neighborhood character, and promote a sense of community and place throughout the City.

[2]C1 initiated discussions with the City in Spring 2019 and will file a planning application with the City in August 2019. The project has been designed to meet zoning requirements with the exception of building height.

PERSPECTIVE – FROM NORTH-EAST

ELEVATED PERPECTIVE – FROM NORTH-EAST

Exterior Renderings Figure **5a**

Source: Corgan, 2019

PERSPECTIVE – FROM EAST

ELEVATED PERSPECTIVE – FROM SOUTH-EAST

Exterior Renderings Figure **5b**

Source: Corgan, 2019

New landscaping, including trees, shrubs, and groundcover, would be included throughout the SDC site and along the property boundaries. Perimeter landscaping and the proposed parking lot along De La Cruz Boulevard would create a setback condition similar to both existing conditions and the surrounding area. Similar to existing conditions, views of the SDC and SBGF from the street and adjacent parcels would be broken up by trees, fencing, and landscaping. The visual character of the streetscape would continue to consist of industrial buildings set back from the roadway with fencing and intermittent trees and vegetation.

Views through the site are currently obstructed by the existing buildings and trees. With implementation of the SDC and the SBGF, views through the site would be further obstructed by the four-story SDC. However, obstructed views are consistent with existing visibility in the project vicinity. Furthermore, there are no scenic views or sensitive viewers in the SDC site vicinity. Views of the larger surrounding area from the SDC site are generally obstructed by existing industrial buildings. This would not change as a result of development of the SDC and the SBGF. Therefore, the SDC and the SBGF's individual and combined impact on the visual character and quality of the site and vicinity would be less than significant. No mitigation is required.

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

Less than Significant. Under existing conditions, there is an abundance of exterior lighting in the site vicinity. Existing exterior lighting is typical of industrial areas and is primarily on buildings and in parking lots for safety purposes. Nighttime light conditions are consistent with those generally found in urban environments, and include streetlights, ambient light from adjacent development, and exterior safety lighting. Additionally, the adjacent SJC has runway lighting and other safety lighting necessary for airport operations. SDC operations would require exterior safety lighting similar to the safety lighting found at nearby industrial buildings. Exterior lighting would be limited to safety lighting in the parking lot, building exterior, and along pathways. Lighting would be designed and installed consistent with the City's design requirements for exterior lighting. In addition to exterior lighting, the SDC building would have interior architectural lighting typical of large commercial uses, and exterior signage. Exterior lit signage would be subject to the City's design requirements and would be reviewed and approved by the City's Architectural Committee.

The exterior design of the SDC does not include large, continuous expanses of uninterrupted glazing which are generally associated with glare, and new major sources of glare are not anticipated. The proposed glazing on the first floor of the SDC building would be at a height and of a size not anticipated to result in notable glare. The exterior surface of the stacks for the SBGF generators will be untreated (and will generally have a brushed finish) so as not to result in excessive glare. Additionally, the project would be subject to review by the City's Architectural Committee, which would ensure it conforms to the adopted Community Design Guidelines. Therefore, the SDC and the SBGF would have a less-than-significant impact on day and nighttime views in the area resulting from lighting or glare. No mitigation is required.

4.2 Agriculture and Forestry Resources

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land of conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California

Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by CARB.

Regulatory Setting

The California Department of Conservation administers the Farmland Mapping and Monitoring Program (FMMP), California's statewide agricultural land inventory. Four classifications of farmland, including Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance, are considered valuable. Any conversion of land within these classifications is typically considered a potential environmental impact under CEQA. Categories of land that are not protected by the Department of Conservation include Grazing Land, Urban and Built-up Land, and Other Land.

According to PRC Section 12220(g), forest land is land that can support 10 percent native tree cover of any species under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

California PRC Section 4526 defines timberland as land that is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmastrees. Land owned by the federal government and land designated by the State Board of Forestry and Fire Protection as experimental forest land is excluded as timberland.

Environmental Setting

The SDC site is designated as Urban and Built-up Land by the FMMP.[2,3] The FMMP defines the Urban and Built-up Land category as land used for industrial and commercial purposes, golf courses, landfills, airports, sewage treatment, and water control structures. The SDC site does not contain any forest land or timber. The SDC site is currently vacant and is located in a developed, industrial urban area.

Impact Discussion

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

Or

[2] California Department of Conservation, Division of Land Resource Protection. 2016. *Santa Clara County Williamson Act FY 2015/2016*. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/wa/SantaClara_15_16_WA.pdf. Accessed July 2019.

[3] California Department of Conservation, Division of Land Resource Protection. 2016. *Santa Clara County Important Farmland 2014*. Available: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2014/scl14.pdf. Accessed: July 2019.

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

No Impact. The SDC site is currently vacant and is zoned Heavy Industrial (MH). Previous uses on the site included a recycled paperboard mill and warehouse. The site is not designated by the California Natural Resources Agency as farmland of any type and is not the subject of a Williamson Act contract.[2] Additionally, no land adjacent to the SDC site is designated as farmland. Therefore, development and operation of the SDC and the SBGF would not result in an impact on farmland and neither would conflict with zoning for agricultural use or a Williamson Act contract.

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

No Impact. The SDC site is zoned for heavy industrial uses and does not contain forest land or other similar resources. Therefore, neither the SDC nor the SBGF would impact forest land or timberland.

d) Result in the loss of forest land of conversion of forest land to non-forest use?

No Impact. As discussed in **question 4.2 "c"**, there is no forest land on the site and none of the properties in the vicinity contain forest land. Therefore, development and operation of the SDC and the SBGF would not impact forest land or result in the conversion of forest land to non-forest use.

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

No Impact. See responses to **questions 4.2 "a" through "d"** above.

4.3 Air Quality

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

Pollutants in the air can cause health problems, especially for children, the elderly, and people with heart or lung problems. Healthy adults may experience symptoms during periods of intense exercise. Pollutants can also cause damage to vegetation, animals, and property. Federal, state, and regional agencies regulate air quality in the San Francisco Bay Area Air Basin (SFBAAB). The information in this section is based on the Air Quality and Greenhouse Gas Technical Report prepared for the project in August 2019 (**Appendix F**) and the Air Dispersion Modeling Report prepared in August 2019 (**Appendix G**).

Federal

At the federal level, the US Environmental Protection Agency (EPA) is responsible for overseeing implementation of the federal Clean Air Act and its subsequent amendments (CAA). As required by the federal CAA, national ambient air quality standards (NAAQS) have been established for criteria

pollutants. Criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$).

CAA Section 112 (Title 42, U.S. Code Section 7412) addresses emissions of hazardous air pollutants (HAPs). This act requires new sources that emit more than 10 tons per year of any specified HAP or more than 25 tons per year of any combination of HAPs to apply Maximum Achievable Control Technology (MACT).

State

CARB is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California Clean Air Act. CARB also established the California ambient air quality standards (CAAQS), which are typically considered more stringent than the NAAQS.

Toxic air contaminants (TACs) are primarily regulated through state and local risk management programs. These programs are designed to eliminate, avoid, or minimize the risk of adverse health effects from exposures to TACs. A chemical becomes a regulated TAC in California based on designation by the California Office of Environmental Health Hazard Assessment.

Assembly Bill (AB) 2588, also known as the Air Toxics "Hot Spots" Information and Assessment Act,[2] requires that TACs must not exceed acceptable levels. Sections of the California Public Resources Code require a quantitative health risk assessment (HRA) for new or modified sources of TACs, including power plants that emit one or more TACs.[3]

Regional

BAAQMD is the primary regional agency responsible for attaining and maintaining air quality conditions in the SFBAAB through a comprehensive program of planning, regulation, and enforcement.[4] Some of the BAAQMD's key air plans and regulations are described below.

[2] California Health and Safety Code Sections 44360 - 44366

[3] California Public Resources Code Section 25523(a); Title 20, Sections 1752.5, 2300 – 2309 and Division 2, Chapter 5, Article 1, Appendix B, Part (1), California Code of Regulations (CCR); California Clean Air Act; California Health and Safety Code Section 39650, et seq.

[4] Bay Area Air Quality Management District (BAAQMD). 2017c. California Environmental Quality Act Air Quality Guidelines. May. http://www.baaqmd.gov/~/media/files/planning-and- research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

2017 Bay Area Clean Air Plan

The 2017 Bay Area Clean Air Plan (Clean Air Plan) was adopted by BAAQMD on April 19, 2017. The plan provides a regional strategy to protect public health and the climate. The Clean Air Plan updated the 2010 Clean Air Plan and is a multi-pollutant air quality plan addressing four categories of air pollutants[5]:

- Ground-level ozone and the key ozone precursor pollutants (volatile organic compounds [VOCs] and nitrogen oxides [NO_X])
- Particulate matter (PM_{10} and $PM_{2.5}$), as well as the precursors to secondary $PM_{2.5}$
- TACs
- Greenhouse gases

BAAQMD Regulation 2, Rule 2: New Source Review

This rule applies to all new or modified sources requiring a Permit to Operate from BAAQMD. It requires Best Available Control Technology (BACT) for any new source that may emit 10 or more pounds per day of any single pollutant. Offsets are required at a 1:1 ratio for facilities with a potential to emit more than 100 tons per year of $PM_{2.5}$, PM_{10}, or SO_2. For emissions of NO_X or Precursor Organic Compounds, offsets are required at a 1:1 ratio for facilities with a potential to emit more than 10 tons per year. For sources that emit more than 10 but less than 35 tons per year, offsets are available for purchase from the BAAQMD Small Facility Banking Account. For facilities with a potential to emit more than 35 tons per year of NO_X or Precursor Organic Compounds, offsets are required at a 1.15:1 ratio and such facilities must purchase their own offsets.

BAAQMD has recently adopted a policy affecting emissions calculations for backup generators.[6] Under this policy, emissions calculations must include 100 hours of operation during emergency periods when evaluating regulatory applicability for offsets. These hours are in addition to the allowable hours for non-emergency testing and maintenance operation. When determining which offset category a project would fall into, emissions from emergency and non-emergency operation must be included. BAAQMD's policy also states that emissions during emergency operation should not be included for compliance evaluations, such as determining the quantity of offsets that are required to be purchased.

BAAQMD Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants

This rule provides for the review of new and modified sources of TAC emissions to evaluate potential public exposure and health risk. Under this rule, a project would be denied an Authority to Construct if it

[5] Bay Area Air Quality Management District (BAAQMD). 2017b. Final 2017 Clean Air Plan. April. http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en.

[6] Bay Area Air Quality Management District (BAAQMD). 2019. Calculating Potential to Emit for Emergency Backup Power Generators. June. http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/banking-and-offsets/calculating-pte-for-emergency-generators-06032019-pdf.pdf?la=en

exceeds any of the specified risk limits, which are consistent with BAAQMD's CEQA significance thresholds. Best Available Control Technology for Toxics (TBACT) would also be required for any new or modified source of TACs where the source has a cancer risk greater than 1.0 in 1 million or a chronic hazard index (HI) greater than 0.20. BAAQMD's new policy regarding calculating emissions from backup generators clarifies that emissions during emergency operation are not required to be included when evaluating compliance with Regulation 2, Rule 5.[7]

Local

The General Plan includes goals and policies to reduce air pollution and TAC exposure, with a focus on sensitive populations. The following goals, policies, and actions are relevant to the SDC and SBGF:

5.10.2-G1. Improved air quality in the City and the region.

5.10.2-G2. Reduced greenhouse gas GHG emissions that meet the State and regional goals and requirements to combat climate change.

5.10.2-P1. Support alternative transportation modes and efficient parking mechanisms to improve air quality.

5.10.2-P2. Encourage development patterns that reduce vehicle miles traveled and air pollution.

5.10.2-P3. Encourage implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants.

5.10.2-P4. Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.

5.10.2-P5. Promote regional air pollution prevention plans for local industry and businesses.

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

[7] Bay Area Air Quality Management District (BAAQMD). 2019. Calculating Potential to Emit for Emergency Backup Power Generators. June. http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/banking-and-offsets/calculating-pte-for-emergency-generators-06032019-pdf.pdf?la=en

Environmental Setting

Overview of Existing Air Quality

Air Quality Standards

The EPA has established NAAQS for the following seven pollutants, termed criteria pollutants: ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and airborne lead. Similarly, CARB has established CAAQS for the seven pollutants listed above and for visibility-reducing particles (VRP), sulfates, hydrogen sulfide, and vinyl chloride. Unique meteorological conditions in California and differences of opinion by medical panels established by the CARB and EPA cause considerable diversity between state and federal standards currently in effect in California. In general, the CAAQS are more stringent than the corresponding NAAQS. The standards currently in effect in California are shown in **Table 4.3-1**.

Air quality is determined by measuring ambient concentrations of criteria pollutants, which are those pollutants for which acceptable levels of exposure can be determined and for which standards have been set. Degradation of air quality is determined by comparing projected air concentrations to the available ambient air quality standards.

Table 4.3-1 National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary[c]	Secondary[d]
Ozone	1 hour 8 hours	0.09 ppm 0.070 ppm	-- 0.070 ppm	-- 0.070 ppm
CO	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	-- --
NO_2	1 hour Annual Arithmetic Mean	0.18 ppm 0.030 ppm	0.100 ppm[e] 0.053 ppm	-- 0.053 ppm
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.04 ppm --	0.075 ppm[f] -- 0.14 ppm 0.030 ppm	-- 0.5 ppm -- --
PM_{10}	24 hours Annual Arithmetic Mean	50 µg/m^3 20 µg/m^3	150 µg/ m^3 --	150 µg/ m^3 --

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary[c]	Secondary[d]
$PM_{2.5}$	24 hours Annual Arithmetic Mean	-- 12 µg/ m^3	35 µg/ m^3 12 µg/ m^3	35 µg/ m^3 15 µg/ m^3
Lead	30-Day Average Calendar Quarter Rolling 3-Month Average	1.5 µg/ m^3 -- --	-- 1.5 µg/ m^3 0.15 µg/ m^3	-- 1.5 µg/ m^3 0.15 µg/ m^3
VRP	8 hours	[g]	--	--
Sulfates	24 hours	25 µg/ m^3	--	--
Hydrogen Sulfide	1 hour	0.03 ppm	--	--
Vinyl Chloride	24 hours	0.01 ppm	--	--

Source: CARB, 2016.

[a] CAAQS for ozone, CO, SO_2 (1- and 24-hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and VRP) are values that are not to be exceeded. All others are not to be equaled or exceeded.

[b] NAAQS (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in 1 year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/ m^3 is equal to or less than 1 on average over 3 years. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

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

[f] To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 0.075 ppm.

[g] Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent.

Notes:

-- = No standard has been adopted for this averaging time

µg/ m^3 = microgram(s) per cubic meter ppm = part(s) per million

Attainment Status

The EPA, CARB, and local air districts classify areas as attainment, unclassified, or nonattainment. The classification depends on whether the monitored ambient air quality data show compliance, insufficient data available, or non-compliance with the ambient air quality standards, respectively. The SDC and SBGF would be in Santa Clara County under BAAQMD's jurisdiction. **Table 4.3-2** summarizes attainment status for the criteria pollutants in the SFBAAB with regards to both the federal and state standards.

The SDC and SBGF would either not emit or emit in extremely small and therefore unmeasurable quantities lead, VRP, sulfates, hydrogen sulfide, or vinyl chloride. Therefore, these pollutants are not addressed in further detail in this report.

Table 4.3-2Attainment Status for the San Francisco Bay Area Basin

Pollutant	Averaging Time	Federal Designation	State Designation
Ozone	1 hour 8 hours	-- Marginal Non-attainment	Non-attainment Non-attainment
CO	1 hour 8 hours	Maintenance Maintenance	Attainment Attainment
NO_2	1 hour Annual Arithmetic Mean	Attainment Attainment	Attainment Attainment
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	Attainment Attainment Attainment Attainment	Attainment -- Attainment --
PM_{10}	24 hours Annual Arithmetic Mean	Attainment --	Non-attainment Non-attainment
$PM_{2.5}$	24 hours Annual Arithmetic Mean	Attainment Attainment	-- Non-attainment
Lead	30-Day Average Calendar Quarter Rolling 3-Month Average	-- Attainment Attainment	Attainment -- --
VRP	8 hours	--	Unclassified
Sulfates	24 hours	--	Attainment
Hydrogen Sulfide	1 hour	--	Unclassified
Vinyl Chloride	24 hours	--	No information available

Sources: EPA, 2019b; CARB, 2019a; BAAQMD, 2017a

[a] On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour PM2.5 national standard. This EPA rule suspends key State Implementation Plan requirements as long as monitoring data continue to show that the Bay Area

attains the standard. Despite this EPA action, the Bay Area would continue to be designated as "non-attainment" for the national 24- hour PM2.5 standard until such time as the BAAQMD submits a "redesignation request" and a "maintenance plan" to EPA, and EPA approves the proposed redesignation.
-- = No standard has been adopted for this averaging time

Existing Conditions

Overall air quality in the SFBAAB is better than most other areas, including the South Coast, San Joaquin Valley, and Sacramento regions. This is due to a more favorable climate, with cooler temperatures and better ventilation.[8] The SDC's proximity to both the Pacific Ocean and the San Francisco Bay has a moderating influence on the climate. This portion of the Santa Clara Valley is bounded by the San Francisco Bay to the north, the Santa Cruz Mountains to the southwest, and the Diablo Range to the east. The surrounding terrain greatly influences winds in the valley, resulting in a prevailing wind that flows along the valley's northwest-southeast axis. Although air quality improvements have occurred, violations and exceedances of the state ozone and particulate matter standards continue to persist in the SFBAAB and still pose challenges to state and local air pollution control agencies.[9]

The existing ambient air conditions in the SDC site vicinity are summarized in **Table 4.3-3.** This table provides the background ambient air concentrations of criteria pollutants for the previous 3 years as measured at certified monitoring stations near the SDC site. To evaluate air quality degradation as a result of SBGF, modeled air concentrations are combined with the respective background concentrations presented in **Table 4.3-3** and used for comparison to the NAAQS and CAAQS.

Criteria Pollutants

Each criteria pollutant and TAC is described in this section, including their known health risks. TACs are different from criteria pollutants as there are no ambient air quality standards for TACs, and an HRA is conducted to evaluate whether risks of exposure to TACs create an adverse impact.

Ozone

Ozone is a photochemical oxidant that is formed when VOCs and NO_X react in the presence of ultraviolet sunlight. The principal sources of VOCs and NO_X, often termed ozone precursors, are combustion processes (including motor vehicle engines) and evaporation of solvents, paints, and fuels. Exposure to levels of ozone above the current ambient air quality standards can lead to human health effects such as lung inflammation, lung tissue damage, and impaired lung functioning. Ozone exposure is also

[8] The rapid horizontal movement of air and injection of cleaner air.
[9] California Air Resources Board (CARB). 2013. The California Almanac of Emissions and Air Quality. -2013 Edition. April. https://www.arb.ca.gov/aqd/almanac/almanac.htm.

Table 4.3-3Summary of Background Ambient Air Concentrations

Pollutant	Averaging Time	Units	2015	2016	2017
Ozone	1 hour	ppm	0.094	0.087	0.121
	8 hours	ppm	0.081	0.066	0.098
CO	1 hour	ppm	2.4	1.9	2.1
	8 hours	ppm	1.8	1.4	1.8
NO_2	1 hour (maximum)	ppb	49	51	68
	1 hour (98th percentile)	ppb	44	42	50
	Annual Arithmetic Mean	ppb	12.81	11.26	12.24
SO_2	1 hour (maximum)	ppb	3.1	1.8	3.6
	1 hour (99th percentile)	ppb	2.0	2.0	3.0
	3 hours[b]	ppb	3.1	1.8	3.6
	24 hours	ppb	1.1	0.8	1.1
	Annual Arithmetic Mean	ppb	0.30	0.19	0.20
PM_{10}	24 hours	µg/m³	58	40	69
	Annual Arithmetic Mean[c]	µg/m³	21.9	18.3	21.3
$PM_{2.5}$	24 hours (98th percentile)	µg/m³	32	20	41
	Annual Arithmetic Mean	µg/m³	10.6	8.4	10.1

Source: EPA, 2019a; CARB, 2019b.

[a] Unless otherwise noted, background values were collected from Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California, as reported by EPA.

[b] In the absence of monitored values, the 1-hour maximum background was conservatively used as background for the 3-hour averaging period.

[c] Background values were collected from the monitoring site located at 156B Jackson Street in San Jose, California, as reported by the CARB.

Notes:

-- = No standard has been adopted for this averaging time

µg/ m³ = microgram(s) per cubic meter ppm = part(s) per million ppb = part(s) per billion

associated with symptoms such as coughing, chest tightness, shortness of breath, and the worsening of asthma symptoms. The greatest risk for harmful health effects belongs to outdoor workers, athletes, children, and others who spend greater amounts of time outdoors during smoggy periods. Elevated ozone levels can reduce crop and timber yields, as well as damage native plants. Ozone can also damage materials such as rubber, fabrics, and plastics.

Carbon Monoxide

CO is a colorless, odorless gas formed by incomplete combustion of fossil fuels. Exposure to CO near the levels of the NAAQS and CAAQS can lead to fatigue, headaches, confusion, and dizziness.

Nitrogen Dioxide

NO_2 is a byproduct of combustion sources such as on-road and off-road motor vehicles or stationary fuel combustion sources. The principle form of nitrogen oxide produced by combustion is nitric oxide (NO); however, NO reacts quickly with oxygen to form NO_2, creating a mixture of NO and NO_2 commonly called NO_X. Exposures to NO_2, along with pollutants from vehicle exhaust, are associated with respiratory symptoms, episodes of respiratory illness, and impaired lung function.

Sulfur Dioxide

SO_2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Effects from SO_2 exposures at levels near the 1-hour standard include bronchoconstriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity.

Particulate Matter

Particulate matter (PM_{10} and $PM_{2.5}$) includes a wide range of solid or liquid particles, including smoke, dust, aerosols, and metallic oxides. Extensive research indicates that exposures to ambient PM_{10} and $PM_{2.5}$ concentrations that exceed current air quality standards are associated with increased risk of hospitalization for lung- and heart-related respiratory illness, including emergency room visits for asthma. Particulate matter exposure is also associated with increased risk of premature death, especially in the elderly and people with pre-existing cardiopulmonary disease. In children, studies have shown association between particulate matter exposure and reduced lung function and increased respiratory symptoms and illnesses.

TACs

The health effects associated with TACs are quite diverse, and generally are assessed locally, rather than regionally. TACs could cause long-term health effects such as cancer, birth defects, neurological damage, asthma, bronchitis, or genetic damage; or short-term effects such as eye watering, respiratory irritation

(a cough), running nose, throat pain, and headaches.[10] Numerous other health effects also have been linked to exposure to TACs, including heart disease, Sudden Infant Death Syndrome, respiratory infections in children, lung cancer, and breast cancer.[11]

[10] Bay Area Air Quality Management District (BAAQMD). 2017c. California Environmental Quality Act Air Quality Guidelines. May. http://www.baaqmd.gov/~/media/files/planning-and- research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

[11] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Guidance Manual for Preparation of Health Risk Assessments. February. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

Significance Criteria

This analysis is based upon the general methodologies in the most recent BAAQMD CEQA Guidelines (last updated in May 2017) and numeric thresholds for the SFBAAB, including the criteria pollutant thresholds listed in **Table 4.3-4**.

For evaluation purposes, TACs are separated into carcinogens and non-carcinogens based on the nature of the physiological effects associated with exposure to the pollutant. Therefore, there are two kinds of thresholds for TACs. Cancer risk is expressed as excess cancer cases per 1 million exposed individuals, typically over a lifetime of exposure. Acute and chronic exposure to non-carcinogens is expressed as an HI, which is the ratio of expected exposure levels to an acceptable reference exposure level (REL).

The significance thresholds established by BAAQMD for TACs and $PM_{2.5}$ applied to the siting of a new source are listed in **Table 4.3-4** and summarized in the following text.

The significance thresholds for a single source are as follows:

- An excess lifetime cancer risk level of more than 10 in 1 million
- A non-cancer chronic HI greater than 1.0
- A non-cancer acute HI greater than 1.0
- An incremental increase in the annual average $PM_{2.5}$ concentration of greater than 0.3 micrograms per cubic meter ($\mu g/m^3$)

The significance thresholds for cumulative impacts are also summarized below. A project would have a cumulative considerable impact if the aggregate total of all past, present, and foreseeable future sources within a 1,000-foot distance from the fence line of a source plus the contribution from the project, exceeds the following:

- An excess lifetime cancer risk level of more than 100 in 1 million
- A non-cancer chronic HI greater than 10.0
- An annual average $PM_{2.5}$ concentration of greater than 0.8 $\mu g/m^3$

For assessing community risks and hazards, a 1,000-foot distance is recommended around the SDC property boundary. BAAQMD recommends that any proposed project that includes the siting of a new source or receptor assess associated impacts within 1,000 feet, taking into account both individual and nearby cumulative sources (that is, proposed project plus existing and foreseeable future projects). Cumulative sources represent the combined total risk values of each individual source within the 1,000-foot evaluation zone.

Table 4.3-4 Bay Area Air Quality Management District Thresholds of Significance

Pollutant	Construction	Operation	
	Average Daily Emissions (lb/day)	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tons per year)
VOCs, NO_X	54	54	10
PM_{10}	82 (exhaust only)	82	15
$PM_{2.5}$	54 (exhaust only)	54	10
Fugitive Dust	BMPs	None	None
Risk and Hazards for New Sources and Receptors (Project)	Same as Operational Threshold	Increased cancer risk of > 10.0 in 1 million Increased non-cancer risk of > 1.0 HI (chronic or acute) Ambient $PM_{2.5}$ increase of > 0.3 µg/m^3 (Zone of influence: 1,000-foot radius from property line of source or receptor)	
Risk and Hazards for New Sources and Receptors (Cumulative)	Same as Operational Threshold	Increased cancer risk of > 100 in 1 million (from all local sources) Increased non-cancer risk of > 10.0 HI (from all local sources) (chronic) Ambient $PM_{2.5}$ increase of > 0.8 µg/m^3 (from all local sources) (zone of influence: 1,000-foot radius from property line of source or receptor)	

Source: BAAQMD, 2017c.
> = greater than
BMP = best management practice

Project Emissions, Air Quality Impact Analysis, and Health Risk Assessment

The discussion below presents the results of modeling, impact analysis, and HRA completed for the project. A full discussion of the technical analysis is provided in **Appendix F** and **Appendix G**. Following this subsection, the results of the analysis are applied to the CEQA Guidelines Appendix G checklist questions (see Impact Discussion beginning on **page 4.3-30**).

Project Emissions

Construction

Short-term construction emissions of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. Detailed construction emission calculations are presented in **Appendix F**. Construction emissions are a result of construction equipment, material movement, paving activities, and on- and offsite vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles. Emissions from the 18-month construction period were estimated using the California Emissions Estimator Model (CalEEMod), which incorporates construction equipment emission factors, horsepower, and load factors; paving emission factors; and on- and off-site vehicle exhaust emission factors. Fugitive dust emission factors for truck

dumping/loading, grading activities, and vehicle travel on paved and unpaved roads were calculated using CalEEMod. Estimated criteria pollutant construction emissions for SDC and SBGF are summarized in **Table 4.3-5**, and conservatively assume that all construction activity would occur concurrently.

Table 4.3-5 Summary of Background Ambient Air Concentrations

	VOCs	NO_X	PM_{10}	$PM_{2.5}$
Average Daily Emissions (lb/day)[a]	15.5	23	0.8	0.8
Annual Emissions (tons per project)	4.34	6.36	0.236	0.221
BAAQMD Thresholds (lb/day)	54	54	82	54
Exceeds Threshold?	No	No	No	No

Source: Ramboll, 2019

[a] Although peak daily emissions may be higher than what is reported here, the BAAQMD's thresholds are average daily thresholds. Accordingly, the results reported are the total SDC and SBGF emissions averaged over the entire construction duration although the SBGF construction emissions are considered negligible.

As shown in **Table 4.3-5**, construction of SDC and SBGF would not generate VOCs, NO_X, PM_{10}, or $PM_{2.5}$ emissions in excess of BAAQMD's numeric thresholds. The BAAQMD's CEQA Guidelines consider fugitive dust impacts to be less than significant through the application of best management practices (BMPs). To assure fugitive dust impacts are less than significant, the Applicant would incorporate the BAAQMD's recommended BMPs as a project design feature. These project design features would include:

- All exposed surfaces (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved surfaces shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling [Title 13, Section 2485, CCR]). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- A publicly visible sign shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take

corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Operation

Operational emissions of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated. TACs were only considered to result from operation of the backup generators in SBGF. Detailed operation emission calculations are presented in **Appendix F**. Operation emissions are a result of diesel fuel combustion from the backup generators, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. Each of these emission sources are described in more detail below.

Stationary Sources

SBGF's 54 backup generators would result in stationary combustion emissions. The backup generators proposed for installation are MTU model 20V4000G83L, with a certified Tier 2 rating and an engine output of 3,017 horsepower at full load. All backup generators would be equipped with a Johnson Matthey CRT® DPF system, which is expected to control particulate matter by at least 85 percent. All backup generators would be tested routinely to ensure they would function during an emergency.

During routine testing, criteria pollutants and TACs would be emitted directly from the backup generators. Criteria pollutant emissions from backup generator testing were quantified using information provided by the manufacturer, as specified in **Appendix F**, and accounting for particulate matter controls. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 parts per million by weight per Title 13, Section 2281, CCR), and an assumed 100 percent conversion of fuel sulfur to SO_2.

TAC emissions resulting from diesel stationary combustion were assumed equal to PM_{10} emissions or estimated using speciated emission factors from CARB profile 818.[12] It was assumed that testing would occur for no more than 50 hours per year, as limited by the Airborne Toxic Control Measure for Stationary Toxic Compression Ignition Engines (Title 17, Section 93115, CCR). Consistent with BAAQMD permitting methods, no load factor was applied. Emissions resulting from emergency operations were not estimated because, when permitting backup generators, the BAAQMD typically limits only emissions resulting from non-emergency use.

Table 4.3-6 provides daily and annual criteria pollutant emission estimates assuming each backup generator is operated 50 hours per year, with daily emissions estimated assuming all backup generators

[12] California Air Resources Board (CARB). 2019b. iADAM: Air Quality Data Statistics, Top 4 Summary. Accessed February 22, 2019. https://www.arb.ca.gov/adam/topfour/topfour1.php.

are operated at 50 hours per year, and then averaged over the year to get a daily average maximum emissions estimate.[13] BAAQMD's Regulation 2, Rule 2 requires new sources that emit more than 10 tons per year of NO_X to fully offset emissions. As shown in **Table 4.3-6**, annual NO_X emissions from the backup generators would total approximately 36 tons per year. Accordingly, the NO_X emissions would be fully offset through the air permitting process.

Table 4.3-6 Criteria Pollutant Emissions from All Backup Generators for Maintenance and Testing (tons per year)

Evaluation Period	Pollutant	Emissions	BAAQMD Thresholds	Exceeds Threshold?
Maximum Annual Emissions (tons per year)[a]	NOx[b]	36	10	Yes
	VOCs	0.5	10	No
	CO[c]	2.7	--	N/A
	PM_{10}	0.16	15	No
	$PM_{2.5}$	0.16	10	No

Source: Ramboll, 2019

[a] The maximum annual emissions were estimated assuming that all 54 backup generators would operate 50 hours per year even though this estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year.

[b] NO_X emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

[c] In the absence of a mass-based threshold, CO impacts were evaluated through air dispersion modeling

-- = No mass-based threshold has been adopted for this pollutant

N/A = Not applicable because no mass-based threshold is available

For informational purposes, annual criteria pollutant emission estimates that include 100 hours of operation during emergency periods, consistent with BAAQMD's recent policy[14], in addition to the allowable hours for non-emergency testing and maintenance operation are shown in **Table 4.3-7**.

[13] Daily emission rates were conservatively averaged over the period of a year since the backup generators could potentially be tested at any time of day or day of the year.

[14] Bay Area Air Quality Management District (BAAQMD). 2019. Calculating Potential to Emit for Emergency Backup Power Generators. June. http://www.baaqmd.gov/~/media/files/engineering/policy_and_procedures/banking-and-offsets/calculating-pte-for-emergency-generators-06032019-pdf.pdf?la=en

Table 4.3-7 Criteria Pollutant Emissions from All Backup Generators for Emergency and Maintenance and Testing (tons per year)

Evaluation Period	Pollutant	Emissions (Includes Emergency Periods)
Maximum Annual Emissions (tons per year)[a]	NOx[b]	108
	VOCs	1.6
	CO[c]	8.0
	PM_{10}	0.48
	$PM_{2.5}$	0.48

Source: Ramboll, 2019

[a] The maximum annual emissions for emergency use and maintenance and testing were estimated assuming that all 54 backup generators would operate 150 hours per year (100 hours of emergency use and 50 hours of maintenance and testing). This estimate is extremely conservative as C1 estimates normal maintenance and testing would be on the order of less than 11 hours per year and SVP power outages are very rare.

[b] NO_X emissions from maintenance and testing would be fully offset through the air permitting process with the BAAQMD.

Table 4.3-8 provides maximum daily criteria pollutant emission estimates, which assume the maximum possible operation of a single backup generator to compare against BACT limits only. C1 does not plan to operate any backup generator for more than 4 hours per day for maintenance and testing activities. However, comparison to BACT limits is based on a worst-case assumption of 24 hours of operation per day. Per BAAQMD's Regulation 2, Rule 2, new sources with a Potential to Emit of 10.0 pounds per day or more of any single pollutant from a single piece of equipment must be equipped with BACT. Daily NO_X and CO emissions from the backup generators would exceed the BAAQMD 10.0 pounds per day limit. Accordingly, these sources would be equipped with Tier 2 engines, which is considered BACT.

Table 4.3-8 Maximum Daily Criteria Pollutant Emissions from a Single Backup Generator

Pollutant	Emissions (lb/day)	BAAQMD BACT Thresholds (lb/day)	Exceeds Threshold?
NOx	639	10	Yes
VOCs	9.55	10	No
CO	47.6	10	Yes
SO_2	0.35	10	No
PM_{10}	2.86	10	No
$PM_{2.5}$	2.86	10	No

Source: Ramboll, 2019

Notes: The maximum daily emissions were derived assuming 24 hours of operation in one day.

Table 4.3-9 provides hourly and annual TAC emission estimates, again assuming each backup generator is operated 50 hours per year. The characterization of TAC emissions used to conduct the HRA are described in Health Risk Assessment Section, for purposes of demonstrating compliance with BAAQMD's Regulation 2, Rule 5. The federal CAA requires MACT on new sources that emit more than 10 tons per year of any single HAP or more than 25 tons per year of any combination of HAPs. As shown in **Table 4.3-9**, SBGF's annual emissions of any single HAP or combination of HAPs would be below the MACT thresholds.

Table 4.3-9 Toxic Air Contaminant Emissions from All Backup Generators

Pollutant	Pollutant is a Federal HAP?	Hourly Emissions (lb/hr)[a]	Annual Emissions (tons/year)[b]
Diesel PM[c]	No	2.94	0.537
1,3-Butadiene	Yes	0.00560	0.00102
Acetaldehyde	Yes	0.216	0.0395
Benzene	Yes	0.0589	0.0107
Ethylbenzene	Yes	0.00913	0.00167
Formaldehyde	Yes	0.433	0.0791
n-Hexane	Yes	0.00471	0.000860
Methanol	Yes	0.00088	0.00016
Methyl Ethyl Ketone	No	0.0436	0.00795
Naphthalene	Yes	0.00265	0.00048
Propylene	No	0.0766	0.0140
Styrene	Yes	0.00177	0.000322
Toluene	Yes	0.0433	0.00790
m-Xylene	Yes	0.0180	0.00328
o-Xylene	Yes	0.0100	0.00183
p-Xylene	Yes	0.00294	0.000537
Total HAP Emissions			**0.147**

Source: Ramboll, 2019

[a] Hourly emissions were estimated assuming that all 54 backup generators could be operated concurrently. However, C1 commits to standard operating procedures that would limit testing to one backup generator at a time.

[b] The annual emissions were estimated assuming that all 54 backup generators would operate 50 hours per year.

[c] Diesel particulate matter (DPM) emissions were assumed equal to exhaust PM10 emissions. lb/hr = pound(s) per hour

PAH = Polycyclic Aromatic Hydrocarbon

Mobile Sources

Consistent with **Section 4.17, Transportation**, there would be an average of 695 total daily vehicle trips, including vendor and employee trips, which would result in mobile source criteria pollutant emissions. These emissions were estimated using CalEEMod. Emissions resulting from mobile source operation are included in **Table 4.3-10**.

Area and Energy Sources

SDC and SBGF would result in area and energy source criteria pollutant emissions associated with facility upkeep (that is, operation and maintenance). Area sources include landscaping activities, consumer product use, and periodic painting emissions. Energy sources include natural gas combustion for space heating, from sources assumed exempt from BAAQMD permitting.[15] Facility upkeep emissions were estimated using CalEEMod, based on the square footage of the buildings to be constructed and paved areas. Emissions resulting from area sources are included in **Table 4.3-10**.

Table 4.3-10 Annual Criteria Pollutant Emissions from Facility Operation

Source	VOCs	NO_x	PM_{10}	$PM_{2.5}$
Area Sources (tons per year [tpy])	3.1	0.00	0.00	0.00
Energy Sources (tpy)[a]	0.1	0.9	0.07	0.07
Mobile Sources (tpy)	0.14	0.63	0.58	0.16
Stationary Sources (tpy)	0.54	35.96	0.16	0.16
Total Emissions (tpy)	3.9	37.5	0.81	0.39
BAAQMD Offsets (tpy)[b]		-35.96		
Total Emissions including BAAQMD Offsets (tpy)	3.9	1.5	0.81	0.39
BAAQMD Thresholds (tpy)	10	10	15	10
Exceeds Threshold?	No	No	No	No

Source: Ramboll, 2019

[a] Criteria pollutant emissions from energy sources are only calculated from natural gas use. CalEEMod does not calculate criteria pollutant emissions produced by electricity consumption.

[b] As required by BAAQMD policy regarding backup generators, stationary source NO_X emissions would be fully offset (BAAQMD 2019).

[15] Note that CalEEMod does not calculate criteria pollutant emissions associated with electricity consumption, because that is considered an indirect source of emissions. Accordingly, the energy source criteria pollutant emissions only include emissions from natural gas combustion. Similar, criteria pollutant emissions associated with waste generation and water use would be tied to electricity consumption and are not included in this analysis.

As shown in **Table 4.3-10**, operation of SDC and SBGF would not generate VOCs, PM_{10}, or $PM_{2.5}$ emissions in excess of BAAQMD's numeric thresholds. NO_X emissions from the backup generators would be fully offset during the permit process. So, NO_X emissions from the SDC and SBGF would also not exceed BAAQMD's numeric threshold, resulting in a less-than-significant impact.

Ambient Air Quality Impact Analysis

An ambient air quality impact analysis was conducted to compare worst-case ground-level impacts resulting from the SBGF backup generators with established state and federal ambient air quality standards and applicable BAAQMD significance criteria. The analysis was conducted in accordance with the air quality impact analysis guidelines presented in EPA's 40 Code of Federal Regulations Part 51, Appendix W: Guideline on Air Quality Models.[16]

The analysis includes an evaluation of the possible effects of simple, intermediate, and complex terrain, and aerodynamic effects (downwash) due to nearby buildings and structures on plume dispersion and ground-level concentrations. A numerical Gaussian plume model was used in the analysis. The model assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution of gaseous concentrations about the plume centerline. Gaussian dispersion models are approved by EPA and BAAQMD for regulatory use and are based on conservative assumptions (that is, the models tend to over-predict actual impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions, and so forth).

The subsections below present the following information:

- Dispersion modeling methodology for evaluating the impacts on ambient air quality
- Modeling source data used to evaluate the impacts on ambient air quality
- Dispersion modeling results compared to the CAAQS and NAAQS

Dispersion Modeling Methodology

Model Selection and Model Options

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 18081) was used with regulatory default options, as recommended in EPA's Guideline on Air Quality Models.[17] The following supporting pre- processing programs for AERMOD were also used:

- BPIP-PRIME (Version 04274)
- AERMET (Version 18081)
- AERMAP (Version 18081)

[16] U.S. Environmental Protection Agency (EPA). 2017. Guideline on Air Quality Models. 40 Code of Federal Regulations (CFR) Part 51, Appendix W. January.
[17] Ibid.

AERMOD is a steady-state plume model that simulates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain. This model is recommended for short-range (less than 50 kilometers [km]) dispersion from the source. The model incorporates the Plume Rise Model Enhancement (PRIME) algorithm for modeling building downwash. AERMOD is designed to accept input data prepared by two specific pre-processor programs, AERMET and AERMAP. AERMOD was run with the following options:

- Regulatory default options
- Direction-specific building downwash
- Actual receptor elevations and hill height scales obtained from AERMAP

The modeled facility layout is presented in **Appendix G**.

Meteorological Data

Meteorological data were combined into AERMOD-ready surface and upper-air input files using EPA's approved meteorological data pre-processor for the AERMOD dispersion model, AERMET (Version 18081).

AERMET uses three steps to pre-process and combine the surface and upper-air sounding data to a format compatible with the AERMOD model. The first step extracts the data and performs a brief quality assurance check of the data. The second step merges the meteorological data sets. The third step creates an AERMOD compatible format while also incorporating surface characteristics surrounding the collection or application site. The output from the AERMET model consists of two separate files: the surface conditions file and a vertical profile data set. AERMOD utilizes these two files in the dispersion modeling algorithm to predict pollutant concentrations resulting from a source's emissions.

National Weather Service's hourly integrated surface database data for the SJC surface station (WBAN: 23293) were used from 2013 through 2017. The SJC surface station is located approximately 2 km west of the site. 1-minute Automated Surface Observing System data from the SJC surface station were supplemented into the AERMET data set; the data were pre-processed using the AERMINUTE pre-processor (Version 15272). The concurrent daily upper-air sounding data from the Oakland International Airport station (WBAN: 23230) were included.

Additionally, the noon-time albedo, daytime Bowen ratio, and surface roughness lengths were considered when conducting the Stage 3 AERMET processing. Together, these comprise the surface characteristics used by AERMET to calculate the boundary layer parameters. Surface characteristics can vary by month and sector around the data collection site. The mid-day albedo is the fraction of total incident solar radiation reflected by the surface back to space without absorption. The daytime Bowen ratio is an indicator of surface moisture, which is the ratio of the sensible heat flux to the latent heat flux. The Bowen ratio is used to determine the planetary boundary layer parameters for convective

conditions. Surface roughness length is related to the height of obstacles to the wind flow and is the height at which the mean horizontal wind speed is zero.

The EPA has developed a computer program called AERSURFACE (Version 13016) to aid in obtaining realistic and reproducible surface characteristic values for the albedo, Bowen ratio, and surface roughness length for input to AERMET. The program uses publicly available national land cover data sets and look-up tables of surface characteristics that vary by land cover type and season. Land cover data from the U.S. Geological Survey's NLCD92 database were used for the modeling, as recommended by the AERSURFACE User's Guide. Since surface conditions can vary by season, the Monthly option was chosen in AERSURFACE. For the albedo and Bowen ratio characterization, a 10-km radius was used. Because surface roughness can vary by direction or sector, a 1-km radius circle split into 12 equal sectors was used for surface roughness determination. The surface characterization values from AERSURFACE were used in Stage 3 of the AERMET processing based on the surface moisture classification of the respective meteorological data year.

To characterize the surface moisture for each meteorological year being processed, as required by AERSURFACE, total precipitation for each year processed was determined from the National Weather Service data and compared to the 30th percentile and 70th percentile of the 30-year precipitation record obtained from the Western Regional Climate Center for the SJC California Cooperative station (ID: 047821).

The Stage 3 AERMET processing included the default low wind option method (ADJ_U*).

Building Downwash

Building influences on stacks are calculated by incorporating the updated EPA Building Profile Input Program for use with the Plume Rise Model Enhancement algorithm. In addition to the buildings and structures associated with SDC and SBGF, buildings surrounding the facility fence line were included in the model due to their height and proximity to the site. **Appendix G** shows the facility layout and off-site buildings on the exterior of the property boundary. The stack heights used in the dispersion modeling were the actual stack height since the proposed stack heights are less than the EPA Good Engineering Practice stack height, which limits the maximum stack height used in a modeling analysis to prevent the use of excessively tall stacks to reduce modeled concentrations of a pollutant.

Receptor Grid

The ambient air boundary was defined by the fence line surrounding the SDC site. The selection of receptors in AERMOD were as follows:

- 10-meter resolution for fence line receptors;
- 20-meter resolution extending from the fence line to 1,000 meters.

AERMAP (Version 18081) was used to process terrain elevation data to obtain the elevation for all receptors using National Elevation Dataset files prepared by the U.S. Geological Survey. AERMAP first

determined the base elevation at each receptor. AERMAP created hill height scale by searching for the terrain height and location that has the greatest influence on dispersion for each individual source and receptor. Both the base elevation and hill height scale data were produced for each receptor by AERMAP as a file or files that were directly accessed by AERMOD. All receptor locations were expressed in the Universal Transverse Mercator North American Datum 1983, Zone 10 coordinate system. The modeled receptor grid is shown in **Appendix G**.

Sensitive Receptors

Sensitive receptors, such as infants, the aged, and people with specific illnesses or diseases, are the subpopulations which are more sensitive to the effects of toxic substance exposure.

Examples of receptors include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers.[18] The potential sensitive receptor locations evaluated in the HRA for SBGF include[19]:

- Residential dwellings, including apartments, houses, condominiums
- Schools, colleges, and universities
- Daycares
- Hospitals
- Senior-care facilities

A sensitive receptor search was conducted within 1 mile of SDC. In addition to residents, it was determined that the sensitive receptors include daycares and a soccer field. The area directly surrounding the SDC site consists of various businesses, industrial uses, railroad tracks, and SJC. The nearest residential neighborhoods are located approximately one third mile north and east of the site.

The sensitive receptors were used as discrete receptor locations in the model for purposes of conducting the HRA, as described in the Health Risk Assessment Section.

Refined Analysis for 1-Hour NO_2

For comparison to the NAAQS and CAAQS, NO_2 modeling followed a Tier 3 Plume Volume Molar Ratio Method approach. For this modeling, an in-stack NO_2/NO_X ratio of 0.10 was used. The EPA database has

[18] Bay Area Air Quality Management District (BAAQMD). 2017c. California Environmental Quality Act Air Quality Guidelines. May. http://www.baaqmd.gov/~/media/files/planning-and- research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

[19] Bay Area Air Quality Management District (BAAQMD). 2012. Recommended Methods for Screening and Modeling Local Risks and Hazards. May. http://www.baaqmd.gov/~/media/files/planning-and- research/ceqa/risk-modeling-approach-may-2012.pdf?la=en.

data for 57 diesel-fired reciprocating internal combustion engine that indicate a median, mean, and even a second-high value, that are less than a 0.10 NO_2/NO_X ratio.

Hourly ozone data from the San Jose AQS Monitoring Station was used (Jackson, 06-085-0005) with missing data substituted in two stages. If one or two consecutive hours were missing, the values were replaced by the larger value of the preceding or following hour. If three or more consecutive hours were missing, those values were replaced by the maximum values of the month-by-hour data set (i.e., the highest monitored value of the five years of data categorized by month of year and hour of day).

Modeling Source Data

Source Characterization

All 54 backup generators have been modeled as point sources. Emission rate, flow rate and temperature vary at different loads. To capture the maximum impact for comparison with the short-term NAAQS and CAAQS, all loads were analyzed and modeled assuming operation in each load for one full hour.

Modeled source parameters for the backup generators were determined from manufacturer and performance data. **Appendix F** summarizes the source parameters by load. The base elevation for each source was estimated based on a central elevation within the facility fence line.

Modeled criteria pollutant emission rates were developed and are described in detail in **Appendix F**. The 1-hour modeled emission rates demonstrate the maximum amount of pollutant released in any given hour. Modeled emission rates for the 8-hour averaging periods were calculated assuming each backup generator would only operate for the whole 8-hour period to be conservative.

Dispersion Modeling Results

Results from the dispersion modeling analysis were compared to the NAAQS and CAAQS. As summarized in **0**, the impacts of CO (1-hour and 8-hour) and NO2 (1-hour) are below their respective NAAQS and CAAQS.

Table 4.3-11 Comparison of Modeled Results to the National Ambient Air Quality Standards (µg/m³)

Pollutant	Averaging Time	Maximum Total Modeled Concentration[a] (µg/m³)	Limiting Standard (µg/m³)
CO	1-hour[b]	5,818	23,000
	8-hour[b]	4,026	10,000
NO_2	1-hour NAAQS[c]	185	188
	1-hour CAAQS[c]	325	339

Source: Ramboll, 2019

[a] Background concentrations were included from **Table 4.3-3** to estimate the total predicted concentrations.

[b] The total predicted concentrations for the 1-hour and 8-hour CO standards are conservatively estimated as the maximum 1 hour and 8-hour concentration of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations. These concentrations also conservatively assume all 54 backup generators operate during the hour, which would not happen, as C1 would not operate any of the backup generators at the same time for maintenance and testing activities. The limit shown here is the CAAQS, which is the limiting standard.

[c] This concentration is also the worst-case single backup generator concentration because only a single backup generator would operate at a given time.

Health Risk Assessment

An HRA requires both dispersion modeling of the SBGF backup generators, as described above, and characterization of the resultant risk using approved risk assessment methodology. This HRA was conducted in accordance with CARB's Air Toxics Hot Spots Program Risk Assessment Guidelines and is consistent with risk assessment guidance documents issued by the California Environmental Protection Agency (CalEPA), the Office of Environmental Health Hazard Assessment (OEHHA), and BAAQMD. This section describes the methodology used to characterize risk from SBGF operations. The results are reported for comparison to the appropriate thresholds.

HRA Approach and Risk Characterization

As recommended by the 2015 OEHHA Guidance, a Tier 1 assessment was performed. The Tier 1 assessment is the most conservative of the four tier assessment methodologies identified in the OEHHA Guidance and uses a standard point-estimate approach with standard OEHHA assumptions.

The HRA included potential health impacts from TAC exposure on receptors through the inhalation, dermal absorption, soil ingestion, and mother's milk pathways, as required by OEHHA Guidance. The inhalation cancer potency, oral slope factor values, and RELs used to characterize health risks associated with the modeled impacts were obtained from the Consolidated Table of OEHHA/ARB Approved Risk

Assessment Health Values.[20] The pathways for surface drinking water, still-water fishing, and subsistence farming are not applicable per regulatory guidance and thus were not included in the assessment. Residential exposure through the consumption of homegrown produce, including pork, chicken, and eggs, were included. OEHHA default exposures were assumed for the mother's milk, homegrown produce, and soil exposure pathways.

Cancer

Cancer risk was evaluated based on the annual TAC ground-level concentrations, as calculated from AERMOD and the 2015 OEHHA assumptions for inhalation cancer potency, oral slope factor, frequency, and breathing rate of exposed persons. Residential cancer risks were estimated using the conservative assumption of 30-year continuous exposure duration, as required by the 2015 OEHHA Guidance. Worker exposure was based on a 25-year, 8-hours-per-day exposure for an adult.[21]

Cancer risk results are expressed on a number-per-million basis. The cancer risk for the Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), or Maximally Exposed Sensitive Receptor (MESR) was compared to the carcinogenic threshold level. These results are presented below.

Non-cancer Chronic Exposure

Chronic toxicity is defined as adverse health effects from prolonged chemical exposure caused by chemicals accumulating in the body. To assess chronic non-cancer exposures from SBGF operation, annual TAC ground-level concentrations were compared with the RELs developed by OEHHA to obtain a chronic HI. The REL is a concentration in ambient air at, or below which, no adverse health effects are anticipated. Non-cancer chronic health risks were calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same target organ are summed with the resulting totals expressed as HIs for each organ system. The non-cancer chronic risk for the MEIR, MEIW, or MESR was compared to the non-cancer chronic threshold level. These results are presented below.

Non-cancer Acute Exposure

Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. To assess acute non-cancer exposures from SBGF operation, 1-hour TAC ground-level concentrations were compared with the acute REL to obtain an acute HI. Similar to assessing chronic non-cancer health risks, acute health risks were calculated as a hazard quotient, which is the calculated exposure of each contaminant divided by its REL. Hazard quotients for pollutants affecting the same

[20] Office of Environmental Health Hazard Assessment and California Air Resources Board (OEHHA & CARB). 2018. Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values. May.
[21] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Guidance Manual for Preparation of Health Risk Assessments. February. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.

target organ were summed with the resulting totals expressed as HIs for each organ system. The non-cancer acute risk for the MEIR, MEIW, or MESR was compared to the non-cancer acute threshold level. These results are presented below.

TACs

TACs considered in evaluating the health impacts of SBGF are those included in BAAQMD Regulation 2, Rule 5. The TACs evaluated in the operational HRA were diesel particulate matter (DPM) and speciated total organic gases (TOG) in diesel exhaust. The TACs from speciated TOG include:

- 1,3-butadiene
- Acetaldehyde
- Benzene
- Formaldehyde
- Methanol
- Methyl ethyl ketone (MEK)
- Styrene
- Toluene
- Xylene

The cancer risk, chronic HI, and acute HI predicted by the HRA for the operation of SBGF were based on TAC emissions from the SBGF. These emissions estimates were used to compare to BAAQMD thresholds and as inputs to the HRA.

Construction Health Risks

Since construction emissions are below the BAAQMD thresholds (as shown below) and the closest receptors are 1,500 feet away (as discussed below), construction health impacts are expected to be minimal and therefore a refined construction HRA was not performed.

Operation HRA

A complete HRA was conducted to evaluate the potential health risks associated with airborne emissions from routine operation of SBGF. The HRA process requires four general steps to estimate health impacts: (1) identify and quantify SBGF-generated emissions; (2) evaluate pollutant transport (air dispersion modeling) to estimate ground-level TAC concentrations at each receptor location; (3) assess human exposure; and (4) use a risk characterization model to estimate the potential health risk at each receptor location. The methods used in this HRA are described in more detail below.

Emissions

TAC emissions associated with SBGF operation consist of combustion byproducts produced by 54 backup generators, all of which are fired exclusively on diesel fuel. Chemicals to be evaluated were DPM and speciated TOG in diesel exhaust. DPM was the only TAC modeled in HARP2 with annual emission

rates per Appendix D of the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.[22] DPM is used as a surrogate for the whole diesel exhaust.

DPM does not have an acute REL. However, to be conservative, acute health impacts from diesel were evaluated by speciating TOG short-term emissions. Emissions were calculated using the methodology described above and are summarized in **Table 4.3-9**.

The HRA is based on EPA-certified emission factors and standard operating parameters, as discussed in **Appendix G**. All 54 backup generators were assumed to operate for 50 hours per year.

Consistent with Appendix D of the Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments[23], cancer and non-cancer chronic risks were modeled based on annual DPM emissions. Non-cancer acute risks were modeled speciated TOG emissions. Detailed emission calculations are provided in **Appendix F**.

Methodology

The HRA was conducted in accordance with the following guidance:

- Air Toxic Hot Spots Guidance Manual for Preparation of Health Risk Assessments (OEHHA, 2015)
- BAAQMD Air Toxics NSR Program HRA Guidelines (BAAQMD, 2016)
- Guideline on Air Quality Models (EPA, 2017)

Emissions were modeled using the unit rate emissions method, such that each source has a unit emission rate (i.e., 1 gram per second [g/s]) and the model estimates dispersion factors with units of $(\mu g/m^3)/(g/s)$. Actual emissions were multiplied by the dispersion factors to obtain concentrations.

For SBGF operation, backup generators were modeled as if they could operate at any hour of the day.

Modeled source parameters for the backup generators were determined from manufacturer and performance data. **Appendix G** summarizes the source parameters.

For annual average ambient air concentrations, the estimated annual average dispersion factors were multiplied by the annual average emission rates. For maximum hourly ambient air concentrations, the estimated maximum hourly dispersion factors were multiplied by the maximum hourly emission rates.

AERMOD (Version 18081) was used to predict ground-level concentrations of TAC emissions associated with SBGF operation. The model selection, model options, meteorological data, and receptor grid spacing are consistent with those described above and not repeated here. Cancer risks and chronic and

[22] Office of Environmental Health Hazard Assessment (OEHHA). 2015. Guidance Manual for Preparation of Health Risk Assessments. February. https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.
[23] Ibid.

acute non-cancer exposures were assessed as previously described above. Additional details can be found in **Appendix G**, and the modelled receptor locations are shown in **Figure 6**.

Results

The results of the HRA for facility-wide SBGF operation are presented in **Table 4.3-12** and show that the incremental cancer risk and chronic and acute HI at each of the MEIR, MEIW, and MESR are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively. Additionally, SBGF's incremental increase in annual average $PM_{2.5}$ concentration is 0.04 µg/m^3, which is below the BAAQMD's significance threshold of 0.3 µg/m^3. Therefore, predicted impacts associated with SBGF operation are less than significant. Additional details are provided in **Appendix F**.

Table 4.3-12 Facility Operation Health Risks at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.19	2.2	0.05	10
Chronic Non-cancer HI	0.00005	0.007	0.00003	1
Acute Non-cancer HI	0.10	0.54	0.11	1

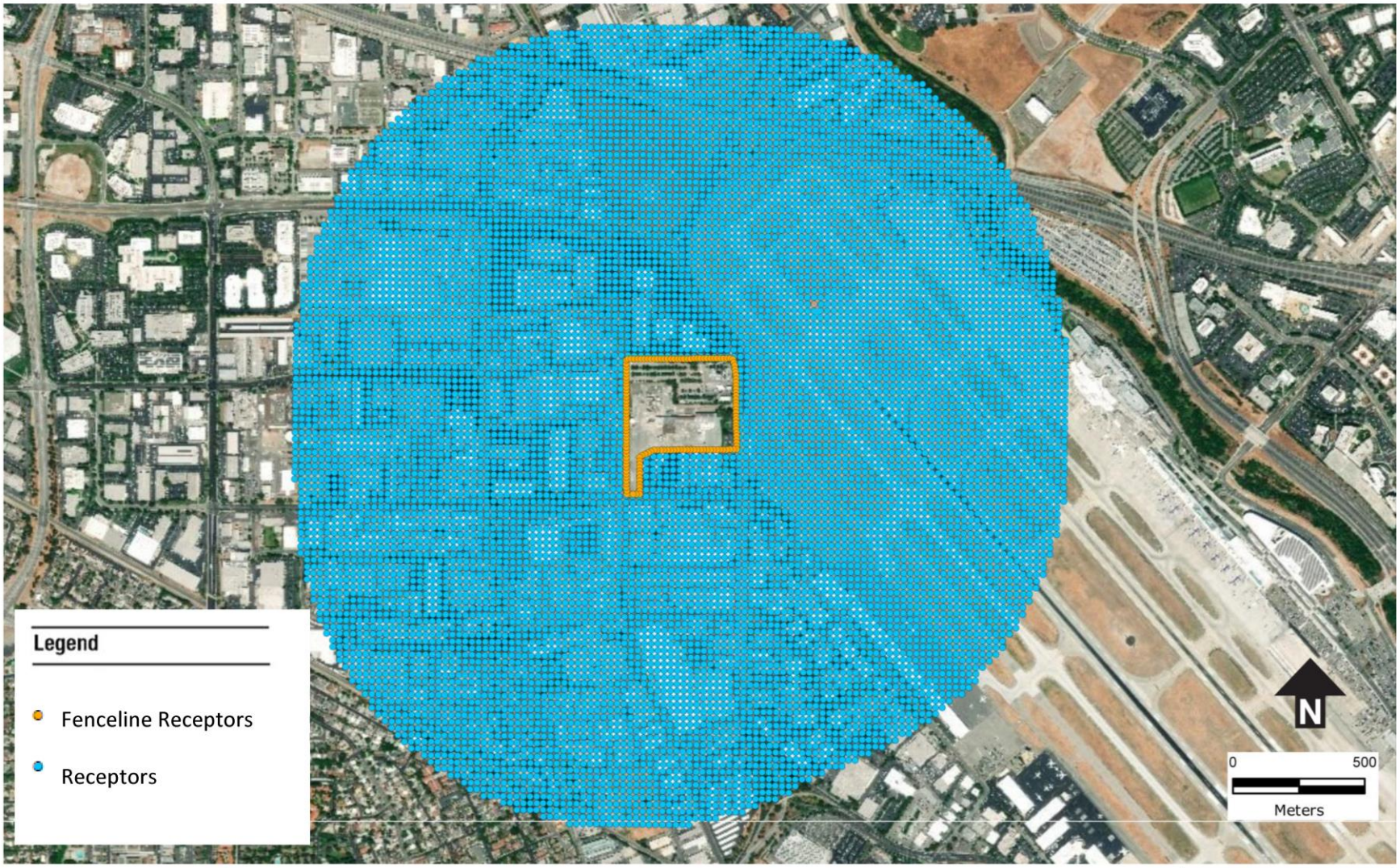
Source: Ramboll, 2019

In accordance with BAAQMD Regulation 2, Rule 5, maximum HRA results for operation of a single emission unit are presented in **Table 4.3-13**. As shown, backup generator operation does not trigger the regulatory requirement for TBACT as the incremental cancer risk is below the threshold of 1 in 1 million. Therefore, the SBGF would comply with BAAQMD Regulation 2, Rule 5 and result in less-than-significant health risk impacts. Additional details are provided in **Appendix F**.

Table 4.3-13 Per Unit Operation Health Risks at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.0047	0.069	0.001	1
Chronic Non-cancer HI	0.0000013	0.00022	0.0000013	0.20
Acute Non-cancer HI	0.032	0.032	0.004	--

Source: Ramboll, 2019
-- = No threshold established for this risk period



Modeled Receptor Locations Figure **6**

Source: Ramboll, 2019

Impact Discussion

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

Less than Significant (Measures Incorporated into the Project). SDC and SBGF are within the BAAQMD's jurisdiction, which is the agency primarily responsible for assuring that the federal and state ambient air quality standards are met and maintained in the SFBAAB. The BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than federal and state air quality laws and regulations.

According to the 2017 BAAQMD CEQA guidelines, a project would be considered consistent with the Clean Air Plan if the project would not result in significant and unavoidable air quality impacts after the application of all feasible mitigation. BAAQMD construction-period BMPs would be implemented as described in Section 2, Project Description, as mitigation incorporated into the project. As shown in **Table 4.3-5** and **Table 4.3-10**, the SDC and SBGF would not result in construction or operational emissions in excess of the BAAQMD significance thresholds, with the exception of NO_X from backup generator operation. As discussed above, the annual NO_X emissions from backup generator operation would be fully offset through the permitting process in accordance with BAAQMD Regulation 2, Rule 2. Tier 2 engines are planned for the SBGF and are considered BACT, therefore no additional measures are needed to comply with the BACT standard. Therefore, with implementation of BAAQMD BMPs, construction and operation of SDC and SBGF would not conflict with or obstruct implementation of the Clean Air Plan.

A project would also conflict with or obstruct implementation of BAAQMD's Clean Air Plan if it would be inconsistent with regional growth assumptions, in terms of population, employment, or regional growth in Vehicle Miles Traveled (VMT). The emission strategies in the Clean Air Plan were developed, in part, on regional population, housing, and employment projections prepared by the Association of Bay Area Governments (ABAG). Because data center uses are allowed under the SDC site's existing zoning (Heavy Industrial), it can be assumed that the project's use is already accounted for in the Clean Air Plan.

The consistency of the SDC and SBGF with the Clean Air Plan is primarily a question of the consistency with the population, land use, and employment assumptions utilized in developing the Clean Air Plan, which were based on ABAG Projections. The SDC would not affect population as it would not include new housing or create a major source of employment. Implementation of the SDC would add a permitted data center use on the SDC site and would therefore not affect land use assumptions or VMT forecasts used for Clean Air Plan projections. Consequently, development of the SDC and SBGF would not conflict with population, land use, or VMT projections used to develop the Clean Air Plan planning projections. This impact would be less than significant, and no mitigation would be required.

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?

Less than Significant (Measures Incorporated into the Project). A cumulative impacts analysis assesses the impacts that result from the project's incremental effect viewed over time, together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the project.[24] Additionally, cumulative impacts are assessed in terms of conformance with the BAAQMD's air quality attainment or maintenance plans.

Two main significance criteria were used to evaluate the SDC and SBGF. First, all SDC and SBGF emissions of non-attainment criteria pollutants and their precursors (NO_X, VOCs, PM_{10}, $PM_{2.5}$, and SO_2) that conflict with an existing local or general air quality plan are considered significant cumulative impacts that must be mitigated. Second, any ambient air quality standard exceedance or any contribution to an existing ambient air quality standard exceedance caused by SDC or SBGF emissions is considered to be significant and must be mitigated. For construction emissions, available mitigation is limited to controlling both construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. As described above, mitigation has been incorporated into the SDC which includes application of BAAQMD's construction-period BMPs. For operational emissions, available mitigation includes both feasible emission controls (such as BACT) or use of emission offsets. As described above, Tier 2 engines would be applied to the SBGF as a BACT. Emissions would be offset through the BAAQMD permitting process as a permit requirement. No further measures are needed to ensure operation of the SBGF is consistent with BAAQMD operational thresholds.

For a project that does not individually have significant operational air quality impacts, the determination of a significant cumulative air quality impact is based upon an evaluation of the consistency of the SDC and SBGF with the local general plan and of the general plan with the most current Clean Air Plan. As stated previously, SDC and SBGF would not result in construction or operational emissions in excess of the BAAQMD significance thresholds identified in **Table 4.3-4** with the application of mitigation incorporated into the project. Thus, SDC and SBGF would not be expected to conflict with the 2017 Bay Area Clean Air Plan, and a cumulative impact analysis is not warranted.

Furthermore, the air quality impact analysis presented in the **Ambient Air Quality Impact Analysis** subsection above demonstrates that operation of SBGF's backup generators would not cause or contribute to an existing exceedance of the ambient air quality standards with application of BACT.

[24] California Public resources Code, Section 21083 and Title CCR, Sections 15064(h), 15065©, 15130, and 15355.

Thus, SBGF would not be expected to result in a cumulatively considerable net increase of non-attainment criteria pollutants.

As previously noted, the BAAQMD's 2017 CEQA Guidelines establish numerical criteria for determining when a health risk increase is deemed cumulatively considerable, thus triggering the need for a quantitative cumulative impact assessment. If a project does not exceed the identified significance thresholds, its health risks would not be cumulatively considerable, resulting in less-than-significant health risk impacts to existing regional conditions. The discussion of construction health risks and the refined operational HRA presented in Health Risk Assessment subsection demonstrate that neither construction nor operation of SDC and SBGF would result in health risks that exceed the BAAQMD significance thresholds identified in **Table 4.3-4**. Because SBGF health risks would be less than the BAAQMD's significance thresholds, SBGF would not contribute to potential adverse cumulative health risk impacts on sensitive receptors. Therefore, given the lack of significant effects on sensitive populations, SBGF would not result in a cumulatively considerable contribution to health risks.

c) Would the expose sensitive receptors to substantial pollutant concentrations?

Less than Significant (Measures Incorporated into the Project). The location of SBGF is a major factor in determining whether it would result in localized air quality impacts to sensitive receptors. The potential for adverse air quality impacts increases as the distance between the source of emissions and sensitive receptors decreases. Impacts on sensitive receptors are of particular concern where sensitive receptors are facilities that house or attract children, the elderly, and people with illnesses or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

The operational HRA presented in the Health Risk Assessment subsection included sensitive receptors within 1,000 meters of SBGF, which is much farther than the 1,000-foot zone of influence recommended by the BAAQMD. The criteria pollutant emissions associated with SDC and SBGF construction and operation, with incorporation of all feasible mitigation (BBAQMD construction-period BMPs), are below BAAQMD's significance criteria for determining significant air quality impacts, as shown in **Table 4.3-12** and **Table 4.3-9**. Therefore, construction and operational emissions would not expose any receptors, sensitive or not, to substantial criteria pollutant concentrations.

Sensitive receptor exposure to TACs was evaluated by conducting a complete HRA for operation. The predicted cancer risk, chronic HI, and acute HI for SBGF operation were based on the project's estimated TAC emissions, as presented in **Table 4.3-12**. As noted previously, modeled sources of TACs include backup generators during operation. Accordingly, the TACs evaluated in the HRA were DPM and speciated TOG in diesel exhaust, as applicable. DPM emissions were assumed to be equal to exhaust PM_{10} emissions from operating backup generators. The TACs from speciated TOG include 1,3-butadiene, Acetaldehyde, Benzene, Formaldehyde, Methanol, Methyl ethyl ketone, Styrene, Toluene, and Xylenes.

Diesel exhaust is a complex mixture of thousands of gases and fine particles and contains over 40 substances listed by EPA as HAPs and by CARB as TACs. DPM is primarily composed of aggregates of spherical carbon particles coated with organic and inorganic substances. Diesel exhaust deserves particular attention mainly because of its ability to induce serious non-cancer effects and its status as a likely human carcinogen. Diesel exhaust is also characterized by CARB as "particulate matter from diesel-fueled engines". The impacts from human exposure would include both short- and long-term health effects. Short-term effects can include increased coughing, labored breathing, chest tightness, wheezing, and eye and nasal irritation. Effects from long-term exposure can include increased coughing, chronic bronchitis, reductions in lung function, and inflammation of the lung. Epidemiological studies strongly suggest a causal relationship between occupational diesel exhaust exposure and lung cancer. Diesel exhaust is listed by EPA as "likely to be carcinogenic to humans".

Under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole. Therefore, the cancer and chronic hazards were based on the surrogate approach (that is, modeled DPM only), as recommended by OEHHA. In the absence of an acute toxicity value for diesel exhaust, speciated TOG were used as a conservative estimate for DPM emitted annually from the backup generators.

Cancer and non-cancer health hazards at various receptors were estimated using EPA's AERMOD dispersion model and guidance from BAAQMD and OEHHA. The HRA evaluated offsite receptors potentially exposed to SDC and SBGF emissions from operational activities. These exposed populations include residential, worker, and sensitive receptors. Both long-term health impacts (cancer risk and chronic HI) and short-term health impacts (acute HI) were evaluated for all locations, as applicable. The HRA considered inhalation exposure only. Offsite resident receptors were assumed to be present at one location for a 30-year period, beginning with exposure in the third trimester of pregnancy. Offsite worker receptors were assumed to be present at one location for a 25-year period, beginning with exposure at the age of 16, for 8 hours per day and 250 days per year.

The HRA results presented in **0** indicate that operational health risks would not exceed BAAQMD's significance thresholds. Therefore, operation of SCBGF would not expose any sensitive receptors to substantial TAC concentrations causing significant cancer or non-cancer health hazards.

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

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

Determining the significance of potential odor impacts involves a two-step process. First, it should be determined whether the SDC and SBGF would result in an odor source and receptors being located within the distances indicated in **Table 4.3-14**. **Table 4.3-14** also lists types of facilities known to emit objectionable odors. Second, if the SDC and SBGF would result in an odor source and receptors being located closer than the screening level distances indicated in **Table 4.3-14**, a more detailed analysis should be conducted, as described in the BAAQMD's 2017 CEQA Guidelines.

The SDC and SBGF would not be an odor source listed in **Table 4.3-14**, and this type of project is not known to cause any significant odor impacts. A further evaluation of this facility is not warranted by any local conditions or special circumstances. Therefore, SDC and SBGF would not create objectionable odors affecting a substantial number of people.

Potential odor sources during construction activities include diesel exhaust from heavy-duty equipment. Construction-related odors near existing receptors would be temporary in nature and dissipate as a function of distance. Potential odor sources from SDC operations would include diesel exhaust from trash pick-up or heavy-duty delivery vehicles and the occasional use of architectural coatings during routine maintenance. When compared to existing odor sources in the vicinity of the SDC site, which include heavy and light industrial uses, odor impacts from SDC operations would be similar. Accordingly, construction and operation of SDC and SBGF is not expected to result in odor impacts that would exceed BAAQMD's odor thresholds.

Table 4.3-14 Project Screening Trigger Levels for Potential Odor Sources

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

Source: BAAQMD, 2017c

4.4 Biological Resources

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

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

Federal

Federal Endangered Species Act

The U.S. Fish and Wildlife Service Endangered Species Act protects listed wildlife species from harm or "take" which is broadly defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Take can also include habitat modification or degradation that directly results in death or injury to a listed wildlife species.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C., §703, Supp. I, 1989) prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. Migratory birds protected under this law include all native birds and certain game birds (e.g., turkeys and pheasants). The MBTA encompasses whole birds, parts of birds, and bird nests and eggs. The MBTA protects active nests from destruction and all nests of species protected by the MBTA, whether active or not, cannot be possessed.

State

California Endangered Species Act and California Native Plant Protection Act

The California Endangered Species Act (CESA) prohibits the take of any plant or animal listed or proposed for listing as rare (plants only), threatened, or endangered (California Fish and Game Code, Chapter 1.5, Sections 2050-2116). In accordance with CESA, the California Department of Fish and Wildlife (CDFW) has jurisdiction over State-listed species. The CDFW regulates activities that may result in "take" of individuals listed under the Act (i.e., "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill"). Habitat degradation or modification is not expressly included in the definition of "take" under the Fish and Game Code. The CDFW, however, has interpreted "take" to include the "killing of a member of a species which is the proximate result of habitat modification". The California Native Plant Protection Act preserves, protects, and enhances endangered and rare plants in California. It specifically prohibits the importation, take, possession, or sale of any native plant designated by the CDFW as rare or endangered, except under specific circumstances identified in the Act.

California Fish and Game Code

The California Fish and Game Code includes regulations governing the use of, or impacts to, many of the state's fish, wildlife, and sensitive habitats. The Fish and Game Code provides protection for native birds, including their nests and eggs (Sections 3503, 2513, and 3800). These regulations prohibit all forms of

take, including disturbance that causes nest abandonment and/or loss of reproductive effort. Raptors (i.e., eagles, falcons, hawks, and owls) are specifically protected under Fish and Game Code Section 3503.5.

Environmental Setting

The SDC site is in an industrial area. Surrounding land uses consist of commercial and industrial operations, generally occupying large one- to two-story office and industrial buildings. The SDC site is bound by an Enterprise Rent-a-Car Facility to the north, a furniture warehouse to the south, SJC to the east, and adjacent railroad tracks to the west. Other warehouse structures exist further west of the railroad tracks. The majority of the SDC site is unpaved, previously developed ground except for small landscaped areas that occur at the perimeter of the SDC site.

The SDC site contains a total of 72 trees located on the perimeter of the SDC site. The SDC site is separated from adjacent parcels by a fence to the north, by De La Cruz Boulevard to the east, and railroad tracks to the west. To the southeast, the SDC site adjoins two neighboring businesses. The SDC site's southwest corner adjoins a paved parking lot separated from the SDC site by a fence.

The General Plan Policy 5.10.1-P4 establishes a goal of preserving all healthy cedars, redwoods, oaks, olives, bay laurel and pepper trees of any size, and all other healthy trees over 36 inches in circumference measured from 48 inches above-grade on private and public property as well as in the public right-of-way. An arborist report conducted in 2018 documented the following trees on the SDC site (See **Appendix H**):

- 8 Brazilian pepper trees in fair health
- 2 European olive trees in unhealthy condition
- 7 holly oak trees in fair health
- 1 holly oak tree in good health
- 2 tanoak trees in poor health

The arborist completing the survey recommended removal of 37 of the trees on site. Only one tree, a Brazilian pepper tree, was found to have a circumference of 36 inches or greater. This tree was recommended for removal, as it was not in good health. Of the trees listed above, only the healthy holly oak was recommended for preservation.

City Code, Chapter 12.35.020 states, "no tree, plant or shrub planted or growing in the streets or public places of the City shall be altered or removed without obtaining a written permit from the Superintendent of streets. No person without such authorization shall trench around or alongside of any such tree, plant or shrub with the intent of cutting the roots thereof or otherwise damaging the same". All existing trees at the SDC site are on private property, but two of the trees are within the landscaped area along De La Cruz Boulevard and would be classified as street trees.

There are no natural areas on the SDC site; all vegetation consists of ornamental landscaping installed and previously maintained by the prior owner of the property. The SDC site does not contain watercourses or any bodies of water. The closest open space to the SDC site is Rotary Park, a small green space with children's play equipment and picnic tables located approximately 1 mile southwest. The park is separated from the SDC site by intervening urban development, major roadways, and railroad tracks.

Due to the relatively low amounts of vegetation on site and the urban context, the possibility of wildlife habitat occurring at the SDC site is considered to be low. Generally, wildlife habitats in developed urban areas, such as the SDC site, are low in species diversity. Species that may use the SDC site would be predominantly urban adapted birds, such as rock doves, mourning doves, mockingbirds, house sparrows, and finches. Raptors (birds of prey) and other urban birds could use trees on the SDC site for nesting or as a roost. Raptors and other migratory birds are protected by the MBTA.

The closest open, undeveloped area to the SDC site is the grassland surrounding the runways at SJC east of the SDC site. Unpaved areas at the perimeter of the airport serve as habitat for burrowing owls.[2] The *Norma Y Mineta San Jose International Airport Master Plan Update Project, 10th Addendum to the Environmental Impact Report* documents the owl population as confined to the airport site and identifies two potential types of impacts to this community: potential direct impacts to burrowing owls from airport-related construction activities, and loss of habitat from planned airport expansions.

There is no adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plans in effect that include the SDC site.[3]

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building, housing computer servers and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event a power outage. This discussion considers the impacts associated with both of these project components holistically.

[2]City of San Jose. 2013. *Norma Y Mineta San Jose International Airport Master Plan Update Project,* 10th Addendum to the Environmental Impact Report. Available: http://www.sanjoseculture.org/DocumentCenter/View/23320. Accessed: July 2019.
[3] Santa Clara Valley. 2018. *Habitat Agency Browser*. Available: http://www.hcpmaps.com/habitat/. Accessed: July 2019.

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 Game or U.S. Fish and Wildlife Service?

Less than Significant (Measures Incorporated into the Project). Due to the highly developed nature of the site vicinity and lack of suitable habitat for special-status species, no special-status plant or animal species are expected to occur within the SDC site. However, it is possible that existing trees could provide nesting habitat for migratory birds. The MBTA protects active nests, adults, eggs, and young of most species of birds. Construction of the SDC and SBGF would require the removal of 66 trees from the SDC site, and therefore may have an impact on nesting birds. If nesting birds were present within or adjacent to the SDC site during construction, construction activities could result in the abandonment of active nests or direct mortality to birds. However, mitigation would be implemented prior to and during construction activities for the purpose of minimizing risks to migratory birds. This project mitigation measure is described in **Section 2, Project Description** and is repeated below:

> In order to reduce impacts to biological systems and communities, the following measures shall be implemented:
>
> - Schedule tree removal activities between September 1 and January 31 (inclusive) to avoid the nesting season (including for raptors) and no additional surveys would be required.
> - If construction tree removal would take place between February 1 and August 31, pre-construction surveys for nesting birds shall be completed by a qualified ornithologist to ensure that no nests will be disturbed.
> - Surveys will be completed no more than seven days prior to the initiation of site clearing or construction activities. During this survey, the ornithologist will inspect all trees and other potential nesting habitats (e.g., shrubs) in and immediately adjacent to the construction area for nests.
> - If an active nest is found sufficiently close to work areas to be disturbed by construction, the ornithologist will determine the extent of a disturbance-free buffer zone to be established around the nest (typically 250 feet for raptors and 50-100 feet for other species). This will ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project implementation.
> - A report indicating the result of the survey and any designated buffer zones shall be submitted to the satisfaction of the Planning Department prior to the start of construction.

With implementation of the mitigation measure incorporated into the project design as described above, nesting birds would be protected from disturbance and other direct and indirect impacts from construction.

As described above, SJC includes unpaved areas adjacent to runways that serve as habitat for burrowing owls. Prior environmental analysis identified potential impacts to this population as a result of airport construction and expansion activities. Although the project site is separated from SJC by Ewert Road (an internal airport road), De La Cruz Boulevard, SJC fencing, and fencing at the SDC site, there is some possibility that individual owls could occur at the site. The likelihood of this occurring is believed to be low, not only as a result of intervening development but because the SDC site lacks suitable wildlife habitat or natural areas. However, to ensure the proposed development would not result in any impact to burrowing owl, mitigation has been incorporated into the project as described in **Section 2, Project Description** and is repeated below.

The following pre-construction and construction period measures shall be undertaken to avoid impacts to sensitive wildlife species:

- A qualified biologist shall conduct preconstruction surveys for burrowing owls prior to construction. Should these surveys identify burrowing owls on or near the SDC site, avoidance of disturbance to the burrow will be conducted as outlined below:
    - If an active burrowing owl nest is identified near a proposed work area, work will be conducted outside of the nesting season (March 15 to September 1).
    - If an active nest is identified near a proposed work area and work cannot be conducted outside of the nesting season, a qualified biologist will establish a no-activity zone. The no activity zone will be large enough to avoid nest abandonment and will at minimum be 250-foot radius from the nest.
    - If burrowing owls are present within the construction footprint during the non-breeding period, a qualified biologist will establish a no-activity zone of at least 150 feet.
    - If an effective no-activity zone cannot be established in either case, an experienced burrowing owl biologist will develop a site-specific plan (i.e., a plan that considers the type and extent of the proposed activity, the duration and timing of the activity, and the sensitivity and habituation of the owls, and the dissimilarity of the proposed activity with background activities) to minimize the potential to affect the reproductive success of the owls.
- Prior to construction, employees and contractors performing construction activities will receive environmental sensitivity training from a qualified wildlife biologist. Training will include review of environmental laws and avoidance and minimization measures that must be followed by all personnel to reduce or avoid effects on covered species during construction activities. A brief presentation by a qualified wildlife biologist will explain potential wildlife concerns to contractors, their employees, and agency personnel

involved in project construction. Fact sheets conveying this information and an educational brochure containing color photographs of burrowing owls will be prepared for distribution to the above-mentioned people and anyone else who may enter the SDC site vicinity.

- Environmental tailboard trainings will take place on an as-needed basis in the field. The environmental tailboard trainings will include a brief review of the biology of the covered species and guidelines that must be followed by all personnel to reduce or avoid negative effects on these species during construction activities. Directors, Managers, Superintendents, and the crew foremen and forewomen will be responsible for ensuring that crewmembers comply with the guidelines.

With implementation of the mitigation measures incorporated into the project design as described above, impacts on wildlife associated with the SDC and SBGF would be less than significant.

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

Less than Significant. The SDC site is currently vacant. The SDC site is surrounded by industrial development with limited cover and foraging habitat for wildlife. The closest open, undeveloped area to the SDC site is the grassland surrounding the runways at SJC east of the SDC site. As the SDC and SBGF improvements would be limited to the SDC site, there is no potential for direct impacts to this natural area. Based on the existing industrial setting of the site and SJC and noise associated with the airport and industrial uses, the addition of the SDC is not anticipated to indirectly affect this natural area.

There are no aquatic, wetland, riparian habitat, or other sensitive natural communities within the SDC site. The closest water body to the SDC site is the Guadalupe River, which is located 0.53 mile east and is separated from the SDC site by SJC. This river's banks are occupied by riparian natural spaces. If any sensitive communities are present the Guadalupe River, their movement to the SDC site from the River would be prevented by the intervening airport and other urban development. Development at the SDC site, including both the SDC and SBGF elements of the project, would not reasonably be anticipated to directly or indirectly impact any sensitive communities at the River. Therefore, the SDC and SBGF would have a less-than-significant impact on any riparian habitat or other sensitive natural community as identified at the local, state, or federal level. No mitigation is required.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

No Impact. As previously discussed, the SDC site us predominantly unpaved, previously developed ground and surrounding areas are paved and developed with industrial uses. The Guadalupe River is the closet aquatic feature and is located 0.53 miles east. As there are no watercourses, seasonal

wetlands, or other potential waters of the US on site or within the immediate vicinity, the SDC and SBGF would not result in direct removal, filling, hydrological interruption, or other indirect impacts to jurisdictional wetlands. Therefore, no impact would occur.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant (Measures Incorporated into the Project). The SDC site was previously developed and is surrounded by industrial and office development, which preclude major wildlife movement. The SDC site close to heavily traveled roadways including US Route 101 (US-101), De La Cruz Boulevard, and Central Expressway. Existing opportunities for wildlife movement on site and within the vicinity are profoundly constrained by heavily traveled roadways and the lack of continuous or connected natural areas.

Migratory birds may nest in trees located within the boundaries of the SDC site. However, as removed trees would be replaced on site at a ratio of 1:1 (66 trees removed and 66 new trees planted), nesting birds would not be permanently displaced. With implementation of the project mitigation measure described in **question 4.4 "a"** above, nesting birds would be protected from disturbance and other direct and indirect impacts from construction. Thus, the SDC and SBGF would result in a less-than-significant impact on the migratory movement of wildlife species.

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

Less than Significant. As mentioned above, the City Code, Chapter 12.35.020 states that trees growing in streets and public places require a written permit from the City's Superintendent of streets prior to removal. All existing trees at the SDC site are on private property, but two trees growing in the landscaped area along De La Cruz Boulevard would be classified as street trees under the General Plan. The General Plan defines street trees as "trees strategically planted, usually in parkways, medians, or along street frontages, to enhance the visual quality of a neighborhood". By this definition, two of the trees on site would qualify as street trees, and the applicant would be required to obtain a permit from the City for their removal.

The General Plan also establishes a goal of preserving all healthy cedars, redwoods, oaks, olives, bay laurel, and pepper trees. Construction of the SDC and SBGF would require removal of a total of 66 trees including one healthy holly oak tree. A Brazilian pepper tree with a trunk circumference of 36 inches grows on the SDC site and was recommended for removal, as it was not found to be in healthy condition (see **Appendix H**). Because the Brazilian pepper tree is unhealthy, its removal would be consistent with the General Plan. The applicant will consult with the City and obtain all required permits prior removing the holly oak tree.

General Plan Policy 5.3.1 P10 calls for new development to provide street trees. Thirteen new trees would be planted along the street frontage of De La Cruz Boulevard, achieving a more than 2:1 replacement ratio for the two removed street trees. General Plan Policy 5.3.1 P10 also requires a minimum 2:1 on- or off-site replacement of trees removed as part of a development proposal. Therefore, in addition to the 1:1 replacement on-site, the applicant would be required to work with the City to achieve an acceptable replacement ratio either by increasing the replacement ratio on site, or by planting additional replacement trees off site. This is a standard part of planning review required by the City, separate from and in addition to CEQA review. Therefore, the SDC and SBGF would not conflict with policies or ordinances for biological resources including tree protection, and the impact would be less than significant. No mitigation is required.

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

No Impact. No habitat conservation plan or natural community conservation plans have been adopted that include the SDC site. The Santa Clara Valley Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) encompasses 519,506 acres located in Santa Clara County and was adopted in 2013 by all local participating agencies. The HCP/NCCP expanded boundaries includes land bordering SCJ, roughly 100 feet east of the SDC site. The SDC site and immediate vicinity are not located within the boundaries of the Santa Clara Valley HCP/NCCP study area and the City is not a member jurisdiction of the Habitat Plan.[4] Therefore, the SDC and SBGF are not subject to the obligations imposed upon member agencies and implementation of the project would not conflict with the plan, and no impact would occur.

[4]Santa Clara Valley Habitat Agency. 2012. Santa Clara Valley Habitat Plan, Chapter 3: Physical and Biological Resources. Available: http://scv-habitatagency.org/DocumentCenter/Home/View/125. Accessed: July 2019.

4.5 Cultural Resources

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

A records search of the California Historical Resources Information System (CHRIS) was completed for the SDC site in July 2019 and is included as **Appendix I.**[2] The CHRIS search results indicated that a previous cultural resource study had been completed that included a portion of the SDC site. The area surrounding the SDC site does not contain any recorded archeological resources, and there are no recorded historic structures within or adjacent to the site. The 1961 San Jose United States Geological Survey (USGS) 15-minute topographic quadrangle used in the CHRIS Record Search did not identify any buildings or structures at the SDC site. Thus, there is a low probability of any buildings or structures being identified within the SDC site vicinity that are more than 45-years old and meeting the minimum age criteria for California Register of Historic Places and National Register of Historic Places eligibility evaluation.[3] Further, the General Plan identifies areas of the City that may contain potential historic resources. The SDC site is not within any of these areas. Given this context and the fact that the SDC site does not contain built structures, there are no potential historic resources within or

[2]C1 has retained a consultant to request the reports referenced in the CHRIS records search and when received will be provided to the CEC under a Request For Confidentiality.

[3]Per the CEQA Statute and Guidelines, historical resources include properties listed in or formally determined eligible for listing in any local, state or federal register. All properties formally determined eligible for the National Register of Historic Places are thereby listed in the California Register and are historical resources pursuant to CEQA.

immediately surrounding the SDC site. However, based on historical literature and map review, it was determined there is a moderately high potential for unrecorded, buried historic-period archeological resources at the SDC site.

Based on an evaluation of the environmental setting and features associated with known Native American resource sites, the CHRIS search results identified a high potential for unrecorded Native American resources at the SDC site. A NAHC Sacred Lands File search was completed in June 2019 and is included as **Appendix J.**[4] The results of the Sacred Lands search were negative for known Native American resources within the site or surrounding area. However, the NAHC noted that the absence of specific site information in the Sacred Lands File does not confirm absence of Native American cultural resources. Tribal Cultural resources are discussed in more detail in **Section 4.18, Tribal Cultural Resources**.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

No Impact. As previously discussed, there are no recorded buildings or structures within or adjacent to the SDC site, no structures meeting the minimum criteria for the California Register of Historic or National Register of Historic Places, nor any structures that appear to be eligible under Santa Clara's "Criteria for Local Significance". Therefore, no historic resources are present, and no impact would occur.

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

Less than Significant (Measures Incorporated into the Project). The SDC site has been previously disturbed and graded, and the first 5 feet of soil is fill material. Construction of the SDC would require excavation for grading, utility trenching, and building foundations. The depth of such excavations would be an average of 2 to 3 feet with a maximum of 5 feet. Therefore, it's unlikely that construction would encounter natural, undisturbed soils.

[4] C1 has retained a consultant to request the reports referenced in the NAHC Sacred Lands File records search and when received will be provided to the CEC under a Request For Confidentiality.

Although archeological resources have not been previously recorded at the site, the CHRIS records search concluded there is a moderately high potential of identifying historic-period archaeological resources at the SDC site and surrounding area. Therefore, there is some potential that previously unrecorded historic-period archeological resources could be encountered during construction. Mitigation incorporated into the project would reduce potential impacts to a less-than-significant level by having a qualified archeologist present during construction to allow for the identification and handling of encountered resources in an appropriate manner. This mitigation is described in **Section 2, Project Description**, and repeated below:

> A qualified archaeologist shall be on site to monitor grading and excavation of soil. The project applicant shall submit the name and qualifications of the selected archeologist to the Director of Community Development prior to the issuance of a grading permit. After monitoring the grading phase, the archaeologist shall make recommendations for further monitoring if it is determined that the site has or may have cultural resources. Recommendations for further monitoring shall be implemented during any remaining ground-disturbing activities. If the archaeologist determines that no resources are likely to be found on site, no additional monitoring shall be required. A letter report summarizing the results of the initial monitoring during site grading and any recommendations for further monitoring shall be provided to the Director of Community Development prior to onset of building construction.
>
> If buried archeological resources are encountered during on-site construction activities, all activity within a 50-foot radius of the find shall be stopped, the Director of Community Development shall be notified, and a qualified archaeologist shall examine the find and make appropriate recommendations. Recommendations could include collection, recordation, and analysis of any significant cultural materials. A report of findings documenting any data recovery during monitoring shall then be submitted to the Director of Community Development.

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

Less than Significant (Measures Incorporated into the Project). As previously discussed, the SDC site was previously developed (structures were removed during previous demolition activities), and no known cultural resources are located at the site. Although unlikely, it is possible that unmarked burials may be unearthed during SDC construction. If human remains are discovered during construction, the project applicant would comply with the California Health and Safety Code Section 7050.5 regarding human remains, and the California Public Resources Code Section 5097.98 regarding the treatment of Native American human remains. In addition, mitigation incorporated into the project would be implemented to reduce potential impacts to a less-than-significant level. This mitigation is described in **Section 2, Project Description**, and repeated below:

> In the event that human remains are discovered during SDC construction, all activity within a 50-foot radius of the site shall be halted. The Santa Clara County Coroner will be notified and shall make a determination as to whether the remains are of Native American origin or whether an

investigation into the cause of death is required. If the remains are determined to be Native American, the Coroner will notify the NAHC immediately. Once NAHC identifies the most likely descendants, the descendants will make recommendations regarding proper burial, which will be implemented in accordance with Section 15064.5(e) of the CEQA Guidelines. The descendants may, with the permission of the owner of the land, or his or her authorized representative, inspect the site of the discovery of the Native American human remains and may recommend to the owner or the person responsible for the excavation work means for treatment or disposition, with appropriate dignity, of the human remains and any associated grave goods. The descendants shall complete their inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site.

4.6. Energy

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

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Information contained in this section is based on the Energy Report prepared for the SDC in July 2018 (**Appendix K**). California is one of the lowest per capita energy users in the United States, ranked 48th in the nation, due to its energy efficiency programs and mild climate. California consumed 281,180 gigawatt-hours (GWh) of electricity and 12,638 million therms of natural gas in 2018. In addition, Californians consume approximately 18.9 billion gallons of motor vehicle fuels per year. The single largest end-use sector for energy consumption in California is transportation (40 percent), followed by industry (24 percent), commercial (19 percent), and residential (18 percent). Most of California's electricity is generated in-state with approximately 30 percent imported from the Northwest and Southwest in 2017. In addition, approximately 30 percent of California's electricity supply comes from renewable energy sources, such as wind, solar photovoltaic, geothermal, and biomass.

Data centers are a highly energy-intensive land use that consumes approximately 2 percent of total electricity usage in the United States. This is due to the substantial amount of energy required to power computer servers, and power required for heating, venting, and air conditioning (HVAC) equipment which prevents servers from overheating. On average, data centers consume approximately 10 to 50 times more energy per square foot than typical commercial office buildings. As a result, energy efficiency is often a key concern in the design and operation of data centers.

Regulatory Setting

Federal

Energy Independence and Security Act of 2007

The Energy Independence and Security Act, enacted by Congress in 2007, is designed to improve vehicle fuel economy and help reduce the United States' dependence on foreign oil. It expands the production of renewable fuels, reducing dependence on oil, and confronting climate change. Specifically, it does the following:

- Increases the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard, requiring fuel producers to use at least 36 billion gallons of biofuel in 2022, which represents a nearly five-fold increase over current levels.
- Reduces U.S. demand for oil by setting a national fuel economy standard of 35 miles per gallon (mpg) by 2020 – an increase in fuel economy standards of 40 percent.

The Energy Independence and Security Act of 2007 also set energy efficiency standards for lighting (specifically light bulbs) and appliances. Development would also be required to install photosensors and energy-efficient lighting fixtures consistent with the requirements of 42 USC Section 17001 et seq.

Energy Policy and Conservation Act

Enacted in 1975, the Energy Policy and Conservation Act established fuel economy standards for new light-duty vehicles sold in the United States. The law placed responsibility on the National Highway Traffic and Safety Administration (NHTSA), a part of the United States Department of Transportation, for establishing and regularly updating vehicle standards. The EPA administers the Corporate Average Fuel Economy (CAFE) program, which determines vehicle manufacturers' compliance with existing fuel economy standards.

Corporate Average Fuel Economy Standards

CAFE standards are federal rules established by the NHTSA that set fuel economy and GHG emissions standards for all new passenger cars and light trucks sold in the United States. The CAFE standards generally become more stringent with time, reaching an estimated 38.3 miles per gallon for the combined industry-wide fleet for model year 2020 (77 Federal Register 62624 et seq.). It is, however, legally infeasible for individual municipalities to adopt more stringent fuel efficiency standards. The Clean Air Act (42 United States Code [USC] Section 7543[a]) states that "no state or any political subdivision therefore shall adopt or attempt to enforce any standard relating to the control of emissions from new motor vehicles or new motor vehicle engines subject to this part". In August 2016, the EPA and NHTSA announced the adoption of the phase two programs related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi- trucks, large

pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower carbon dioxide (CO_2) emissions by approximately 1.1 billion metric tons of CO_2 and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.

As of September 2018, NHTSA and the EPA were undergoing the rulemaking process to establish the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). The SAFE Vehicles Rule would amend the existing CAFE standards such that the requirements for model years 2021 through 2026 are lowered to the 2020 standards of 43.7 mpg and 204 grams of CO_2 per mile for passenger cars and 31.3 mpg and 284 grams of CO_2 per mile for light duty trucks. The SAFE Vehicles Rule had not been finalized at the time this analysis was prepared and was undergoing review by the Science Advisory Board for the EPA.

Construction Equipment Fuel Efficiency Standard

The EPA sets emission standards for construction equipment. The first federal standards (Tier 1) were adopted in 1994 for all off-road engines over 50 horsepower (hp) and were phased in by 2000. A new standard was adopted in 1998 that introduced Tier 1 for all equipment below 50 hp and established the Tier 2 and Tier 3 standards. The Tier 2 and Tier 3 standards were phased in by 2008 for all equipment. The current iteration of emissions standards for construction equipment are the Tier 4 efficiency requirements are contained in 40 Code of Federal Regulations Parts 1039, 1065, and 1068 (originally adopted in 69 Federal Register 38958 [June 29, 2004], and most recently updated in 2014 [79 Federal Register 46356]). Emissions requirements for new off-road Tier 4 vehicles were to be completely phased in by the end of 2015.

Energy Star Program

In 1992, the EPA introduced Energy Star as a voluntary labeling program designed to identify and promote energy-efficient products to reduce GHG emissions. The program applies to major household appliances, lighting, computers, and building components such as windows, doors, roofs, and heating and cooling systems. Under this program, appliances that meet specification for maximum energy use established under the program are certified to display the Energy Star label. In 1996, the EPA joined with the U.S. Department of Energy to expand the program, which now also includes qualifying commercial and industrial buildings as well as homes.

State

California Energy Plan

The Commission is responsible for preparing the California Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The 2008 California Energy Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies

several strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and addressing their infrastructure needs, as well as encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

Reducing California's Petroleum Dependence (Assembly Bill 2076)

Pursuant to Assembly Bill (AB) 2076 (Chapter 936, Statutes of 2000), the Commission and CARB prepared and adopted a joint-agency report, Reducing California's Petroleum Dependence, in 2003. Included in this report are recommendations to increase the use of alternative fuels to 20 percent of on-road transportation fuel use by 2020 and 30 percent by 2030, significantly increase the efficiency of motor vehicles, and reduce per capita VMT. One of the performance-based goals of AB 2076 is to reduce petroleum demand to 15 percent below 2003 demand. Furthermore, in response to the Commission's 2003 and 2005 Integrated Energy Policy Reports, the Governor directed the Commission to take the lead in developing a long-term plan to increase alternative fuel use.

Integrated Energy Policy Report

Senate Bill (SB) 1389 (Chapter 568, Statutes of 2002) required the Commission to conduct assessments and forecasts of all aspects of energy industry supply, production, transportation, delivery and distribution, demand, and prices. The Commission uses these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure energy reliability, enhance the state's economy, and protect public health and safety. The most recent assessment, the 2018 Integrated Energy Policy Report, contains two volumes. Volume one highlights the implementation of California's innovative policies and the role they have played in establishing a clean energy economy. Volume two, adopted February 20, 2019, provides more detail on several key energy policies, including decarbonizing buildings, increasing energy efficiency savings, and integrating more renewable energy into the electricity system.

California Renewable Portfolio Standard and Senate Bill 100

Established in 2002 under SB 1078, and accelerated by SB 107 (2006), SB X 1-2 (2011), and SB 100 (2018), California's Renewable Portfolio Standard (RPS) obligates investor-owned utilities, energy service providers, and community choice aggregators to procure 33 percent total retail sales of electricity from renewable energy sources by 2020, 60 percent by 2030, and 100 percent by 2045. SB 100 also states "that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100 percent of retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045". The California Public Utilities Commission and the Commission are jointly responsible for implementing the program.

Pavley Standards (Assembly Bill 1493)

AB 1493 (Chapter 200, Statutes of 2002), known as the Pavley bill, amended Health and Safety Code sections 42823 and 43018.5, thereby requiring CARB to develop and adopt regulations that achieve maximum feasible and cost-effective reduction of GHG emissions from passenger vehicles, light duty trucks, and other vehicles used for noncommercial personal transportation in California.

Implementation of new regulations prescribed by AB 1493 required that the state apply for a waiver under the federal Clean Air Act. Although the EPA initially denied the waiver in 2008, the EPA approved a waiver in June 2009, and in September 2009, CARB approved amendments to its initially adopted regulations to apply the Pavley standards that reduce GHG emissions to new passenger vehicles in model years 2009 through 2016. According to CARB, implementation of the Pavley regulations is expected to reduce fuel consumption while also reducing GHG emissions.

Energy Action Plan

In the October 2005, the Commission and California Public Utilities Commission updated their energy policy vision by adding some important dimensions to the policy areas included in the original Energy Action Plan, such as the emerging importance of climate change, transportation-related energy issues. and research and development activities. The Commission adopted an update to the Energy Action Plan II in February 2008 that supplements the earlier energy action plans and examines the state's ongoing actions in the context of global climate change.

State Alternative Fuels Plan (Assembly Bill 1007)

AB 1007 (Chapter 371, Statutes of 2005) required the Commission to prepare a plan to increase the use of alternative fuels in California. The Commission prepared the State Alternative Fuels Plan in partnership with CARB and in consultation with other federal, state, and local agencies. The Alternative Fuels Plan presents strategies and actions California must take to increase the use of alternative nonpetroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The Alternative Fuels Plan assessed various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

Bioenergy Action Plan (Executive Order S-06-06)

Executive Order (EO) S-06-06 establishes targets for the use and production of biofuels and biopower and directs state agencies to work together to advance biomass programs in California while providing environmental protection and mitigation. The EO establishes the following targets to increase the production and use of bioenergy, including ethanol and biodiesel fuels made from renewable resources: produce a minimum of 20 percent of its biofuels in California by 2010, 40 percent by 2020, and 75 percent by 2050. EO S-06-06 also calls for the state to meet a target for use of biomass electricity. The

2011 Bioenergy Action Plan identifies those barriers and recommends actions to address them so that the state can meet its clean energy, waste reduction, and climate protection goals. The 2012 Bioenergy Action Plan updated the 2011 Plan and provided a more detailed action plan to achieve the following goals:

- Increase environmentally and economically sustainable energy production from organic waste
- Encourage development of diverse bioenergy technologies that increase local electricity generation, combined heat and power facilities, renewable natural gas, and renewable liquid fuels for transportation and fuel cell applications
- Create jobs and stimulate economic development, especially in rural regions of the state
- Reduce fire danger, improve air and water quality, and reduce waste

Title 24, California Code of Regulations

Updated every three years through a rigorous stakeholder process, Title 24 of the California Code of Regulations requires California homes and businesses to meet strong energy efficiency measures, thereby lowering their energy use. Title 24 contains numerous subparts, including Part 1 (Administrative Code), Part 2 (Building Code), Part 3 (Electrical Code), Part 4 (Mechanical Code), Part 5 (Plumbing Code), Part 6 (Energy Code), Part 8 (Historical Building Code), Part 9 (Fire Code), Part 10 (Existing Building Code), Part 11 (Green Building Standards Code), Part 12 (Referenced Standards Code).

Part 6 (Building Energy Efficiency Standards)

Part 6 of Title 24 contains the 2016 Building Energy Efficiency Standards for new residential and non-residential buildings, which went into effect on January 1, 2017. Part 6 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2016 Standards improve upon the previous 2013 Standards for new construction of and additions and alterations to residential and nonresidential buildings. Under the 2016 Standards, Part 6 of Title 24 contains the 2016 Building Energy Efficiency Standards for new residential and non-residential buildings, which went into effect on January 1, 2017. Part 6 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The 2016 Standards improve upon the previous 2013 Standards for new construction of and additions and alterations to residential and nonresidential buildings. Under the 2016 Standards, nonresidential buildings are generally five percent more energy efficient than the 2013 Standards as a result of better windows, insulation, lighting, ventilation systems, and other features. Part 6 also provides for the installation of cool roofs in Sections 140.3(a)(1), 141.0(b)(2)(B), and 141.0(b)(3).

The 2019 Building Energy Efficiency Standards, adopted on May 9, 2018, will become effective on January 1, 2020. The 2019 Standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements. Under the 2019 Standards, nonresidential buildings will be 30 percent more energy-efficient compared to the 2016 Standards.

Part 11 (CALGreen)

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The mandatory provisions of the CALGreen became effective January 1, 2011 and were updated in 2016. The 2016 Standards, which became effective on January 1, 2017, establish green building criteria for residential and nonresidential projects. The Commission adopted updates to the 2016 Standards in 2019 that will take effect on January 1, 2020.

Local

City of Santa Clara General Plan

The General Plan contains goals and policies that are designed to encourage reduced energy use. The following goals and policies are relevant to the SDC and SBGF:

Goal 5.10.3-G1. Energy supply and distribution maximizes the use of renewable resources.

Policy 5.10.3-P1. Promote the use of renewable energy resources, conservation and recycling programs.

Goal 5.10.3-G2. Implementation of energy conservation measures to reduce consumption.

Policy 5.10.3-P4. Encourage new development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities.

Policy 5.10.3-P5. Reduce energy consumption through sustainable construction practices, materials and recycling.

Policy 5.10.3-P6. Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.

City of Santa Clara Climate Action Plan

The City's 2013 Climate Action Plan contains goals and policies that are designed to encourage reduced energy use. The following goals and policies are relevant to the SDC and SBGF:

Focus Area 2: Energy Efficiency Programs

Goal: Maximize the efficient use of energy throughout the community.

2.3. Encourage new data centers with an average rack power rating of 15 kW or more to identify and implement cost-effective and energy-efficient practices.

City of Santa Clara Municipal Code

The City's energy code is codified in Chapter 15.36, Adoption of the Energy Code, of the Santa Clara Municipal Code (SCMC). Chapter 15.36 adopts the 2016 California Energy Code, published and copyrighted by the International Code Council, Inc., and the California Building Standards Commission in Part 6 of Title 24 of the California Code of Regulations.

Environmental Setting

Energy use relates directly to environmental quality, because energy use can adversely affect air quality and can generate GHG emissions that contribute to climate change. Fossil fuels are burned to create electricity that powers residences, heats and cools buildings, and powers vehicles. Transportation energy use corresponds to the fuel efficiency of cars, trucks, and public transportation; the different travel modes such as single-passenger automobile, carpool, and public transit; and the miles traveled using these modes.

Energy Supply

Petroleum

California is one of the top producers of petroleum in the nation. A network of crude oil pipelines connects production areas to oil refineries in the Los Angeles area, the San Francisco Bay area, and the Central Valley. California oil refineries also process Alaskan and foreign crude oil received at ports in Los Angeles, Long Beach, and the San Francisco Bay area. However, crude oil production in California and Alaska is in decline, and California refineries depend increasingly on foreign imports. According to the US Energy Information Administration, California's field production of crude oil totaled 174.1 million barrels in 2017.

Within the City, individual users such as residents and employees purchase petroleum fuels. There are approximately seven gasoline stations but no petroleum refineries in the City. According to the California Department of Conservation Division of Oil, Gas, and Geothermal Resources, there are no oil and gas wells in the City.

A variety of alternative fuels are used to reduce petroleum-based fuel demand. Their use is encouraged through various statewide regulations and plans, such as the Low Carbon Fuel Standard and SB 32. Conventional gasoline and diesel may be replaced with alternative fuels such as hydrogen, biodiesel, and electricity (depending on the capability of the vehicle). Currently, there are 35 hydrogen and 10 biodiesel refueling stations in California, but there are none in Santa Clara. There are dozens of electric vehicle charging stations in Santa Clara.

Electricity

In 2018, California's in-state electricity generation totaled 80,304 MW. Primary fuel sources for the state's electricity generation in 2018 included natural gas (over 50 percent), followed by large hydroelectric, solar photovoltaic, and wind. Together these sources comprised over 87 percent of electricity production in the state. The remaining 13 percent of electricity was generated through a combination of nuclear, geothermal, small hydroelectric, and other sources.

According to the 2018 Integrated Energy Policy Report, California's electric grid relies increasingly on clean sources of energy such as solar, wind, geothermal, hydroelectricity, and biomass. As this transition advances, the grid is also expanding to serve new sectors including electric vehicles, rail, and space and water heating. California has installed more renewable energy than any other state in the United States with 22,250 MW of operational utility-scale systems.

Silicon Valley Power

SVP would supply electricity to the SDC site. SVP is a local utility provider owned and operated by the City of Santa Clara. SVP serves approximately 55,394 customers and maintains 7,076 miles of electric distribution lines. In 2017 (the most recent year for which data is available), SVP's power mix consisted of 38 percent renewable resources, 9 percent coal, 16 percent natural gas, 34 percent large hydroelectric, and 3 percent unspecified power that is not traceable to sources. However, as of January 1, 2018, all power provided by SVP is coal-free.

SVP's 2018 Integrated Resource Plan (IRP) serves as an assessment of the future needs of SVP customers and details the preferred plan for supplying electricity in a "safe, reliable, cost-effective, and environmentally responsible manner". SVP anticipates meeting a 2038 energy load demand of approximately 5,718 GWh, an increase of approximately 1,679 GWh over forecasted 2019 demand. The preferred plan outlined in the 2018 IRP meets and exceeds the 2030 RPS set forth by SB 100.

Energy Demand

Petroleum

In 2017, transportation accounted for 40 percent of California's total energy demand, and the transportation sector consumed roughly 585 million barrels of petroleum fuels. In 2017, petroleum-based fuels were used for 98.4 percent of the state's total transportation activity. According to the Commission, California's 2018 fuel sales totaled 15.5 billion gallons of gasoline and 1.8 billion gallons of

diesel. Santa Clara County consumed an estimated 643 million gallons of gasoline and 48 million gallons of diesel fuel in 2018, which was 4.2 percent of statewide gasoline consumption and 2.7 percent of statewide diesel fuel consumption.

Electricity

California consumed approximately 281,180 GWh in 2018. Residential electricity demand accounted for approximately 33 percent of California's electricity consumption in 2018, and non-residential demand account for approximately 67 percent. Santa Clara County consumed 16,668 GWh in 2018, which was approximately 20 percent of the combined electricity available from Pacific Gas & Electric (PG&E) and SVP (the two major electricity providers in Santa Clara County) and approximately 5.9 percent of statewide electricity consumption.

Impact Discussion

This discussion is based on an Energy Study conducted by Rincon Consultants in July 2019, which is included as **Appendix K**. Energy consumption was analyzed in terms of construction and operational energy use, as described below.

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. The SDC building and SBGF components are discussed independently where appropriate and are otherwise analyzed holistically.

Construction

Construction-related energy demand was estimated using the CalEEMod version 2016.3.2 based on SDC data provided by the applicant, locally appropriate industry-standard assumptions, and CalEEMod default values for projects in Santa Clara County. CalEEMod Modeling was completed as part of the Air Quality and Greenhouse Gas Technical Report prepared for the SDC in August 2019 (**Appendix F**).

Construction of the SDC would also use building materials that contain embodied energy (i.e., energy used during the manufacturing and/or procurement of that material); however, as Section 15126.2(b) of the CEQA Guidelines states, "This [energy] analysis is subject to the rule of reason and shall focus on energy use that is caused by the project". In addition, it is reasonable to assume that manufacturers of building materials such as concrete, steel, and lumber would employ energy conservation practices in the interest of minimizing the cost of doing business. It also is reasonable to assume that non-custom building materials such as drywall and standard-shaped structural elements would have been

manufactured regardless of the proposed project and, if not used for the SDC, would be used in a different project. Therefore, energy consumption required for the manufacturing and/or procurement of each building and construction material is not within the scope of this analysis.

Operation

Operational energy demand was estimated primarily based on data provided by the applicant, including the anticipated maximum load, equipment specifications, and number of employees for the SDC. Energy demand for the treatment and transport of water and wastewater was calculated using the estimated water demand from the CalEEMod output files. Fuel consumption by vehicle trips to and from the SDC site was estimated using the VMT and vehicle fleet mix provided in the CalEEMod output files. All CalEEMod files are available in **Appendix F**.

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than significant. There are no formally adopted criteria signifying the relative efficiency of a project during its construction phase. Therefore, this analysis takes into consideration the equipment and processes employed during SDC and SBGF construction to qualitatively determine whether energy consumed during construction would be wasteful, inefficient, or unnecessary.

The analysis of operational energy demand uses both quantitative and qualitative approaches to determine whether energy consumed during operation would be wasteful, inefficient, or unnecessary. The efficiency of the proposed data center operations is evaluated using the PUE factor, which is a measure used by the data center industry to estimate the efficiency of data centers. The PUE is calculated by dividing the total demand of the data center by the Critical IT load. The closer the PUE is to a value of 1[2], the more efficient data center operations are. A PUE between 1.5 and 2.0 is considered "efficient" while a PUE between 1.2 to 1.5 is considered "very efficient". The PUE factor is used herein as an applicable criterion for determining whether operational energy consumption would be wasteful, inefficient, or unnecessary. If the SDC's PUE exceeds 2.0, energy consumption resulting from SDC operation would be considered wasteful, inefficient, and unnecessary.

Operational energy demand is also quantitatively evaluated based on a comparison of project design features and the 2019 Title 24 standards. Furthermore, the analysis qualitatively considers the potential for inefficient, wasteful, or unnecessary energy consumption by the treatment and

[2] It is important to note that a PUE of 1 is theoretical and cannot be achieved in practice because it is impossible to eliminate the use of energy to support the other systems of the data center building including HVAC, lighting, security, and to support areas for administrative and office space that will not house servers.

conveyance of water and wastewater and vehicle trips associated with SDC operation. As demonstrated in the analysis below, construction and operation of the SDC and SBGF would not result in the wasteful, inefficient, or unnecessary consumption of energy resources.

Construction

Construction of the SDC and SBGF would require energy resources primarily in the form of fuel consumption to operate heavy equipment, light-duty vehicles, machinery, and generators. Temporary power may also be provided for construction trailers and electric construction equipment. **Table 4.6-1** summarizes the anticipated energy consumption from construction equipment and vehicles, including construction worker trips to and from the SDC site.

Table 4.6-1 SDC and SBGF Construction Energy Usage

Source	Fuel Consumption (Gallons)	
	Gasoline	Diesel
Construction Equipment and Hauling Trips	—	57,421
Construction Worker Vehicle Trips	44,262	—

Source: Rincon, 2019

Construction of the SDC and SBGF would require approximately 44,262 gallons of gasoline and 57,421 gallons of diesel fuel. Energy use during construction would be temporary in nature, and construction equipment would be typical of similar-sized construction projects in the region. In addition, construction contractors would be required to comply with the provisions of California Code of Regulations Title 13 Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes. This regulation would minimize unnecessary fuel consumption. Construction equipment would be subject to the EPA Construction Equipment Fuel Efficiency Standard (i.e. Tier 4 efficiency requirements) which would also minimize inefficient, wasteful, or unnecessary fuel consumption.

Electrical power would be consumed to construct the SDC and SBGF and would be supplied from existing electrical infrastructure in the area. Construction activities would require minimal electricity consumption and would not be expected to have any adverse impact on available electricity supplies or infrastructure. In addition, per applicable regulatory requirements such as 2019 CALGreen, the construction contractor would comply with construction waste management practices to divert a minimum of 65 percent of construction and demolition debris. These practices would result in efficient use of energy necessary to construct the SDC and SBGF. Furthermore, in the interest of cost-efficiency, construction contractors would reasonably not be expected to utilize fuel

in a manner that is wasteful or unnecessary. Therefore, construction of the SDC and SBGF would not result in potentially significant environmental effects due to the wasteful, inefficient, or unnecessary consumption of energy, and impacts would be less than significant.

Operation

Energy demand from SDC operation would include electricity consumed by computer servers, HVAC equipment, and building operations. Energy demand would also include gasoline fuel consumed by employee vehicle trips, diesel fuel intermittently consumed by backup generators, and fuel for diesel delivery trucks. Energy consumption is analyzed by fuel type below.

Electricity Consumption

The proposed SDC would have a maximum load of 96.5 MW. Assuming continuous operation of the SDC for 24 hours per day for 365 days per year, the SDC would consume up to approximately 845,340 Megawatt-hours (MWh) of electricity annually.[3] This estimate of electricity usage includes electricity to power the computer servers; air cooled chillers; the cooling tower; exhaust ventilators; air handling units; other associated heating, ventilation, and air conditioning equipment; exterior and interior lighting; and indoor appliances. It is also a very conservative estimate as the maximum building demand of the SDC would be 96.5 MW only on the hottest design day and assuming every server suite is completely utilized at its maximum capacity. Electricity would be provided by SVP, which has issued a will-serve letter for the SDC stating that SVP can provide 27 MW of electricity to the SDC site immediately and an additional 72 MW of electricity upon completion of the proposed on-site substation (see the will-serve letter included in **Appendix B**).

SVP has a renewable energy procurement portfolio of 38 percent, which would reduce the amount of nonrenewable fuels consumed to supply electricity to the SDC site compared to statewide electricity production. At peak operating capacity, the PUE for the SDC would be 1.43.[4] However, the average annualized PUE for the SDC would be 1.23.[5] As discussed above, a PUE between 1.2 and 1.5 is considered “very efficient”. Therefore, under both peak and average conditions, the SDC would operate at a “very efficient” level. As such, operation of the SDC would not result in the wasteful, inefficient, or unnecessary consumption of electricity.

The SDC would be subject to the latest iteration of the Title 24 standards, which are designed to conserve energy use and maximum energy efficiency. However, as summarized in **Table 4.6-2**, certain elements of the SDC would exceed the 2019 Title 24 standards. This would further reduce the potential for inefficient, wasteful, or unnecessary energy consumption during SDC operation. The envelope concrete walls and stud walls would exceed the 2019 Title 24 prescriptive envelope criteria by 813 percent and 113 percent, respectively. Furthermore, the roof materials would exceed

[3] Calculation: 96.5 MW times 24 hours per day times 365 days per year = 845,340 MWh
[4] Peak demand of 96.5 MW divided by peak critical IT load of 67.5 MW.
[5] Average demand of 58 MW divided by expected critical IT load of 47 MW.

the 2019 Title 24 solar reflective index requirement by 120 percent and would be "cool roof" certified.[6] Additionally, window glazing would exceed the 2019 Title 24 fenestration product standard by 193 percent. Therefore, building design and construction would further minimize the potential for the wasteful, inefficient, or unnecessary consumption of energy during SDC operation. Operation-related energy impacts from electricity consumption of the data servers and building itself would be less than significant.

Table 4.6-2 Operation Energy Efficiency Features

Structural Component	Metric	2019 Title 24 Requirement	Project Design Standard	Percentage Improvement above Title 24
Envelope Concrete Wall	U-Factor[1]	0.65[2]	0.08	813
Stud Wall	U-Factor[1]	0.062[2]	0.055	113
Roof Materials	Solar Reflective Index[3]	75	90	120
Glazing	U-Factor[1]	0.79[4]	0.41	193

Source: Rincon, 2019

[1] The U-factor is the rate of heat loss of a structural component and is measured in terms of British thermal units/(height * square feet). A lower U-factor indicates a greater resistance to heat flow and improved insulation.

[2] Table 140.3-B of the 2019 Building Energy Efficiency Standards

[3] The solar reflective index is a measure of a surface's ability to reject solar hear by reflecting solar radiation and emitting thermal radiation. A higher solar reflective index value indicates a greater ability to reflect solar radiation and remain cool in the sunlight. The solar reflective index values range from 0 to 100.

[4] Table 110.6-A of the 2019 Building Energy Efficiency Standards

Day-to-day SDC operation would consume electricity to treat and transport water and wastewater. Based on the CalEEMod output files (**Appendix F**), the SDC would require up to 12.18 MWh per year for treatment and transport of water and wastewater. All plumbing fixtures used in the SDC would be high-efficiency fixtures, which would minimize the potential the inefficient or wasteful consumption of energy related to water and wastewater. Furthermore, HVAC equipment would include air cooled chillers that only require a one-time fill of water for operation, which would further reduce wasteful and unnecessary water consumption as compared to traditional evaporative cooling systems.

[6] Cool roofs are certified by Energy Star, a U.S. EPA program, and must meet minimum initial and aged solar reflectance values.

Table 4.6-3 Electricity Consumption: Water and Wastewater

Process	Annual Electricity Consumption (MWh)[1]
Supply Water	4.77
Treat Water	0.25
Distribute Water	2.86
Wastewater Treatment	4.30
Total	**12.18**

Source: Rincon, 2019.
MWh = megawatt hours
[1] Annual electricity consumption was calculated by multiplying the SDC's estimated water demand by the electricity intensity factors shown in Appendix K.

Gasoline and Diesel Fuel Consumption

Backup Generators

The SBGF would include 54, 2.25-MW diesel-fired backup generators, nine of which would be redundant. The generators would have a combined diesel fuel storage capacity of 367,200 gallons. In the event of a power outage, the SDC would rely on these backup generators to provide electricity. The backup generators would be designed to provide up to 24 hours of emergency generation at full demand. Testing of the backup generators would occur no more than 50 hours annually, as generator testing would be regulated through BAAQMD permit conditions.

Assuming that approximately 159.6 gallons of diesel fuel are required per hour to test generators at full load, backup generator testing would require approximately 7,980 gallons of diesel fuel per backup generator annually for a total of approximately 430,920 gallons annually.[7, 8] Maintenance testing of the backup generators would not result in the wasteful, inefficient, or unnecessary consumption of energy because routine maintenance would be conducted periodically based on the minimum requirements to ensure reliability and operation would only occur during infrequent extended power outage events. Emergency operation of the generators would not be wasteful, as it would be necessary to maintain SDC operations including power to servers and server cooling equipment.

Vehicle Trips

Operation of the SDC would result in the consumption of gasoline and diesel fuels by employee vehicle trips and diesel delivery trucks. The SDC would employ approximately 25 full-time employees per day who would travel to and from the SCD site. Operation of the SDC would require periodic trips by a diesel-fueled compartmentalized tanker truck to supply diesel fuel for the generators on an as-needed basis. Employee and delivery trips would consume approximately 68,039 gallons of gasoline per year

[7] Calculation: 159.6 gallons per hour * 50 hours = 7,980 gallons
[8] Calculation: 7,980 gallons * 54 generators = 430,920 gallons

and approximately 12,041 gallons of diesel fuel annually (see **Appendix K** for energy calculation sheets). However, this conservative estimate does not account for the nine clean air parking spaces with electric vehicle charging stations proposed on the SDC site. These parking spaces would encourage the use of electric vehicles and reduce gasoline fuel consumption. This conservative estimate of fuel consumption does not account for the five bicycle parking spaces and nine bicycle lockers included on the SDC site. The use of bicycles as an alternative transportation method would reduce gasoline fuel consumption. In addition, because use of the backup generators would be limited to routine maintenance and extended power outages, deliveries to re-supply diesel fuel stored on-site would be infrequent and only on an as-needed basis. Therefore, fuel consumption by employee and delivery vehicle trips would not be wasteful, inefficient, or unnecessary.

Overall Operational Energy Usage

As discussed in the preceding subsections, operation of the SDC would consume electricity as well as gasoline and diesel fuels. However, because of SDC design features that would maximize energy efficiency and conservation, overall SDC and SBGF operation would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Therefore, operational energy impacts would be less than significant.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less than Significant. As discussed in Regulatory Setting, the City's General Plan and Climate Action Plan include several goals and policies related to renewable energy and energy efficiency. The SDC's consistency with these goals and policies is evaluated in **Table 4.6-4**. As shown, the SDC would be consistent with renewable energy and energy efficiency plans. Therefore, this impact would be less than significant.

Table 4.6-4 Project Consistency with Plans for Renewable Energy and Energy Efficiency

Energy Efficiency Goal or Policy	Project Consistency
Santa Clara General Plan	
Goal 5.10.3-G1. Energy supply and distribution maximizes the use of renewable resources. ▪ **Policy 5.10.3-P1.** Promote the use of renewable energy resources, conservation and recycling programs.	**Consistent.** The SDC would source its electricity from SVP, which has a renewable energy procurement portfolio of 38 percent renewable resources. SVP is be subject to the provisions of SB 100, which requires utility providers to increase their renewable energy procurement portfolios to 60 percent by 2030 and 100 percent by 2045. Therefore, the SDC would be consistent with Goal 5.10.3-G1.
Goal 5.10.3-G2. Implementation of energy conservation measures to reduce consumption. ▪ **Policy 5.10.3-P4.** Encourage new	**Consistent.** As discussed under question "a", the SDC would include structural components that exceed the requirements of the 2019 Title 24 standards, thereby increasing the energy conservation achieved by building design. The

Energy Efficiency Goal or Policy	Project Consistency
development to incorporate sustainable building design, site planning and construction, including encouraging solar opportunities. ▪ **Policy 5.10.3-P5.** Reduce energy consumption through sustainable construction practices, materials and recycling. ▪ **Policy 5.10.3-P6.** Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.	SDC would also be required to comply with the requirements of 2019 CALGreen, which mandate a minimum diversion rate of 65 percent for construction and demolition waste. Furthermore, the SDC would include high-efficiency plumbing fixtures, which would reduce water consumption and associated energy use. Therefore, the SDC would be consistent with Goal 5.10.3-G3, Policy 5.10.3-P4, Policy 5.10.3-P5, and Policy 5.10.3-P6.
Santa Clara Climate Action Plan	
Focus Area 2: Energy Efficiency Programs **Goal:** Maximize the efficient use of energy throughout the community. ▪ **2.3.** Encourage new data centers with an average rack power rating of 15 kW or more to identify and implement cost-effective and energy-efficient practices.	**Consistent.** As discussed under question "a", the SDC would have a PUE for 1.43 at peak operating capacity and an average annualized PUE of 1.23. A PUE between 1.2 and 1.5 is considered "very efficient". Therefore, the SDC would implement energy-efficient practices that maximize the efficient use of energy and would be consistent with Policy 2.3.

Source: Rincon, 2019

4.7 Geology and Soils

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

No known active or potentially active faults cross the SDC site, and the site is not within an Earthquake Fault Zone as delineated by the Alquist-Priolo Earthquake Fault Zoning Act. However, the SDC site is located within a Liquefaction Zone.[2] While the SDC and SBGF are not within an Earthquake Fault Zone, the San Francisco Bay Area region has several known seismically active faults, making the area subject to strong ground shaking in the event of an earthquake.

The SDC site is located in the Santa Clara Valley, a relatively flat alluvial basin bounded by the Santa Cruz Mountains to the southwest and west, the Diablo Mountain Range to the east, and the San Francisco Bay to the north. A project-specific geotechnical investigation including field exploration, laboratory testing, and engineering analysis was completed for the site in October of 2018. The report is included in its entirety as **Appendix E**.

Two test borings were performed as part of the project-specific geotechnical report. One boring was completed to a depth of 120 feet and one boring to a depth of 48 feet. The uppermost layer of soil encountered at the site consists of roughly 4.5 feet of fill made up of lean clay with sand and clayey sand. Beneath the fill, there are alluvial soils including layers of clays with varying degrees of sand and fine to coarse gravel. Sands and gravels are generally medium dense in the upper 30-40 feet of the soil layers, while sands below this range tend to be dense to very dense.

The site is mapped within a State of California Seismic Hazard Zone for liquefaction. Areas mapped for this hazard have been impacted historically by liquefaction or display geologic or groundwater

[2] California Geological Survey. 2002. Earthquake Zones of Required Investigation, San Jose West Quadrangle. Available: http://gmw.conservation.ca.gov/SHP/EZRIM/Maps/SAN_JOSE_WEST_EZRIM.pdf. Accessed: August, 2019.

conditions conducive to liquefaction.[3] Ground water was encountered at depths ranging from approximately 10 to 10.5 feet below the current grade. Fluctuations in groundwater levels are common due to seasonal weather patterns, underground drainage patterns, regional fluctuations, and other factors.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building housing computer servers and a cooling system. All of the site grading would be completed for the SDC. The SBGF would consist of 54 backup generators able to provide the SDC with reliable energy in the event a power outage. Construction of the SBGF would involve minimal ground disturbance as the mass grading would be completed during the SDC construction activities and prior to installation of any of the SBGF equipment. SBGF construction activities would include pouring a concrete slab for the generator yard, erecting fencing and generator enclosure, and minimal underground trenching to install underground electrical conduit to interconnect the generator yard to the building. This discussion considers the impacts associated with both of these project components holistically, even though the vast majority of the discussion relates to potential effects of the SDC.

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

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

Less than Significant. The closest notable faults to the site are listed in **Table 4.7-1** below. As shown below, the closest fault is 1.9 miles from the project site.

Table 4.7-1 Known Faults in Project Site Vicinity

Fault Name	Distance from Project Site
Silver Creek fault	1.9 miles
San Jose Fault	2.2 miles
Stanford fault	3.4 miles
Monte Vista-Shannon fault	7.6 miles
Hayward-Rodgers Creek fault	7.8 miles
Calaveras fault	9.1 miles
San Andreas fault	11.4 miles
Zayante-Vergales fault	23.9 miles
Greenville Connected fault	23.9 miles

[3] Ibid.

Fault Name	Distance from Project Site
San Gregorio fault	24.9 miles
Mount Diablo Thrust fault	25.8 miles
Monterey Bay-Tularcitos fault	32.4 miles

Source: Kleinfelder, 2019

The site is not within a State of California Earthquake Fault Zone or Santa Clara County Geologic Hazard Zone for surface fault rupture hazards. No active or potentially active faults are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of SDC and SBGF is low. Due to the distance of faults from the site and the absence of known faults within or near the site, development of the SDC and the SBGF would not expose people or buildings to known risks of fault rupture. Given this, the impact would be less than significant. No mitigation is required.

ii. Strong seismic ground shaking?

Less than Significant. Earthquakes along several nearby active faults in the region could cause moderate to strong ground shaking at the site. The intensity of ground motion and the damage done by ground shaking would depend on the characteristics of the generating fault, distance to the fault and rupture zone, earthquake magnitude, earthquake duration, and site-specific geologic conditions. Given that the entire San Francisco Bay Area region is subject to strong seismic ground shaking during a large earthquake event, the SDC would not expose people or structures to any greater risks involving seismic ground shaking than would other development located in the region.

While the potential for seismic ground shaking cannot be eliminated, the SDC would be constructed to comply with the 2019 CBC and other applicable standards and practices for earthquake-resistant construction. Compliance with these standards and practices reduce the risks associated with strong seismic ground shaking at the project site. Therefore, impacts related to seismic ground shaking would be less than significant. No mitigation is required.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant (Measures Incorporated into the Project). Soil liquefaction is a condition where saturated granular soils near the ground surface undergo a significant loss of strength during seismic events. Loose, water-saturated soils are transformed from a solid to a liquid state during ground shaking. Liquefaction can result in significant deformations and ground rupture. Soils most susceptible to liquefaction are loose, uniformly graded, saturated, fine-grained sands that lie close to the ground surface.

The site is located within a state-designated Liquefaction Hazard Zone. Soil tests conducted for the site have indicated that several layers could potentially experience liquefaction. In general, these liquefiable layers occur sporadically in discontinuous layers located between roughly 15 and 25 feet below existing grade at the site. The likely consequence of potential liquefaction at the site would be settlement. Total ground surface settlements on the order of 1-2 inches may result from

liquefaction or ground softening after a seismic event (see **Appendix E**). As previously mentioned, the project would be constructed in compliance with the 2019 CBC, including all applicable seismic standards for structures. Compliance with the 2019 CBC reduces potential risks associated with settlement from seismically induced liquefaction. Additionally, mitigation has been incorporated into the design of the SDC and SBGF to further reduce the risk of settlement from liquefaction. The mat slab foundation has been designed to CBC seismic standards. This mitigation measure is described in **Section 2.2, Project Description**, and is repeated below:

> To reduce the risk of damage to the SDC and SBGF as a result of geologic conditions at and near the SDC site, all recommendations outlined in the site-specific geotechnical investigation performed by Kleinfelder in October 2018 will be incorporated into the SDC and SBGF. These measures have been designed and will be incorporated to reduce the risk of settlement, liquefaction, and damage from expansive soils to ensure that users of the project are not exposed to a significant safety risks as a result of the SDC and SBGF. These measures are listed in full in **Appendix E**. The mat slab foundation has been designed to CBC seismic standards.

iv. Landslides?

No Impact. The site and surrounding area is relatively flat and does not have any steep slopes or hillsides that would be susceptible to landslides. The SDC and SBGF would not, therefore, be exposed to landslide-related hazards. No impact would occur.

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

Less than Significant. Construction would involve ground disturbing activities that would temporarily expose soils and increase the potential for soil erosion from wind or stormwater runoff. The SDC would be subject to the requirements of Provision C.3 of Santa Clara's National Pollutant Discharge Elimination System (NPDES) permit and would be required to comply with Santa Clara's BMPs for erosion and sedimentation control during the construction period, as outlined in the NPDES permit. Additionally, the SDC would be subject to a post-construction NPDES Permit and Provision C.3 requirements, ensuring that the site would not include areas of exposed topsoil. This is described in detail in **Section 4.10, Hydrology and Water Quality**. As a result, impacts related to erosion and loss of topsoil would be less than significant and no mitigation is required.

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

Less than Significant. Lateral spreading is a type of ground failure related to liquefaction. It consists of the horizontal displacement of flat-lying alluvial material toward an open face, such as the steep bank of a stream channel or slopes. There are no stream channels or other open faces on or adjacent to the site that would be subject to lateral spreading.

Based on the site-specific geotechnical report, subsurface conditions at the project site are generally stable with a low potential for minor settlement (up to 2 inches). The SDC and the SBGF would be designed and constructed in accordance with standard engineering safety techniques and in conformance with the requirements of applicable, current Building and Fire Codes, including the 2016 CBC, as adopted by the City. As described above, the site is not at risk of lateral spreading, landslides, or significant liquefaction aside from seismically induced liquefaction. Seismically induced liquefaction is addressed under **question 4.7 "a(iii)"**. Therefore, impacts related to soil stability would be less than significant and no mitigation is required.

d) Would the project be located on expansive soil, as defined in Table 18 1 B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than Significant (Measures Incorporated into the Project). Some of the soils encountered during geotechnical review were moderately expansive (see **Appendix E**). To avoid risks associated with expansive soils, foundation design would be reviewed and approved by City engineers for compliance with the 2019 CBC general foundation design standards. Mitigation has been incorporated into the project and would be implemented to reduce potential impacts from expansive soils to a less-than-significant level. This measure is described above under **question 4.7 "a(iii)"**.

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

No Impact. The City's sewer utility system would treat wastewater generated by the project. The SDC site is connected to existing wastewater mains. The SDC and SBGF would not include septic tanks and therefore no impact would occur.

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

Less than Significant. The project-specific geotechnical investigation did not identify any unique geologic features at the site (**Appendix E**). The site is mostly flat and consists of the current structure and associated parking lots underlain by clays and alluvial soils. The surrounding area is also flat and unlikely to significantly differ geologically from the site, based on existing developments in the area including other recent new construction projects which have undergone CEQA review and City approvals.

The site is located in the Santa Clara Valley, an area known to have scientifically significant but widely dispersed fossil discoveries. The site has already been disturbed by prior, modern human occupation including excavation to a depth of 4 or 5 feet and the placement of fill material. The project would require excavation and grading to a depth of up to 5 feet to allow for the placement of a slab foundation. Therefore, the soils that would be disturbed during SDC construction are unlikely to contain unique paleontological resources. As a project design feature, the SDC will implement a Worker Environmental Awareness Training Program, which will provide training to

construction personnel regarding proper procedures (including identification and notification) in the event fossil materials are encountered during construction. Operation of the SDC and SBGD would not involve any ground-disturbing activities and have no potential to impact paleontological resources. Therefore, this impact would be less than significant. No mitigation is required.

4.8 Greenhouse Gas Emissions

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Unlike emissions of criteria and toxic air pollutants which have local or regional impacts, emissions of GHGs have a much broader, global impact. Global warming associated with the greenhouse effect is a process whereby GHGs accumulating in the atmosphere contribute to an increase in the temperature of the earth's atmosphere. The principal GHGs contributing to global warming and associated climate change are CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride (SF_6). Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial and manufacturing, utility, residential, commercial, and agricultural sectors.

Regulatory Setting

Federal

In April 2007, the US Supreme Court held that GHG emissions are pollutants within the meaning of the CAA. In reaching its decision, the Supreme Court also acknowledged that climate change results, in part, from anthropogenic causes (Massachusetts et al. v. Environmental Protection Agency 549 U.S. 497, 2007). The Supreme Court's ruling paved the way for the regulation of GHG emissions by the EPA under the CAA.

In response to this Supreme Court decision, on December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: That the current and projected concentrations of GHGs in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: That the combined emissions of GHGs from new motor vehicles and new motor vehicle engines contribute to GHG pollution, which threatens public health and welfare.

In 2009, EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule, which requires reporting of GHG emissions from large sources and suppliers in the U.S. This rule requires the following entities to submit annual reports to EPA:

- Suppliers of fossil fuels and industrial GHGs
- Manufacturers of vehicles and engines outside of the light-duty sector, and
- Facilities that emit more than 25,000 metric tons of carbon dioxide equivalent (CO_2e) per year

The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.

Historically, the EPA has mandated that Prevention of Significant Deterioration (PSD) and Title V requirements apply to facilities whose stationary-source CO_2e emissions exceed 100,000 tons per year. However, the Supreme Court decision in Utility Air Regulatory Group v. EPA, et al. (Supreme Court Case 12-1146) found that EPA does not have the authority to require PSD and Title V permitting for facilities based solely on GHG emissions. Additionally, the Supreme Court found that EPA can regulate GHG emissions from sources that are already subject to PSD and Title V requirements due to emissions of other pollutants.

The SDC and SBGF would not be subject to these regulations.

State

Executive Order S-3-05, issued in 2005, established GHG emissions reduction targets for the state of California. The targets called for a reduction of GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. CalEPA's Secretary is required to coordinate the development and implementation of strategies to achieve these GHG reduction targets.

In 2006, the California State Legislature passed the Global Warming Solutions Act of 2006 (AB 32), which provides the framework for regulating GHG emissions in California. This law requires CARB to design and implement emission limits, regulations, and other measures such that statewide GHG emissions are reduced in a technologically feasible and cost-effective manner to 1990 levels by 2020. The statewide 2020 emissions limit is 431 million metric tons of CO_2e.

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce GHG emissions that cause climate change. CARB first approved the AB 32 Scoping Plan in 2008 and released its latest update in 2017. The Scoping Plan includes a range of GHG

reduction actions, which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program.

One key regulation resulting from AB 32 was CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions, which came into effect in January 2009 and which requires annual GHG emissions reporting from electric power entities, fuel suppliers, CO_2 suppliers, operators of petroleum and natural gas systems, and industrial facilities that emit 10,000 metric tons or more of CO_2e per year from stationary combustion and process sources. The SDC is not impacted by this regulation because its stationary combustion GHG emissions are expected to be below the reporting threshold of 10,000 metric tons of CO_2e per year.

In an effort to best support reduction of GHG emissions consistent with AB 32, CARB released the Short-Lived Climate Pollutant (SLCP) Reduction Strategy in March 2017. This plan, required by SB-605 (the Small Business Procurement and Contract Act), establishes targets for statewide reductions in SLCP emissions of 40 percent below 2013 levels by 2030 for methane and hydrofluorocarbons and 50 percent below 2013 levels by 2030 for anthropogenic black carbon. The SLCP Reduction Strategy was integrated into the 2017 update to CARB's Scoping Plan.

In 2006, the California Public Utilities Commission and the Commission established requirements for utilities under the Electricity Greenhouse Gas Emission Standards Act (SB 1368[2]), which requires that generation and contracts be subject to a GHG Environmental Performance Standard of 1,100 pounds (or 0.5 metric ton) of CO_2 per MWh of electricity produced. The Environmental Performance Standard applies to base load power from new power plants, new investments in existing power plants, and new or renewed contracts with terms of 5 years or longer, including contracts with power plants located outside of California.[3] Implementation of the AB 32 Scoping Plan requires careful coordination on the state's energy policies, meaning that the California Public Utilities Commission and CARB are working closely to implement the recommendations in the Scoping Plan. Additionally, the Intergovernmental Panel on Climate Change, an international scientific body, has established that one of its key mitigation technologies and practices for energy supply is improved energy supply and distribution efficiency.

On April 29, 2015, Governor Brown issued Executive Order B-30-15, directing state agencies to implement measures to reduce GHG emissions 40 percent below their 1990 levels by 2030 and to achieve the previously stated goal of an 80 percent GHG reduction by 2050. On September 8, 2016, SB 32, codified as Section 38566 of the Health and Safety Code, was enacted. It extends California's

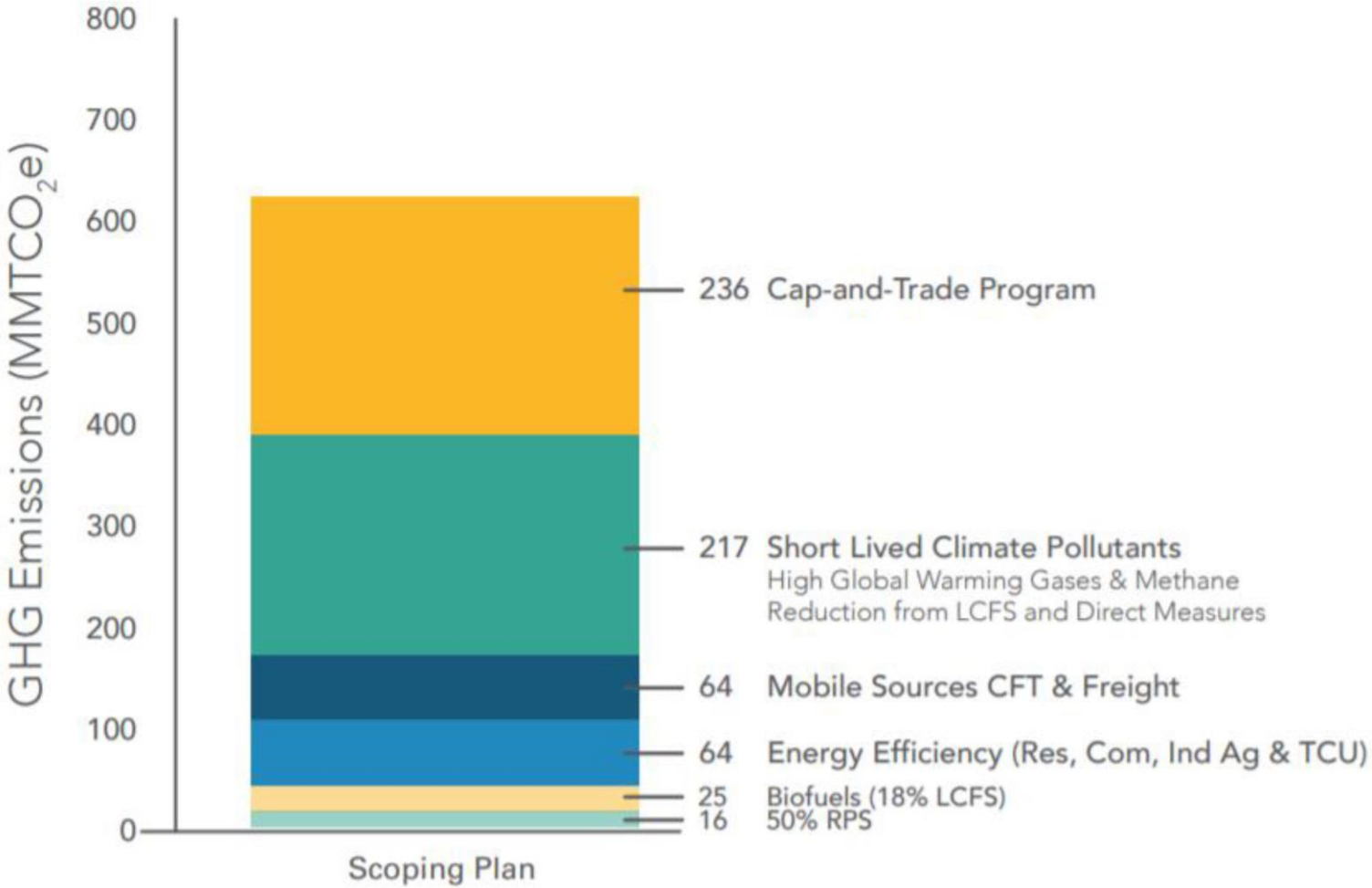
[2] Public Utilities Code Section 8340 et seq.
[3] See rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm.

commitment to reduce GHG emissions by requiring the state to reduce statewide GHG emissions by 40 percent below 1990 levels by 2030. In response, CARB updated the AB 32 Scoping Plan in November 2017 to establish a path that will get California to its 2030 target. Key features of the 2017 Scoping Plan are:

- Cap and Trade program places a firm limit on 80 percent of the State's emissions;
- Achieving a 50-percent Renewable Portfolio Standard by 2030 (currently at about 29 percent statewide);
- Increase energy efficiency in existing buildings;
- Develop fuels with an 18-percent reduction in carbon intensity;
- Develop more high-density, transit-oriented housing;
- Develop walkable and bikeable communities;
- Greatly increase the number of electric vehicles on the road and reduce oil demand in half;
- Increase zero-emissions transit so that 100 percent of new buses are zero emissions;
- Reduce freight-related emissions by transitioning to zero emissions where feasible and near-zero emissions with renewable fuels everywhere else; and
- Reduce "super pollutants" by reducing methane and hydrofluorocarbons by 40 percent.

As presented in the 2017 Scoping Plan, various changes and measures are needed to achieve the 2030 target. As shown in **Figure 7**, the Scoping Plan has established a proposed reduction scenario that requires specific reductions through programs and changes to fossil fuel consumption. Based on the Scoping Plan scenario, a significant portion of GHG emission reductions will result from statewide programs and existing and proposed policies, including Cap and Trade, a doubling of energy efficiency as required by SB 350, RPS requirements, and Low Carbon Fuel standards. Other significant reductions will be achieved through an increase in zero-emission vehicles, trucks and buses (referred to in the Scoping Plan as mobile sources); improvements to freight efficiency, reductions in short-lived climate pollutants including black carbon, methane, and hydrofluorocarbons; improvements in demand response and flexible loads by utility providers; and reductions in emissions from refineries.

In May 2016, CARB prepared the Mobile Source Strategy, which addresses the current and proposed programs for reducing all mobile source emissions, including GHG emissions. The Mobile Source Strategy identifies programs that the state and federal government have or will adopt, which further the goals of the Scoping Plan. Some programs provide incentives to facilitate increased purchase of new, lower emission light-, medium-, and heavy-duty vehicles to aid the state in achieving emission reduction goals. Other programs require certain engine years to upgrade the engine to newer, cleaner engines by specific dates or strict performance standards for specific model years. These programs for more stringent emissions are required by state and federal law and are monitored by CARB or EPA.



Scoping Plan Scenario – Estimated Cumulative GHG Reductions by Measure (2021-2030) Figure **7**

Source: CARB, 2017

In 2002, California initially established its RPS with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. State energy agencies recommended accelerating that goal, and California Executive Order S-14-08 (November 2008) required California utilities to reach the 33 percent renewable electricity goal by 2020, consistent with the AB 32 Scoping Plan. In April 2011, SB 2 of the First Extraordinary Session (SB X1-2) was signed into law. SB X1-2 expressly applies the new 33 percent RPS to all retail sellers of electricity by December 31, 2020 and establishes renewable energy standards for interim years prior to 2020.

On October 7, 2015, SB 350 was signed into law, establishing new clean energy, clean air, and GHG reduction goals for 2030 and beyond. SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. SB 100, signed into law on September 10, 2018, advances the RPS deadlines to 50 percent renewable resources by December 31, 2026, and 60 percent by December 31, 2030. In addition, SB 100 establishes policy that renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity by December 31, 2045.

Regional

BAAQMD adopted the 2017 Clean Air Plan on April 19, 2017. The Clean Air Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how the BAAQMD will continue its progress toward attaining all state and federal ambient air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. To protect the climate, the plan defines a vision for transitioning the region to a post-carbon economy needed to achieve ambitious GHG emission reduction targets for 2030 and 2050, and provides a regional climate protection strategy that will put the Bay Area on a pathway to achieve those GHG emission reduction targets.

BAAQMD publishes CEQA Guidelines to assist lead agencies in evaluating a project’s potential impacts on climate change. BAAQMD’s CEQA Guidelines were last updated in 2017 and describe the criteria BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for estimating project GHG emissions and predicting potential impacts, and identifies measures that can be used to avoid or reduce climate change impacts.

Under the requirements of SB 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and ABAG are jointly responsible for developing and adopting an SCS that integrates transportation, land use, and housing to meet GHG reduction targets set by CARB. In July 2017, the MTC and ABAG approved Plan Bay Area 2040, which is a strategic update to the previous plan approved in July 2013. The Bay Area GHG reduction targets established by CARB in September 2010 include a seven percent reduction in GHG emissions per capita from passenger vehicles by 2020 compared to 2005 emissions. Similarly, Plan Bay Area 2040 includes a target to reduce GHG emissions

per capita from passenger vehicles 15 percent by 2035 compared to 2005 emissions. The emission reduction targets are for those associated with land use and transportation strategies only and partner well with the strategies identified in the BAAQMD's 2017 Clean Air Plan.

Local

City of Santa Clara General Plan

The City's General Plan includes policies that address the reduction of GHG emissions during the planning horizon of the General Plan. Goals and policies that address sustainability (see General Plan Appendix 8.13, Sustainability Goals and Policies Matrix) are aimed at reducing the City's contribution to GHG emissions. As described in subsequent text, the development of a comprehensive GHG emissions reduction strategy for the City is also included in the General Plan.

City of Santa Clara Climate Action Plan

The City has a comprehensive GHG emissions reduction strategy, referred to as the City's Climate Action Plan (CAP), to achieve its share of statewide emissions reductions for the 2020 timeframe established by AB 32. The CAP was adopted on December 3, 2013 and specifies the strategies and measures to be taken for a number of focus areas (for example, coal-free and large renewables, energy efficiency, water conservation, transportation and land use, waste reduction) city-wide to achieve the overall emission reduction target. The CAP also includes an adaptive management process that can incorporate new technology and respond when goals are not being met.

A key reduction measure that is being undertaken by the City under the CAP is in the Coal-Free and Large Renewables focus area. The City operates SVP, a publicly owned utility that provides electricity for the City, including the SDC site. Since nearly half (48 percent) of the City's GHG emissions result from electricity use, removing GHG-intensive sources of electricity generation (such as coal) is a major focus area in the CAP for achieving the City's GHG reduction goals. This measure is being undertaken by SVP.

In December 2018, SVP published an updated Strategic Plan that outlines goals and actions for achieving 2030 GHG emission reductions consistent with the legislation described above. As described in the strategic plan, SVP currently provides 38 percent of its electricity from non-carbon renewable resources. All electricity from SVP has been coal-free since January 2018. Beginning in December 2018, SVP is undergoing a 6-month process to update its IRP with the Commission to lay out needed steps to meet the 50 percent RPS set by SB 32. SVP plans to exceed the 50 percent target.

The CAP also addresses data centers directly and sets benchmarks for PUE. The CAP requires data centers with a rack power rating of 15 kW or higher to achieve a PUE rating of 1.2 or lower or to undertake a feasibility study to identify techniques that could achieve a PUE of 1.2. This approach ensures the largest projects are captured and required to analyze their power efficiency, a similar strategy to the state's Cap and Trade program. This approach also supports the 2017 Scoping Plan target of increasing energy savings from energy efficiency.

CEQA requires lead agencies to address the consistency of individual projects requiring discretionary approvals with reduction measures in the 2013 CAP and goals and policies in the General Plan designed to reduce GHG emissions. Compliance with appropriate measures in the CAP would ensure an individual project's consistency with an adopted GHG reduction plan.

Environmental Setting

The City prepares an annual report to assess progress towards meeting the GHG reduction targets established in the 2013 CAP and recommend next steps to help the City meet its targets. This report also tracks changes in community-wide GHG emissions since 2008, which is the City's jurisdictional baseline GHG emissions inventory.[4] **Table 4.8-2** presents the City's most recent GHG emissions inventory, for year 2016.

This GHG emissions inventory includes direct and indirect GHG emissions attributable to human activities. As shown in **Table 4.8-2**, commercial and industrial energy, which includes electricity and natural gas use, was the largest sector, comprising 61 percent of all 2016 emissions in the City. Transportation and mobile source emissions, from vehicle trips within as well as to and from the City, were the second largest source of emissions, comprising 29 percent. All other sectors represented less than 10 percent of total emissions, and include energy use from homes, solid waste disposal, and the transmission treatment of water and sewage.[5]

Table 4.8-2 City of Santa Clara 2016 Greenhouse Gas Emissions Inventory

End-Use Sector	Total Emissions (%)	CO_2e Emissions (Metric Tons per Year)
Commercial and Industrial Energy	61	1,080,261
Transportation and Mobile Sources	29	505,989
Residential Energy	8	132,912
Solid Waste	1	25,724
Water and Wastewater	1	24,292
Total	**100**	**1,769,178**

Source: City of Santa Clara, 2018

[4] Although the next complete update was planned for 2017, results have not yet been published

[5] This inventory does not include point source emissions (as from industrial facilities) or rail transit emissions, as both are considered to be regulated by agencies other than the City and influenced by market forces beyond the City's local influence.

Methodology

Short-term construction emissions of CO_2e were evaluated for SDC and SBGF. Detailed construction emission calculations are presented in **Appendix F**, including the assumptions employed. Construction emissions from SDC and SBGF are a result of construction equipment and on- and offsite vehicle trips, such as material haul trucks, worker commutes, and delivery vehicles. Emissions were estimated using CalEEMod.

Long-term operational emissions of CO_2e were also evaluated. Detailed operation emission calculations are presented in **Appendix F**, including the assumptions employed. Operational emissions from the SDC and SBGF would result from diesel fuel combustion from operation of the backup generators, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep (such as architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use). Diesel stationary combustion emissions were estimated using emission factors from EPA's Final Mandatory Reporting of Greenhouse Gases Rule, as presented in 40 CFR 98 Subpart C. Vehicle emissions were estimated in CalEEMod. Facility upkeep emissions were estimated using CalEEMod, based on the square footage of the buildings to be constructed, paved areas, and project-specific electricity use.

Significance Criteria

According to Section 15002(g) of the CEQA Guidelines, "a significant effect on the environment is defined as a substantial adverse change in the physical conditions which exist in the area affected by the proposed project". As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting. CEQA allows for significance criteria established by the applicable air pollution control district(s) to be used to assess the impact of a project related to GHG emissions, at the discretion of the reviewing agency.

As discussed, BAAQMD has published CEQA Guidelines that include recommended thresholds for use in determining whether projects would have significant adverse environmental impacts. Specifically, BAAQMD has adopted a threshold of 1,100 metric tons of CO_2e per year for evaluating climate change impacts from land use development projects and a threshold of 10,000 metric tons of CO_2e per year for evaluating climate change impacts from stationary source projects. Land use development projects include residential, commercial, industrial, and public land uses and facilities, whereas stationary source projects include land uses that would accommodate processes and equipment that emit GHG emissions and require a local air district permit to operate. Given that the SDC would accommodate backup generators requiring BAAQMD permits to operate, the stationary source project threshold is applicable to the SDC, instead of the land use development project threshold, as described in subsequent text.

BAAQMD's 10,000 metric tons of CO_2e per year threshold is consistent with stationary source thresholds adopted by other air quality management districts throughout the state and is intended to capture 95 percent of all GHG emissions from new permit applications from stationary sources in the SFBAAB. The

backup generators at SBGF would be permitted sources, and as such, BAAQMD's 10,000 metric tons of CO_2e per year threshold is appropriate for analyzing the significance of emissions produced by the backup generators. Emissions from mobile sources and area sources, such as electricity use and water delivery, associated with SDC operation would not be included for comparison to this threshold, based on guidance in BAAQMD's CEQA Guidelines.

Therefore, GHG impacts from SBGF's backup generators would be considered to have a less-than-significant impact if emissions are below BAAQMD's threshold of 10,000 metric tons of CO_2e per year. GHG impacts from SDC related emission sources would be considered to have a less-than-significant impact if the SDC is consistent with the CAP and applicable regulatory programs and policies adopted by CARB or other California agencies.

However, the current thresholds set by BAAQMD and the goals of the CAP were established to achieve the state's 2020 GHG reduction target. Because the SDC and SBGF are not anticipated to be operational until 2020, an analysis of consistency with the state's post-2020 GHG reduction goals is appropriate. While the achievement of 2020 GHG reduction goals could – in part – reasonably be attained through local reductions in GHGs, such as those outlined in CAPs, the attainment of 2030 goals and beyond increasingly requires sector-wide and statewide policy changes to address GHG emissions. Many of these actions are outside of the jurisdiction or capacity of individual municipalities.

For example, in the energy sector, renewable energy production sources (such as wind and solar energy) must comprise 50 percent of all retail sales statewide by 2030. Additionally, the post-2020 Cap and Trade program has been designed to capture 80 percent of statewide GHG emissions. A more detailed list of actions required to achieve 2030 goals was provided in the discussion of the state 2017 Scoping Plan above. Therefore, in this analysis, SDC and SBGF are compared to the City's CAP for SDC and SBGF's opening year (2020), and additionally are evaluated for overall GHG reductions consistent with 2030 statewide goals.

Impact Discussion

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant (Measures Incorporated into the Project). GHG emissions that would result from construction and operation of the SDC and SBGF are described below and compared to applicable thresholds of significance. This analysis takes into consideration both GHG emissions resulting directly from the SDC and SBGF as well as indirect GHG emissions attributable to the project.

Construction Emissions

Construction of the SDC and SBGF would result in GHG emissions generated by on- and offsite vehicle trips (material haul truck, worker commute, and delivery vehicle trips) and operation of construction equipment. These sources would generate approximately 1,300 metric tons of CO_2e

during the construction period. Because construction emissions would cease once construction is complete, they are considered short-term. Amortized over the life of the SDC and SBGF, which is assumed to be 30 years, this equates to 866.6 metric tons per year.

BAAQMD's CEQA guidelines do not identify a GHG emission threshold for construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed. BAAQMD further recommends incorporation of BMPs to reduce GHG emissions during construction, as feasible and applicable. BMPs may include use of alternative-fueled construction vehicles and equipment for at least 15 percent of the fleet (for example, biodiesel or electric), use of at least 10 percent of local building materials, and recycling or reusing at least 50 percent of construction waste. BAAQMD BMPs for construction would be implemented, as described in **Section 2, Project Description**. With the application of these BMPs, the impact would be less than significant.

Operational Emissions

Operational GHG emissions from the SDC and SBGF would consist of emissions from maintenance and testing of the backup diesel generators; offsite vehicle trips for worker commutes and material deliveries; and facility upkeep, including architectural coatings, consumer product use, landscaping, water use, waste generation, natural gas use for comfort heating, and electricity use. Project-specific details of these emission sources are provided in this section, as available. To be conservative, baseline existing emissions are considered to be zero since the SDC site is currently vacant.

Project Stationary Combustion Sources

SBGF backup generators are expected to be operated only for testing and maintenance purposes, with non-emergency operation of each backup generator limited by permit to 50 hours per year. As shown in **Table 4.8-3**, backup generator maintenance and testing would generate 4,301 metric tons of CO_2e per year. Emissions from the backup generators would be below BAAQMD's stationary source threshold of 10,000 metric tons of CO_2e per year, and would therefore have a less-than-significant impact on climate change.

Table 4.8-3 Greenhouse Gas Emissions from Stationary Sources During SBGF Operation

Source	Annual Emissions (Metric Tons per Year of CO_2e)
Stationary Sources – Backup Generators	4,301
BAAQMD Threshold	10,000
Exceeds Threshold?	No

Source: BAAQMD, 2017

The burning of diesel fuel results in emissions of black carbon, a known GHG addressed in the 2017 Scoping Plan. As discussed in the 2017 Scoping Plan, under SB 1383, man-made black carbon emissions must be reduced by 50 percent by 2030. The majority of black carbon emissions in the state result from forestry and land management activities and wildfires. As described in **Section 2, Project Description**, the SBGF generators would include EPA Tier II engines and would be outfitted with DPFs. Backup generators would be fueled using ultra-low sulfur diesel fuel with a maximum sulfur content of 15 parts per million. These measures will greatly minimize black carbon emissions from the backup generators, with a minimum control efficiency of 85 percent removal of particulate matter. While the precise percentage reduction in black carbon needed from diesel engines to meet SB 32 goals is not called out in the 2017 Scoping Plan, given that the majority of this category of emissions comes from forestry activities and other activities described above, a reduction of 85 percent of particulate emissions for backup generators is reasonably believed to meet or exceed the reduction goal.

SVP Electricity Generation

Electricity for the SDC would be provided by SVP. As of 2019, the City currently has ownership interest, or has purchase agreements, for nearly 1,020 MW of electricity. This capacity far exceeds the City's current peak electricity demand of approximately 587 MW. New peaking generation capacity is not necessary to meet the capacity requirements of new construction or redeveloped facilities within the City.

SVP follows the state's preferred loading order in procuring new energy resources. First, the current load (customer) is encouraged to participate in energy efficiency programs to reduce their usage, thus freeing up existing resources (and any related emissions) for new load (electricity demand). In addition, the City, working together with SVP, encourages the use of renewable resources and clean distributed generation and has seen a significant increase in its applications for large and small rooftop photovoltaics. Demand displaced by customer-based renewable projects is also available to meet new load requests.

SVP seeks to meet its RPS goal through the addition of new renewable resources. SVP has a lower GHG emission rate than the statewide California power mix as a result of a much higher portion of renewable sources. A comparison of SVP and the statewide power mix is shown in **Table 4.8-4**.

Table 4.8-4 Comparison of SVP and Statewide Power Mix

Energy Resources	2017 SVP Power Mix	2017 California Power Mix
Renewable (Biomass, Geothermal, Small Hydro, Solar, and Wind)	38%	29%
Coal	9%	4%
Large Hydro	34%	15%
Natural Gas	16%	34%
Nuclear	0%	9%
Other	0%	<1%
Unspecified sources of power (not traceable to specific sources)	3%	9%
Total	100%	100%

Source: SVP, 2019

SVP's predicted carbon intensity factor for 2021 was estimated to be 271 pounds (0.256 metric tons) of CO_2e per MWh.[6] SVP's carbon intensity factor for electricity generation will continue to change as the percentage of renewable resources in its power mix increases. As noted above, the City and SVP have committed to be coal-free and increased large renewables power generation as a part of the City's CAP.

Project Electricity Usage

Data centers are an energy-intensive land use, requiring more electricity than other types of development. The primary function of the data center is to house computer servers, which require electricity and cooling 24 hours a day to operate. The projected maximum demand for the SDC is 96.5 MW. On an annual basis, SDC would consume up to the maximum electrical usage of 655,633 MWh. By utilizing power generated with SVP's SB 32-consistent portfolio of renewable energy, SDC's indirect GHG emissions would be consistent with SB 32 and the 2017 Scoping Plan scenario to achieve SB 32's goal of 40 percent below 1990 levels by 2030.[7]

Project Mobile Emission Sources

Based on the Institute of Transportation Engineers (ITE) trip generation rate for data centers, there would be an estimated average of 695 total daily trips, including vendor and employee trips. As described in **Section 4.17, Transportation**, a maximum of 25 full-time employees would occupy the

[6] The year of 2021 was chosen to evaluate project impacts because 2021 is the first year the project will be operational. An earlier year would not be representative because the project will not be operational before this time.

[7] As a whole, the state of California is on track to reach 1990 levels of GHG emissions in 2020.

site over each 24-hour period, making the ITE rate conservatively high in this case. Data centers as a use don't inherently require additional employees based on size, and visitors to data centers are typically limited to customers who may visit when setting up or maintaining equipment. As described in the 2017 Scoping Plan, mobile source emissions will continue to decrease over time as a result of existing and planned statewide programs, including the increase of electric and zero-emission vehicles and the Low Carbon Fuel Standard.

Project Water Consumption and Waste Generation

Water consumption results in indirect emissions from electricity usage for water conveyance and wastewater treatment. Daily operations at the data center would generate waste, which results in fugitive GHG emissions during decomposition.

Summary of GHG Emissions

Emissions from stationary combustion sources (backup generator testing and maintenance) are presented in **Table 4.8-3**. Emissions from energy use, mobile and area sources, water use, and waste generation (i.e., project operation) are provided in **Table 4.8-5**.

Table 4.8-5 SDC Greenhouse Gas Emissions from Energy Use, Mobile Sources, Area Sources, Water Use, and Waste Generation During Project Operation

Source	Annual Emissions (Metric Tons per Year of CO_2e)
Area Sources (Landscaping)[a]	0.01
Building Energy Use[b]	1,666
Data Center Energy Use[c,d]	81,340
On-Road Exhaust (Mobile Sources)[e]	576
Waste Disposed	438
Water Use	3.48
Total	84,023

Source: Ramboll, 2019

[a] Area source emissions for architectural coatings and consumer products were found to be negligible; thus, landscaping emissions are given for area sources.

[b] Energy use emissions include emissions from electricity and natural gas use for comfort heating.

[c] Data center energy use is calculated based on client-provided energy use projections for the maximum usage year multiplied by Silicon Valley Power Carbon intensity estimates for operational year 2021.

[d] Backup generator emissions are calculated assuming 50 hours per year of testing and maintenance per generator.

[e] Energy use emissions include emissions form electricity and natural gas use for comfort heating.

As compared to the CO_2e emissions in **Table 4.8-2**, the backup generators would comprise less than 0.5 percent of the City's total GHG emissions. As shown in **Table 4.8-5**, operation of SDC and SBGF would generate 84,023 metric tons of CO_2e per year. Inclusion of emissions from the SDC's maximum possible electricity use and other non-stationary sources brings this contribution to a

maximum of 5.1 percent of the total City GHG emissions. This emissions estimate does not include efficiency measures that would be pursued as part of SDC, nor does it reflect implementation of state and local measures to reduce GHG emissions (for example, SB 350 and SB 100). To reduce GHG emissions and the use of energy related to building operations, the SDC chillers would be installed with variable frequency drives to provide efficient operation. The SDC and SBGF would comply with all applicable City and state green building measures, including Title 24 baseline standard requirements for energy efficiency, based on the 2019 Energy Efficiency Standards requirements, and the 2019 California Green Building Standards Code, commonly referred to as CALGreen. Water use reduction measures are also be incorporated in the building design, including the use of air-cooled chillers. Chilled hydronic water piping would require an initial one-time water use of approximately 0.5 acre-feet prior to commercial operation and would not consume water thereafter.

Conclusion

For stationary-source projects, the threshold of significance for GHG emissions is 10,000 metric tons of CO_2e per year. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require a BAAQMD permit to operate. SBGF emissions are expected to be less than the 10,000 metric tons of CO_2e per year threshold and would not result in a significant impact or be considered cumulatively significant.

As shown in **Table 4.8-5**, the primary source of GHG emissions from the SDC is energy use. As described above, electricity to the SDC would be provided by SVP, a utility that is on track to meet the 2030 GHG emissions reductions target established by AB 32. To reduce GHG emissions and the use of energy related to building operations, SDC includes a variety of energy efficiency measures, as described below. The SDC would comply with all applicable City and state green building measures, including Title 24 baseline standard requirements for energy efficiency based on the 2019 Energy Efficiency Standards requirements, and the 2016 California Green Building Standards Code, commonly referred to as CALGreen. Because SDC would receive electricity from a utility on track to meet the AB 32 2030 GHG emission reduction target, would result in lower emissions than the statewide average for an equivalent facility due to SVP's power mix, would include energy efficiency measures to reduce emissions to the extent feasible, and would be consistent with applicable plans and policies adopted to reduce GHG emissions (discussed under **question 4.8 "b"**), SDC would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. With measures incorporated into the project as described above, this impact is less than significant.

b) Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant (Measures Incorporated into the Project). SDC and SBGF would not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. The 2013 CAP, which is part of the General Plan, identifies a series of GHG emissions reduction measures to be

implemented by development projects that would allow the City to achieve its GHG reduction goals in 2020. However, the plan does not address meeting the requirements of SB 32 (2030 emissions target). 2030 emissions targets are discussed under **question "a"** above.[8]

The CAP measures center around seven focus areas: coal-free and large renewables, energy efficiency, water conservation, waste reduction, off-road equipment, transportation and land use, and urban heat island effect. The CAP includes measures applicable to City government and existing and new development projects in the City. Discussion of the SDC and SBGF's conformance with the applicable reduction measures for new development in the CAP are provided in subsequent text.

Coal-Free and Large Renewables Measures

As described above, reducing the rate of emissions associated with electricity production is a critical measure in the CAP. SVP's switching to renewable energy sources as an alternative to fossil fuels has reduced SVP's emissions substantially, and continued migration to renewable energy would further reduce GHG emissions from electricity generation in the future. Because data centers consume high rates of electricity, reducing emissions from electricity production indirectly reduces the GHG emissions from these types of projects. SDC's electricity would be provided by SVP, making SDC's operation consistent with this CAP goal.

Energy Efficiency Measures

PUE is a metric used to compare the efficiency of facilities that house computer servers. PUE is defined as the ratio of total facility energy use to IT (server) power draw (for example, PUE = Total Facility Source Energy/IT Source Energy). For example, a PUE of 2 means that the data center or laboratory must draw 2 watts of electricity for each 1 watt of power consumed by the IT and server equipment. It is equal to the total energy consumption of a data center (for all fuels) divided by the energy consumption used for the IT equipment. The ideal PUE is one where all power drawn by the facility goes to the IT infrastructure. With implementation of the proposed mechanical and electrical design of the building and the anticipated data center occupancy, the average PUE would be 1.23 at SDC. A PUE between 1.5 and 2.0 is considered "efficient" while a PUE between 1.2 to 1.5 is considered "very efficient". Please see **Section 4.6, Energy**, for additional discussion of PUE and energy efficiency.

[8] The CAP has a horizon year of 2020. Because the SDC and SBGF would not be completed until after 2020, this discussion is provided for informational purposes only; compliance with this plan does not apply to the CEQA determination made at the end of this section.

Measure 2.3 of the CAP calls for completion of a feasibility study of energy efficient practices for new data center projects with an average rack power rating[9] of 15 kilowatts or more to achieve a PUE of 1.2 or lower. SDC would have an average rack power rating range of 8 to 10 kilowatts. This would be below the criteria in Measure 2.3, such that a formal feasibility study of energy efficient practices is not required. However, as described in SVP's strategic plan, SVP works closely with industrial customers to develop project-specific energy efficiency rebate plans. This is carried out under SVP's obligation to implement SB 350.

Water Conservation Measures

Development standards for water conservation would be applied to increase efficiency in indoor and outdoor water use areas. Furthermore, SDC and SBGF would comply with all applicable City and state water conservation (indoor and outdoor) measures, including Title 24 baseline standard requirements for energy efficiency, based on the 2019 Energy Efficiency Standards requirements, and CALGreen. For SDC and SBGF, these measures would include:

- Water efficient landscaping that is drought tolerant and low maintenance, consisting of native and regionally appropriate trees, shrubs, and groundcover to minimize irrigation requirements
- Use of air-cooled chillers that do not consume water annually

Waste Reduction Measures

The CAP sets a goal to increase solid waste diversion to 80 percent through increased recycling efforts, curbside food waste pickup, and construction and demolition waste programs. SDC and SBGF would be required to participate in the City's Construction and Demolition Debris Recycling Program by recycling or diverting at least 50 percent of waste materials generated. Additionally, as mitigation incorporated into the project, at least 75 percent of construction waste would be diverted and high-recycled content material would be used where feasible.

Off-Road Equipment Measures

The alternative construction fuels CAP measure requires construction projects to comply with BAAQMD BMPs, including alternative-fueled vehicles and equipment. As a condition of approval, SDC and SBGF construction would follow BAAQMD construction BMPs including limiting idling times to 5 minutes or less and limiting vehicle speeds to 15 miles per hour or less.

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

Transportation and Land Use Measures

The CAP requires all new developments greater than 25 housing units or more than 10,000 nonresidential square feet to draft and implement a VMT reduction strategy that reduces drive-alone trips. As a condition of approval, the SDC would be required to develop a Transportation Demand Management (TDM) program as required by the City. As noted above, SDC's square footage is intended to house computer equipment and would be staffed 24 hours per day by up to 25 operational employees, a less intensive use than typical nonresidential uses.

Urban Cooling Measures

The CAP states that the City would phase in adoption of a requirement for new nonresidential parking lots to mitigate the urban heat island effect. Specifically, it would require new parking lots to be surfaced with low-albedo materials to reduce heat gain, provided it is consistent with the City's building code. In addition, the SDC would include all energy efficiency requirements, including the applicable parking lot surface, as specified by the City during the design review process.

Solar Panels

The CAP recommended the City adopt a 2035 GHG reduction target of 55 percent below baseline levels and is based on Executive Order S-3-05, which established a 2050 reduction target for California to reduce GHG emissions 80 percent below 1990 levels. The CAP identifies "reach measures" to reduce emissions beyond 2020 levels and achieve the 2035 goals. Among these "reach measures" is the installation of 10,000 kW of solar on about 2,000 residential homes, nonresidential buildings, parking garages, parking lots, and other feasible areas. If required by the City as a design review condition, solar panels would be installed at the SDC.

Applicable General Plan Policies

The City adopted the General Plan to accommodate planned housing and employment growth through 2035. As part of the City's General Plan Update in 2011, new policies were adopted that address the reduction of GHG emissions during the planning horizon of the General Plan. In addition to the reduction measures in the CAP, the General Plan includes goals and policies to address sustainability aimed at reducing the City's contribution to GHG emissions. For the SDC, implementation of policies that increase energy efficiency or reduce energy use would effectively reduce indirect GHG emissions associated with energy generation. The consistency of the SDC with the applicable land use, air quality, energy, and water policies in the General Plan is analyzed in **Table 4.8-6**. As shown, the project would be consistent with the applicable sustainability policies in the General Plan.

Table 4.8-6 Project Consistency with Santa Clara General Plan Sustainability Policies

Emission Reduction Policies	Project Consistency
Land Use Policies	
Encourage new developments proposed within a reasonable distance of an existing or proposed recycled water distribution system to utilize recycled water for landscape irrigation, industrial processes, cooling and other appropriate uses to reduce water use consistent with the CAP.	**Consistent**. The SDC employs air-cooled chillers to eliminate water consumption for cooling purposes.
Encourage Transportation Demand Management strategies and the provision of bicycle and pedestrian amenities in all new development in order to decrease use of the single-occupant automobile and reduce vehicle miles traveled.	**Consistent**. SDC would include bicycle and pedestrian amenities consistent with the City's requirements.
Air Quality Policies	
Encourage implementation of technological advances that minimize public health hazards and reduce the generation of air pollutants.	**Consistent**. SDC would include electrical vehicle charging stations.
Encourage measures to reduce GHG emissions to reach 30 percent below 1990 levels by 2020.	**Consistent**. SDC would satisfy the GHG reduction policy as specified by the City during the design review process. SDC construction measures would reduce GHG emissions during the construction period. Operation of SDC would be energy-efficient by design, utilizing a cooling system that allows passive cooling and reduces electrical consumption. The new substation that would serve the SDC site would be designed and operated according to all SVP requirements and regulations, including those that have been implemented in service of this emissions target.
Energy Policies[10]	

10 The General Plan also includes Energy Policy 5.10.3-P3 to "maximize the efficient use of energy throughout the community by achieving adopted electricity efficiency targets and promoting natural gas efficiency, consistent with the CAP." C1 believes that this policy is intended to be implemented by the City and not individual property owners and developers. This intent to be an obligation of the City as a whole and not any individual project alone is confirmed by the following statement from the City's General Plan, Section 5.10: "The City has some control over the production and supply of energy resources through its ownership and operation of SVP. In addition, the General Plan includes policies to address energy consumption through a mix of land uses and alternate transportation options which support an increase in the efficient movement of people and goods. Through the implementation of sustainably oriented goals and policies (Appendix 8.13), The City can also positively affect energy supply and consumption by encouraging sound investments and behaviors that promote the use and expansion of renewable energy resources."

Emission Reduction Policies	Project Consistency
Promote the use of renewable energy resources, conservation, and recycling programs.	**Consistent**. SDC's design would be consistent with all required green building standards, consistent with current Title 24 of the California Building Code and local green building regulations. SDC would use lighting control to reduce energy usage for new exterior lighting and air economization for building cooling. Water efficient landscaping would limit water consumption. In addition, SDC would have a "Cool Roof," using reflective surfaces to reduce heat gains. Waterside economizers would be used to cool data center loads. SDC would include installation of drought-tolerant plants to minimize water use and water- efficient landscaping would be provided. Water conservation and energy efficiency measures included in SDC would reduce GHG emissions associated with the generation of electricity. Additionally, the SDC would divert at least 75 percent of construction waste and use high-recycled content material where feasible.
Encourage new development to incorporate sustainable building design, site planning, and construction, including encouraging solar opportunities.	
Reduce energy consumption through sustainable construction practices, materials, and recycling.	
Promote sustainable buildings and land planning for all new development, including programs that reduce energy and water consumption in new development.	
Water Use Policies	
Maximize the use of recycled water for construction, maintenance, irrigation, and other appropriate applications.	**Consistent.** The potential availability of recycled water is still being determined at the City. Once the City has completed its review and assuming recycled water is determined to be "available" as defined by the California Water Code, it would be used by SDC, consistent with applicable law.
Require installation of native and low-water-consumption plant species when landscaping new development and public spaces to reduce water usage.	**Consistent.** The SDC would include installation of drought-tolerant plants to minimize water use and water-efficient landscaping would be provided.

Source City of Santa Clara, 2011

The General Plan also includes a number of policies that call for or encourage the use of TDM and other programs to reduce emissions associated with vehicle travel. As discussed in more detail in **Section 4.17, Transportation**, SDC would generate very few vehicle trips to the SDC site. Since GHG emissions from mobile sources would be relatively low for this project, the evaluation of consistency with transportation policies is not addressed further.

Bay Area 2017 Clean Air Plan

The Clean Air Plan includes performance objectives, consistent with the state's climate protection goals under AB 32 and SB 375, designed to reduce emissions of GHG emissions to 1990 levels by 2030 and 80 percent below 1990 levels by 2050. Due to the relatively high electrical demand of the SDC, energy efficiency measures are included in the design and operation of the onsite electrical and mechanical systems.

The Clean Air Plan contains three measures that are relevant to SDC because they aim to increase energy efficiency and renewable power content; however, C1 believes the measures are BAAQMD policy statements intended to be implemented by the BAAQMD, not an individual project such as the SDC. These three measures are included and discussed here for informational purposes.

- ECM-1 Energy Efficiency: Decrease the amount of energy consumed in the Bay Area through increased efficiency and conservation to reduce the amount of fossil fuel needed to produce the electricity that the region uses.
- EN1 Decarbonize Electricity Production: Engage with Pacific Gas & Electric (PG&E), municipal electric utilities and Community Choice Energy programs (CCEs) to maximize the amount of renewable energy contributing to the production of electricity within the Bay Area as well as electricity imported into the region. Work with local governments to implement local renewable energy programs. Engage with stakeholders including dairy farms, forest managers, water treatment facilities, food processors, public works agencies and waste management to increase use of biomass in electricity production.
- EN2 Decrease Electricity Demand: Work with local governments to adopt additional energy efficiency policies and programs. Support local government energy efficiency program via best practices, model ordinances, and technical support. Work with partners to develop messaging to decrease electricity demand during peak times.

While these three measures are directed at the BAAQMD and not individual emissions sources, the SDC is consistent with the overall goals of increased energy efficiency and renewable energy. The SDC would have a PUE of 1.23 and an average rack power rating range of 8 to 10 kilowatts. The electric power for SDC would be supplied by SVP, which provides over 38 percent of its electricity from non-carbon renewable resources and has been coal-free since January 2018. SVP also plans to exceed the 50 percent Renewable Portfolio Standard by 2030 set by SB 32. Further, C1 would incorporate additional energy efficiency and renewable energy measures (e.g., Santa Clara Green Power, solar panels) specified by the City during the design review process to ensure compliance with applicable energy efficiency laws, ordinances, regulations, and standards.

Plan Bay Area 2040/California SB 375

Under the requirements of SB 375, MTC and ABAG developed a SCS with the adopted Plan Bay Area 2040 to achieve the Bay Area's regional GHG reduction target. Plan Bay Area 2040 sets a 15 percent GHG emissions reduction per capita target from passenger vehicles by 2035 when compared to 2005 emissions. However, these emission reduction targets are intended for land use and transportation strategies only. SDC would generate minimal daily vehicle trips, including vendors and employee trips. Due to the limited number of employees and visitors at the SDC site, SDC would have less-than-significant transportation impacts during operation. Thus, SDC would not contribute to a substantial increase in passenger vehicle travel within the region.

California SB 100

SB 100 advances the RPS renewable resources requirement to 50 percent by 2026 and 60 percent by 2030. It also requires renewable energy resources and zero-carbon resources to supply 100 percent of all retail sales of electricity by 2045. GHG emissions from the SDC would be predominantly from electricity usage by the SDC. As stated previously, operational GHG emissions could be significantly reduced by purchasing all electricity from Santa Clara Green Power which is available through SVP. It is not clear that the Santa Clara Green Power purchase is a mandate; however, the C1 would satisfy any applicable requirements as specified by the City during the design review process. Additionally, the SDC could further reduce its GHG impacts by installing solar panels over parking spaces and any roof area not being used for cooling towers or other equipment. C1 would install solar panels consistent with a City design review condition, should one be issued.

AB 32 Scoping Plan

The vast majority of the project's GHG emissions would result from energy use. Multiple AB 32 Scoping Plan measures address GHG emissions from energy. For example, the Cap-and-Trade Program, through the regulation of upstream electricity producers, would account for GHG emissions from the project and require emissions from covered sectors to be reduced by the amount needed to achieve AB 32's 2030 goal.

Conclusion

With implementation of SDC and SBGF's efficiency measures, in combination with the renewable power mix used by SVP, GHG emissions related to the SDC and SPGF, including emissions associated with construction, operations, and maintenance, would not conflict with the CAP or General Plan, the state 2017 Scoping Plan for 2030 GHG emissions targets, or other plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Stationary source emissions would also be less than BAAQMD's threshold of 10,000 metric tons of CO_2e per year.

4.9 Hazards and Hazardous Materials

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project: a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☒	☐
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

Hazardous Materials

Federal, state, and local regulations govern the use, transport, and storage of hazardous materials. Further, a Hazardous Materials Business Plan is required for any facility that generates any quantity of hazardous waste or which handles hazardous materials in amounts greater than 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases.[1] The implementation and enforcement of these local, state, and federal regulations regarding the use, storage and transport of hazardous materials (including setbacks for flammable storage from property lines) reduce the potential for impacts to off-site land uses, in the event of an accidental release.

Airport Land Use

Each county in California establishes an Airport Land Use Commission (ALUC) according to the California Public Utilities Code (Sections 21670 et seq.). Each ALUC is tasked with creating a comprehensive land use plan (CLUP) for the areas surrounding public airports. The CLUP establishes regulations to avoid hazards relating to aviation. The Santa Clara County ALUC's 2011 CLUP establishes an Airport Influence Area (AIA) including safety zones with specific provisions governing building height, land use, and the use of hazardous materials in the vicinity of SJC. The General Plan recognizes the CLUP and established policies, including policies 5.10.5-P30 and P31 that set out goals reviewing development based on the CLUP and placing hospitals, power plants, and other sensitive facilities outside of the CLUP's safety zones. The SDC is located within the AIA established by the CLUP and is subject to the policies identified by the CLUP, as administered by the City and reflected in the City's General Plan.

For projects that do not require a zoning or land use change, the City is the agency with jurisdiction for evaluating consistency with the CLUP through their General Plan. Projects within the AIA that require zoning or land use changes are referred to the ALUC. The ALUC then reviews the project and makes a recommendation to the lead agency carrying out the project (or the lead agency with primary authority to approve the project).

Environmental Setting

The SDC site is in an industrial and commercial area. Surrounding land uses consist of commercial and industrial operations, generally occupying large one- to two-story office and industrial buildings. The site is bound by an Enterprise Rent-a-Car Facility to the north, a furniture warehouse to the south, SJC to the

[1] County of Santa Clara. 2017. *Hazardous Materials Business Plans*. Available: https://www.sccgov.org/sites/hazmat/programs/hmbp/Pages/home.aspx. Accessed: July 2019.

east, and adjacent railroad tracks to the west. Other warehouse structures exist further west of the railroad tracks. The majority of the site is unpaved ground with the exception of small landscaped areas that occur at the perimeter of the site.

A Phase I environmental site assessment (ESA) was completed for the SDC site in February of 2018 (**Appendix L**). The Phase I ESA found no evidence of recognized environmental conditions (RECs) and did not recommend the completion of a Phase II ESA. RECs are the occurrence of hazardous substances on a property that could pose a threat to future owners. The Phase I ESA did identify several controlled RECs (CRECs) at the SDC site relating to off-site sources of contamination, contamination relating to former uses of the site, past presence of asbestos and lead-based paint, and radon. CRECs consist of contamination or other environmental condition at a site resulting from a past release of hazardous materials. CRECs have been addressed to the satisfaction of the applicable regulatory authority. CRECs do not require further remediation, subject to implementation of required controls.

Previous owners used the site for agricultural purposes until at least the 1930s, while later owners constructed a paper mill in the late 1950s. The primary mill building was constructed in 1954. Chemical storage tanks, containers, and mill machinery were placed and operated in outdoor areas. At the time of its demolition, the mill was owned by Graphics Packaging International, LLC, consisting of a one-story recycled paperboard mill and warehouse. The mill utilized a combined-cycle cogeneration Plant with a natural gas-fired turbine generator. Water used in the paper milling process was stored in below-ground reservoirs for later treatment, while other water, including floor wash water was directed to the City sewer system. The site was used as a paper mill until 2017 and is now vacant.

The site is separated from SJC by De La Cruz Boulevard. The site boundary is approximately 100 feet west of SJC. According to the CLUP the site is within the airport's AIA, and portions are within the airport's Turning Safety Zone (TFZ) and Inner Safety Zone (ISZ). The ISZ has the second-highest level of risk from aircraft accidents and includes aircraft departure and approach corridors. The TFZ has the third-highest level of risk from aircraft accidents and includes areas defined as "turning sectors" for aircraft at the end of runways. The SDC building has been designed to avoid penetration of any Federal Aviation Administration (FAA) protected surface and therefore, the SDC will not require a No Hazard Determination. However, a Notice to the FAA will be required for use of cranes during construction.

Potential Sources of Contamination

The Phase I ESA (**Appendix L**) included a search of federal, state, and local environmental databases for potential contamination sources on properties within 1 mile of the SDC site. It also included a review of the site's previous uses and prior evaluations completed for the site and surrounding areas. The Phase I ESA identified the presence of two CRECs: one due to offsite contamination, and one residual CREC related to past underground storage tanks (USTs) at the site. The off-site CREC consists of chlorinated VOCs which have migrated onto the SDC site through contaminated groundwater. The contamination levels were found to be low based on the most recent samplings, which were associated with remediation efforts in the early 2000's. Investigation of UST leaks on site from the 1980s to 2000

confirmed the presence of some soil contamination from petroleum. However, the Phase I ESA notes that Valley Water issued a regulatory case closure for UST releases at the SDC site in the year 2000. This regulatory case closure reviewed and documented the concentrations of chlorinated VOCs and other contaminants at the site and did not recommend further remediation. Thus, the Phase I ESA concluded that this issue would not be subject to further regulatory scrutiny, so long as changes in land use are not proposed.

Former Uses

As the SDC site was used for agricultural purposes at least as late as the 1930s, it is likely agricultural chemicals, such as pesticides, herbicides, and fertilizers were used on the site. Subsequent uses of the site as a paper mill may have also led to soil contamination. Staining of pavement and floors were observed at the site prior to demolition, indicating chemical spilling, although no evidence of a large release was observed. Hazardous chemicals were used during mill operations and stored in pipes and tanks above and belowground. These chemicals included dyes, chlorine, and solvents.

The site contains residual soil and groundwater contamination from UST releases. Twelve USTs were formerly located at the site including tanks used to store solvents and fuel. These tanks were removed in the 1980s and 1990s with regulatory oversight, apart from one gasoline UST that was abandoned in place. As described above, investigations, remediation, and monitoring were conducted at the site from the 1980s until 2000 when Valley Water issued a case regulatory closure for releases at the SDC site. Additionally, a *2018 Soil Vapor and Groundwater Investigation Report* completed by Ramboll for an area adjacent to the SDC site included groundwater and soil vapor tests, and did not identify petroleum hydrocarbons, VOCs, or solvents above acceptable screening levels.

Asbestos and Lead-Based Paint

Asbestos and lead-based paint were previously identified in buildings at the site, but as the SDC site is now vacant, there is no potential for the presence of these hazardous building materials.

Radon

The site is in an area categorized as having indoor basement radon levels between 2 and 4 prioCuries per liter (PCi/L). 17 out of 18 of sites surveyed for radon in the SDC site zip code were found to have levels below 4 pCi/L. The United States Environmental Protection Agency mandates actions if there would be a continuous exposure limit of 4 pCi/L. Above this limit, further testing or remedial action is suggested in residential uses. However, this limit does not apply to commercial properties such as the project.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection

facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both of these project components holistically, unless otherwise noted.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant. The SDC would involve the use of common but potentially hazardous materials such as cleaners and pesticides for landscaping around the SDC and diesel fuel for backup generators incorporated into the SBGF. Up to 367,200 gallons of diesel fuel would be stored on the site in storage tanks located underneath each backup generator in the SBGF. The storage tanks are an integral part of each backup generator assembly and are not stand-alone fuel storage tanks.

Truck trips to deliver diesel fuel and other hazardous materials are expected to reach the SDC and SBGF site via US-101, De La Cruz Boulevard, and possibly other local streets which connect the project site to US-101. The integrated diesel fuel storage tanks would be subject to all requirements set forth in Chapter 6.67 of the California Health and Safety Code (§25270 – 25270.13). All potentially hazardous materials used on the site would be contained, stored, and used in accordance with manufacturer's instructions and handled in compliance with applicable standards and regulations.

In accordance with federal and state law, the SDC and SBGF would be required to disclose hazardous materials handled at reportable amounts. Additionally, C1 would be required to prepare an emergency response and evacuation plan, conduct hazardous materials training (including remediation of accidental releases, including diesel fuel), and notify employees who work in the vicinity of hazardous materials, in accordance with federal Occupational Health and Safety Administration (OSHA) and California Division of Occupational Safety and Health (Cal OSHA) requirements. For transport and handling of fuel, Cal OSHA requirements include establishment of an Injury and Illness Prevention Program (CCR Title 8 § 6760).

As the Certified Unified Program Agency for the City, the Santa Clara Fire Department Hazardous Materials Division (Hazardous Materials Division) is authorized to implement the California Aboveground Petroleum Storage Act (Act). The Hazardous Materials Division inspects facilities that store petroleum products in aboveground tanks for compliance with the Act and applicable sections of the federal Spill Prevention, Control, and Countermeasure rule. Installation of the integrated diesel fuel storage tanks at the SBGF would be subject to this inspection and project operation would comply with all relevant regulations.

The Hazardous Materials Division also administers the California Accidental Release Prevention Program within the City. The program requires assessment of hazard potential from the storage of hazardous materials on site and the implementation of a Risk Management Plan to minimize the risk of accidental release. The fuel storage tanks would pose a risk to soils if an accidental release of fuel occurred. However, each generator unit and its integrated fuel tank have been designed with double

walls. The interstitial space between the walls of each tank would be continuously monitored electronically for the presence of liquids. This monitoring system would be electronically linked to an alarm system in the security office. This system would alert personnel if a leak is detected. Additionally, the standby generator units would be housed within a self-sheltering enclosure that prevents the intrusion of storm water. Additionally, a Risk Management Plan would be required for the project to ensure the storage tanks are maintained and operated in a way that minimizes the risk of release. In the event of an accidental release, the Hazardous Materials Division would oversee required cleanup and remediation as required by local, state and federal regulation. For more detail on spill prevention and cleanup, please refer to **Section 4.10, Hydrology and Water Quality**.

With implementation of the required permit conditions and regulatory controls outlined above, impacts related to the routine use, transport, or disposal of hazardous materials would be less than significant. No mitigation is required.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant (Measures Incorporated into the Project). Construction activities would require building foundation work, including grading and excavation. This could potentially result in construction personnel encountering contaminated soils and groundwater. Based on past sampling at the site, it is possible that residual amounts of soil and groundwater contaminants (petroleum and chlorinated VOCs) are still present.

However, based on past sampling and detected levels of petroleum and chlorinated VOCs, it is considered unlikely that the residual amounts would pose a threat to workers. As stated above, soil analysis conducted in 2000 as part of the regulatory case closure for UST releases at the SDC site did not detect concentrations of hazardous chemicals above applicable regulatory thresholds. Low levels of chlorinated VOCs were detected in the SDC site's groundwater and reviewed in the 2000 case closure for releases at the project site. Since the timing of these previous studies, the use of the SDC site did not significantly change until 2017 when operations at the paper mill ceased, and the mill was subsequently demolished. Since that time, the site has been vacant. The Phase I ESA included an updated review of site conditions and historical records to verify existing conditions.

Because residual contamination from industrial sources is known to exist at low levels at the SDC site, and hazardous agricultural chemicals may also be present, mitigation is required. This project mitigation measure is incorporated into the project, is listed in **Section 2.4** of the Project Description and is repeated here:

If contaminated soils from agricultural or industrial use are unexpectedly encountered during any construction activities, work in the area shall be temporarily halted and the corresponding jurisdiction (the City) shall coordinate with the contractor and the Alameda County Environmental Health Department to determine appropriate treatment and removal of contaminated soils.

Operation of the SBGF would require the transport and storage of diesel fuel. As described above under Regulatory Setting, existing federal, state, and local requirements address the transport and handling of diesel fuel to ensure safety and minimize the risk of spills. In the event of a spill, state and local policies are in place to address cleanup. Please refer to **Section 4.10, Hydrology and Water Quality**, for additional detail on spill prevention and cleanup. With these existing regulations in place, the potential for accident or upset of diesel fuel associated with the SBGF is less than significant. With the project mitigation measure described above to address construction-period affects, this impact would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The closest school to the site is the Nurse Builders Academy which is located 0.5 miles south of the site. Because the site is not located within a 0.25-mile radius of a school, it would not emit any hazardous emissions or result in other direct or indirect hazards to educational establishments. No impact would occur.

d) Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less than Significant (Measures Incorporated into the Project). A search of the Department of Toxic Substances Control EnviroStor data base along with a search of the San Francisco Bay RWQCB GeoTracker database show there are no known, open cases of hazardous materials or spills on the site. However, as described above, residual contamination is present at the site from previous uses, and potential contamination from agricultural use may be present. The project mitigation measure described in **question "b"** above would address the potential hazard of this contamination. With implementation of this mitigation measure, which is incorporated into the project, this impact would be less than significant.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Less than significant. The site is located approximately 100 feet west of SJC. The site is within SJC's TSZ and portions of the site are within the ISZ. The TSZ is the portion of the AIA with the third highest level of risk of aircraft accidents. The ISZ has the second highest level of risk from aircraft accidents and includes aircraft departure and approach corridors. No ALUC referral or approval is

required for the project because a zoning change or General Plan amendment are not required the project; both the SDC and SBGF project components are permitted uses and consistent with existing zoning.

For safety reasons, land uses where the majority of occupants are children, elderly, and/or disabled are not permitted in the TSZ and ISZ. Stadiums and other uses with a more than 20,000-person capacity are also not permitted along with hospitals, regional shopping centers, day care centers, nursing homes, or similar uses. Based on the proposed use of the site for a data center (SDC) and backup generators (SBGF), such land uses would not conflict with these policies.

Above-ground fuel storage and hazardous materials facilities are not permitted in TSZ or ISZ zones under the CLUP. The intent of this restriction is to prevent secondary hazard conditions in the event of an aviation accident. For example, large reservoirs of fuel stored above ground – such as those associated with refineries – could result in fire or explosion if hit by an aircraft. The SBGF would include 54 diesel generators. Each generator assembly includes an individual fuel tank, located on the underside of the generator within the generator enclosure. The tanks are incorporated into and a part of the generator assembly. The tank is necessary to provide fuel to the backup generator. The SBGF does not include a large above ground diesel fuel storage tank that could be used to refill the tanks integrated into each generator.

Backup generators and the associated fuel tanks would be dispersed across the site, covering an area approximately 700 feet long and 300 feet wide. The City, in their authority as the agency with jurisdiction over the project with relation to the CLUP, has reviewed this element of the SBGF and concluded that the SBGF conforms to General Plan policies implementing the CLUP, because it does not involve stand-alone storage tanks of diesel fuel or any other above-ground fuel storage (**Appendix L**). The individual fuel tanks are considered to pose a low risk of exacerbating an aviation accident given the capacity of each tank (8,500 gallons), their distribution across the site, and their location within a protective enclosure and underneath the backup generators. Further, the SDC is subject to review by the FAA, as described below.

The site's location near the SJC results in the potential for encroachment into FAA protected surfaces. According to FAA regulations, the lowest protected surface at the site begins at approximately 112 feet above ground. The SDC would be approximately 85 feet in height with its highest point at 105 feet, which ensures there will be no penetration of the SDC into the protected surface. Therefore, impacts to airport safety would be less than significant. No mitigation is required.

The site is also located in SCJ's Noise Restriction Area, where noise levels up to 65 dB may occur. For a discussion of the project's consistency with Noise Restriction Area policies refer to **Section 4.13, Noise**.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant. The City adopted the Santa Clara City Emergency Operations Plan in 2016 to assign responsibilities to designated city leaders, employees, departments, agencies, boards, and community and volunteer organizations in the event of a disaster. Santa Clara Fire Department currently serves the site. Please refer to **Section 4.15, Public Services**, for more detailed information regarding fire and emergency services.

The SDC would not include any changes to the existing public roadways that provide emergency access to the site or surrounding area. Operation of the SDC and SBGF would not require enough staff to reasonably result in a significant increase in demand for emergency access, with a maximum of 25 fulltime employees occupying the site at any given time. The SDC and SBGF would be entirely contained to the parcel and would not include new roads or obstructions to existing emergency access. Therefore, the SDC and SBGF would not impair the implementation of, or physically interfere with the City's Emergency Operations Plan. Impacts would be less than significant, and no mitigation is required.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. For a more detailed discussion of hazards relating to wildfire refer to **Section 4.20, Wildfire.** The site and surrounding vicinity are entirely developed. The area does not contain, nor is it adjacent to, wildlands. Accordingly, implementation of the SDC would not result in the exposure of people or structures to significant loss, injury, or death involving wildland fires and no impact would occur.

4.10 Hydrology and Water Quality

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in manner which would:	☐	☐	☒	☐
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? or	☐	☐	☒	☐
iv) Impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

Federal Clean Water Act and State Porter-Cologne Water Quality Control Act

Under the federal Clean Water Act (CWA), discharge of stormwater from construction sites must comply with the conditions of a NPDES permit. The State Water Resources Control Board (SWRCB) has adopted a statewide General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) that applies to projects resulting in 1 or more acres of soil disturbance. For projects disturbing more than 1 acre of soil, a construction Stormwater Pollution Prevention Plan (SWPPP) is required that specifies site management activities to be implemented during site development. These management activities include construction stormwater BMPs such as erosion and sedimentation controls, dewatering, runoff controls, and construction equipment maintenance.

Sustainable Groundwater Management Act

California's Sustainable Groundwater Management Act (SGMA) was enacted in 2014, establishing a new structure for locally managing groundwater in the state. SGMA provides for the establishment of Groundwater Sustainability Agencies for designated groundwater basins or subbasins, and the development of Groundwater Sustainability Plans for most groundwater basins. Under SGMA, a groundwater basin must be managed to avoid undesirable results such as lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface water. SGMA requires the adoption of Groundwater Sustainability Plans by 2022 (or earlier for basins with critical overdraft), and sustainable groundwater operations must be achieved within 20 years after completing the plan. If a functionally equivalent groundwater plan has already been developed, then a Groundwater Sustainability Agency may submit

that plan as an alternative to a Groundwater Sustainability Plan. Valley Water is the SGMA Groundwater Sustainability Agency for the Santa Clara Valley groundwater subbasin and developed its Groundwater Management Plan[2] for the Santa Clara and Llagas Subbasin as functionally equivalent to a Groundwater Sustainability Plan.

[2] Valley Water. 2016. *Groundwater Management Plan.* 2016. Available: https://s3.us-west-2.amazonaws.com/assets.valleywater.org/2016%20Groundwater%20Management%20Plan.pdf. Accessed: July, 2019.

Environmental Setting

Water Supply

The City operates 26 wells that tap underground aquifers, making up roughly 62 percent of the City's potable water supply. Valley Water administers a water recharge program from local reservoirs, and imported water enhances the reliability of the underground aquifer. The remainder of the City's water supply consists of water imported from two wholesale water agencies. For certain non-potable uses, recycled water from the San Jose/Santa Clara Regional Wastewater Facility is used (RWF). This is highly treated water delivered through separate pipelines. This recycled water source makes up about 16 percent of water sales in the City. Recycled water offsets the use of potable sources in drought-prone California.[3]

Valley Water approved and adopted an updated Urban Water Management Plan (UWMP) in 2015. Similarly, the City adopted its updated UWMP in November 2016. The City's 2016 UWMP included projected increases in water demand due to densification and intensification of both residential and non-residential land uses, including industrial uses.

Stormwater

Stormwater runoff from urban impervious surfaces and roadways can overwhelm drainage systems and pollute streams, bays, and the ocean. Section 402 of the CWA prohibits the discharge of any pollutant to waters of the United States (e.g., streams, lakes, bays, etc.) from a point source, unless that discharge is authorized NPDES permit. Point sources include stormwater discharges from discrete conveyances such as pipes, storm drains, or manmade ditches and channels.

The SWRCB provides policy guidance and delegates authority to nine regional boards that regulate surface water and groundwater quality within their respective regions, including planning, permitting, and enforcement activities. The San Francisco Bay Area Regional Water Quality Control Board (RWQCB)

administers the federal CWA and state Porter-Cologne Water Quality Control Act in the City. The RWQCB requires a Notice of Intent to be filed prior to any stormwater discharge from construction activities, and that a SWPPP be prepared and implemented onsite.

The RWQCB has issued a Municipal Regional Stormwater NPDES Permit (Permit Number CAS612008) (MRP). The regional permit applies to 77 Bay Area municipalities, including the City. The permit contains requirements for land development projects in order to minimize impacts on stormwater quality and flow. Under provisions of the NPDES Municipal Permit, redevelopment projects that disturb more than 10,000 square feet are required to design and construct stormwater treatment controls to treat post-

[3] City of Santa Clara. 2019. *Recycled Water Utility*. Available: http://santaclaraca.gov/government/departments/water-sewer-utilities/recycled-water-utility. Accessed: July, 2019..

construction stormwater runoff. This requirement is referred to as "C.3" provisions. Post-construction runoff must be treated by using Low Impact Development (LID) treatment controls, such as biotreatment facilities.

In addition to water quality controls, the Municipal Regional Stormwater NPDES permit requires all projects that create or replace 1 acre or more of impervious surface to manage development-related increases in peak runoff flow, volume, and duration. This requirement applies to areas where such hydromodification is likely to cause increased erosion, silt pollutant generation or other impacts to beneficial uses of local rivers, streams, and creeks. Projects may be deemed exempt from the permit requirements if they do not meet the size threshold, drain into tidally influenced areas or directly into the Bay, drain into hardened channels, or are infill projects in subwatersheds or catchment areas that are greater than or equal to 65 percent impervious (per the Santa Clara Hydromodification Management Applicability Map).

Under existing conditions, stormwater on the SDC site infiltrates into landscaped areas and enters into ten storm drains across the site. Stormwater collected through this drainage system is discharged into the City's municipal storm sewer system though a lateral connection at De La Cruz Boulevard. A stormwater lift station is located on the southwest corner of the site. Stormwater lift stations pump stormwater through collection systems and can temporarily store stormwater. The SDC would disturb more than 10,000 square feet of land during construction. Therefore, the SDC is subject to the stormwater treatment control requirements of the Municipal Regional NPDES permit.

Groundwater

Depth to groundwater is between 10 to 10.5 feet below ground surface at the SDC site, as identified in the site-specific geotechnical investigation report completed in 2018 and included as **Appendix E.** The Groundwater Management Plan[4] describes existing and potential actions to achieve basin sustainability goals and ensure continued sustainable groundwater management. The plan does not require specific actions related to redevelopment of an infill site, such as the SDC. Rather, the plan references compliance with the MRP as the primary means of protecting groundwater supplies from the adverse effects of stormwater runoff.

Tsunamis and Seiches

Seismically induced ocean waves called tsunamis are caused by submarine earthquakes. Seiches are waves produced by earthquake ground shaking or landsliding in a confined body of water such as a lake or reservoir.

[4] Valley Water. 2016. *Groundwater Management Plan.* 2016. Available: https://s3.us-west-2.amazonaws.com/assets.valleywater.org/2016%20Groundwater%20Management%20Plan.pdf. Accessed: July 2019.

Flooding

According to the Flood Insurance Rate Map generated by the Federal Emergency Management Agency (FEMA), the project site is not located in a 100-year flood zone (**Figure 8**). The site is not within an area mapped as vulnerable to sea level rise[5] or tsunami risk.[6] The SDC site is within the inundation zones of two upstream reservoirs operated by the Valley Water, including Lexington Reservoir[7] and Anderson Dam.[8] Lexington Reservoir is contained by James J. Lenihan Dam located approximately 11 miles from the project site. Recent investigations by the Valley Water concluded that no seismic remediation measures are necessary.[9] Anderson Dam and Reservoir are located on Coyote Creek approximately 22 miles from the SDC site. Seismic remediation on Anderson Dam is needed, and the Valley Water is currently undertaking the Anderson Dam Seismic Retrofit Project. Construction of the retrofit project is scheduled to be complete in 2027.[10]

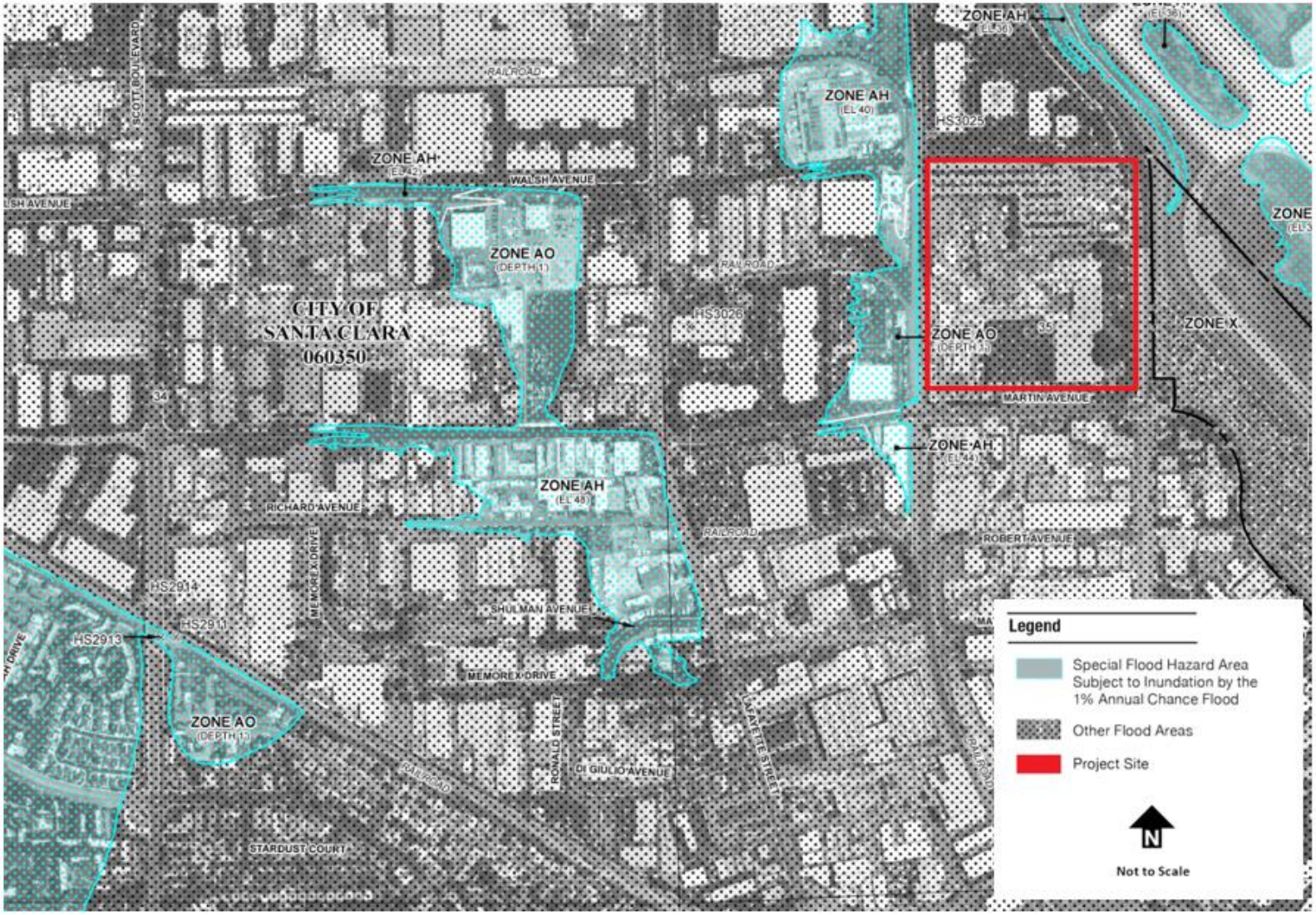
Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both of these project components holistically, unless otherwise noted.

a) Would the project violate any water quality standards or waste discharge requirements? or otherwise substantially degrade surface or groundwater quality?

Less than Significant. In its current state, the site consists of mostly impervious, compacted ground surfaces and some landscaped areas on the perimeter of the site. The SDC would include a total of 451,321 square feet of impervious surface (SDC building, SGBF, and parking lot). The SDC would be

[5]Cal-Adapt. 2019. *Sea Level Rise*. Available: https://cal-adapt.org/tools/slr-calflod-3d/. Accessed: July, 2019.
[6]California Department of Conservation. 2019. *Santa Clara County Tsunami Inundation Maps.* July, 2019.
[7] Valley Water. 2016. Lenihan (Lexington) Dam Flood Inundation Maps. Available: https://www.valleywater.org/sites/default/files/Lexington%20Dam%20Inundation%20Map%202016.pdf. Accessed: July 2019.
[8] Valley Water. 2016. Anderson Dam Flood Inundation Maps. Available: https://www.valleywater.org/sites/default/files/Anderson%20Dam%20Inundation%20Maps%202016.pdf. Accessed: July 2019.
[9]Terra/Geopentech. April 2012. *Lenihan Dam Site Characterization, Material Properties, and Ground Motions*. Available: https://s3.us-west-2.amazonaws.com/assets.valleywater.org/Tab%204%20-%20SSE2%20Rpt%20LN-3%20Final.pdf. Accessed: July 2019.
[10]Valley Water. October 2018. *Anderson Dam Seismic Retrofit Project.* Available: https://s3.us-west-2.amazonaws.com/assets.valleywater.org/Tab%204%20-%20SSE2%20Rpt%20LN-3%20Final.pdf. Accessed: July 2019.



Flood Hazard Zones Figure **8**

Source: FEMA 2009

subject to the Municipal Regional NPDES permit and required to comply with the City's BMPs for erosion and sedimentation control during construction, as outlined in the NPDES permit. Construction BMPs include using fiber rolls to catch erosion, stabilizing driveways, and blanketing exposed soils. Preparation of a SWPPP would be required.

Because more than 1-acre of impervious surface would be disturbed during construction and is therefore subject to the NPDES Construction General Permit, submittal of a Notice of Intent to the SWRCB is required. Additionally, the SDC would be subject to a post-construction NPDES Permit and Provision C.3 requirements, requiring incorporation of source control design elements to keep pollutants away from stormwater. Maintenance agreements, such as parking lot sweeping and catch basin cleaning, as well as storm drain signs and stenciling, would be required under NPDES permit conditions. As mentioned above under **"Groundwater"**, compliance with the Municipal Regional NDPES permit would also ensure the SDC would not conflict with the Groundwater Management Plan in relation to groundwater quality.

Consistent with the City's LID requirements, the SDC would also include bioretention areas in landscaping design to ensure that particulates are removed from stormwater prior to discharge into a storm drain or creek. The bioretention areas would be located in the southwest corner of the site and in the site's eastern parking lot, adjacent to De La Cruz Boulevard. Compliance with the NPDES permit requirements for project construction and operation, the SWPPP, and City LID requirements would ensure that impacts to water quality and groundwater quality are less than significant. The SDC would not include waste discharges into storm drain systems or the City's sanitary sewer system.

The SBGF would require the preparation of a SPCC to address the storage, use, and delivery of diesel fuel for the generators. Each generator unit and its integrated fuel tanks have been designed with doublewalls. The interstitial space between the walls of each tank would be continuously monitored electronically for the presence of liquids. This monitoring system would be electronically linked to an alarm system in the security office. This system would alert personnel if a leak is detected. Additionally, the backup generator units would be housed within a self-sheltering enclosure that prevents the intrusion of storm water.

Diesel fuel would be delivered on an as-needed basis in a compartmentalized tanker truck with maximum capacity of 8,500 gallons. The tanker truck would park at the gated entrances to the generator yard for re-fueling.

The SBGF would not include loading/unloading racks or containment for re-fueling events; however, a spill catch basin would be located at each fill port for the generators. To prevent a release from entering the storm drain system, drains would be blocked off by the truck driver and/or facility staff during fueling events. Rubber pads or similar devices would be kept in the generation yard to allow quick blockage of the storm sewer drains during fueling events.

To further minimize the potential for diesel fuel to come into contact with stormwater, to the extent feasible, fueling operations would be scheduled at times when storm events are improbable.

Warning signs and/or wheel chocks would be used in the loading and/or unloading areas to prevent vehicles from departing before complete disconnection of flexible or fixed transfer lines. An emergency pump shut-off would be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures would be posted at the loading and unloading areas. With these measures incorporated into the design of the SBGF, no mitigation is required.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less than Significant. The SDC would require minor consumption of potable water consistent with typical industrial uses in the City. The SDC would require approximately 4.82 acre-feet per year of potable water use, while the SBGF would not require any water consumption. The SDC's proposed water use would not require preparation of a Water Supply Assessment (WSA) (see **Appendix M**) The City would provide potable water services to the site through existing infrastructure located in De La Cruz Boulevard. The UWMP identifies groundwater as a source of water supply for the site vicinity and includes projected increases in water demand due to densification and intensification of non-residential land uses. The City currently has the capacity to provide up to 28.8 million gallons of water per day.[11]

Valley Water tracks water supply, demand, and groundwater recharge on a monthly basis. As of June 2019, total groundwater storage was predicted to fall within normal levels established in Valley Water's Contingency Plan by the end of the year.[12] Valley Water's projections are based on estimates generated from land use designations across the service area. The SDC would introduce a new use to the site, and this use is permitted under the site's existing zoning and land use designation. Thus, the additional demand that would be placed on groundwater supplies through operation of the SDC was reasonably anticipated in the broader demand calculations developed by Valley Water, and the City would have sufficient water supply to service the project.[13] The SDC would not directly interfere with groundwater recharge, such as through the addition of significant amounts of new impervious surface or through the use of wells. Therefore, this impact would be less than significant, and no mitigation is required.

[11] City of Santa Clara Water & Sewer Utility. Available: http://santaclaraca.gov/government/departments/water-sewer-utilities/recycled-water-utility. Accessed: July, 2019.
[12] Valley Water District. June 2019. *Groundwater Condition Report, Santa Clara County*. Available: https://www.valleywater.org/sites/default/files/2019-06/Final_June_2019_Report.pdf . Accessed: July, 2019.
[13] To be provided under separate cover.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in manner which would:

I) Result in substantial erosion or siltation on- or off-site;

Less than Significant. This analysis considers both the SDC and the SBGF elements of the project. The SDC site is located within the San Francisco Bay Watershed. Natural drainage features within this watershed include the Calabazas Creek, Saratoga Creek, and San Tomas Aquino Creek. No streams, rivers, or other watercourses are located near the project site, nor would they be directly altered by the project. The SDC would alter the existing drainage of the site to adequately direct stormwater flows over the parcel, but such alteration is considered negligible. A drainage plan has been prepared and would be implemented during development of the site

Construction-period permit controls for managing stormwater drainage are described above under **question 4.10 "a"**. As SDC construction would involve ground disturbing activities, the SDC would be subject to the Municipal Regional NPDES Permit. This permit would require all post-construction runoff to be treated using LID treatment controls, such as biotreatment facilities. With implementation of the following SWPPP BMPs required by the City and incorporated into the design of the facility, the SDC would not contribute substantial amounts of sediment to storm drain systems, and impacts resulting from erosion.

The SWPPP shall include control measures during the construction period for:

- Soil Stabilization practices,
- Sediment control practices,
- Sediment tracking control practices,
- Wind erosion control practices, and
- Non-storm water management and waste management and disposal control practices.

After construction of the SDC, the site would be mostly paved with small landscaped areas. Stormwater would be managed on-site as required by applicable permits (discussed under **question 4.10 "a"** above). Thus, operation of the SDC and SBGF would not substantially alter the existing drainage pattern of the site.

As such, the SDC and the SBGF would not contribute substantial amounts of sediment to storm drain systems, and impacts resulting from erosion or siltation during construction would be less than significant. No mitigation is required.

II) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

Less than Significant. Once operational, the amount of surface runoff generated by both the SDC and the SBGF would not increase compared to existing conditions, in compliance with NPDES permit conditions and City regulations. Through the City's design review process and standard conditions of

approval, C1 would be required to develop an acceptable on-site stormwater management plan. With adherence to this plan, stormwater volumes from the site would not be increased. For this reason, the SDC would not contribute stormwater runoff which would exceed the capacity of the existing or planned stormwater drainage system, result in flooding on- or off-site, nor substantially degrade water quality. Therefore, the impact would be less than significant and would not require mitigation.

III) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Or

Less than Significant. See response to **question 4.10 "a"** above. No mitigation is required.

IV) Impede or redirect flood flows?

No Impact. According to the Flood Insurance Rate Map generated by FEMA, the site, including both the SDC and SBGF, is not located in a 100-year flood zone (**Figure 8**). Because the site is not located within a flood hazard zone, the SDC and the SBGF would not introduce any structures that would impede or redirect flood flows. Therefore, no impact would occur.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Less than Significant. According to the Flood Insurance Rate Map generated by the FEMA, the site is not located within a 100-year flood zone (**Figure 8**). The site is also not located in an area prone to tsunamis according to the California Department of Conservation.[14] Additionally, the site is not susceptible to impacts resulting from seiche because of its distance from any large bodies of water. The low-level risk of inundation from dam failure is being managed by the Valley Water Dam Safety Program, and the SDC and the SBGF would not reasonably increase this existing risk. Therefore, this impact would be less-than-significant. No mitigation is required.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant. This analysis considers both the SDC and the SBGF elements of the project. The Santa Clara Watershed Action Plan (Watershed Action Plan) is part of the Santa Clara Basin Watershed Management Initiative and establishes goals for water quality control within the City. The Watershed Action Plan identifies filtering urban water through pervious surfaces as a means of reducing water quality impacts from urban runoff.[15] As mentioned above under **question 4.10 "a",** the SDC would include pervious bioretention areas in accordance with the City's LID requirements to

[14]California Department of Conservation. 2019. *Santa Clara County Tsunami Inundation Maps*. July, 2019.
[15] Valley Water. 2018. Santa Clara Basin Watershed Management Initiative. *Watershed Action Plan.* August 2003. Available: http://www.scbwmi.org/PDFs/Watershed_Action_Plan.pdf. Accessed: July, 2019.

treat runoff at the site. Thus, the SDC and SBGF would not conflict with or obstruct implementation of a water quality control plan.

As mentioned above under "**Groundwater**" the Groundwater Management Plan references compliance with the NPDES MRP as the primary means of protecting groundwater supplies from the adverse effects of stormwater runoff. As discussed, the SDC will comply with the NPDES MRP; therefore, the SDC and SBGF will not impede sustainable groundwater management by interfering substantially with groundwater quality. The SDC would require water use consistent for an industrial use, and its landscaping would utilize drought-tolerant plants. The SDC and SBGF would not conflict with or obstruct implementation of a sustainable groundwater management plan. Therefore, this impact would be less than significant. No mitigation is required.

4.11 Land Use and Planning

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

The SDC site is in a developed area with industrial and commercial uses. Surrounding land uses consist of commercial and industrial operations including: SJC, rental car agency, automotive repair shops, a forklift repair shop, a workplace consulting firm, a catering service, a construction company, a furniture warehouse, a paved memorial, a pool supply store, and a multi-tenant building that includes a company selling electrical equipment. Most of the SDC site is unpaved ground except for small landscaped areas that occur at the perimeter of the site.

The SDC site is in the central part of the City, just south of US-101. Land use designations surrounding the SDC site consist of heavy and light industrial uses. The SDC site is zoned Heavy Industrial (MH). There are no residential uses in the immediate vicinity of the site. Surrounding development consists of one- to two-story office and industrial buildings to the north, south, and west with associated surface parking lots. SJC is immediately to the east across De La Cruz Boulevard.

Enterprise Rent-A-Car and an associated parking lot are located immediately north of the site while One Workplace (an office furniture store) and Polini's Forklift Repair are located immediately south. Bay 2 Bay Office Solutions (a used office furniture store), Lee Industrial Catering, and Service King Collisions Repair occupy the two lots immediately west of the site, across a set of railroad tracks.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building, housing computer servers and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event a power outage. This discussion considers the impacts associated with both of these project components holistically.

a) Would the project physically divide an established community?

No Impact. The SDC site is within a developed area of industrial uses adjacent to SJC. The SDC site is accessible from public roadways and would remain accessible from public roads after the SDC and SBGF are constructed. The SDC would not introduce new infrastructure or other physical elements that could limit accessibility within or outside of the SDC site vicinity. Improvements would be limited to the SDC site. The SDC design is consistent with the pattern of surrounding land uses and would not physically divide an established community. No impact would occur.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant. The General Plan land use designation for the site is heavy industrial. This classification is intended to accommodate a range of heavy industrial uses, including manufacturing, processing, assembling, storage, and wholesale uses. Data centers are a permitted use in the heavy industrial land use designation.

The SDC site zoning is also heavy industrial. This zoning designation is intended to encourage heavy industrial development in the City by providing and protecting an environment exclusively for such development, subject to regulations necessary to ensure the purity of the air and the waters in the Bay Area, and the protection of nearby uses of the land from hazards, noise, or other radiated disturbances. The permissible uses include (but are not limited to) manufacturing, processing, assembling, research, wholesale, storage use, railroad yards, freight stations, public utility, and public service uses. The City has approved data centers as a use consistent with the MH zoning designation.

The SDC would have a floor area ratio (FAR) of 0.97, which would exceed the maximum FAR allowed under the MH designation of 0.45. However, such exceedances are commonly approved for data centers because FAR limits are established to limit vehicle trip generation, and data centers tend to generate relatively few trips. Thus, exceedance of the maximum FAR would not result in a land use or zoning conflict which would cause an environmental impact.

The maximum allowable building height in the MH zone is 70 feet (SCMC Section 18.50.070). The proposed SDC would have a maximum building height of 85 feet including parapets, and a height of 80 feet excluding parapets. Section 18.90.020 of the SCMC allows for the zoning administrator to

permit minor modifications to building height, given that the increase in height is not greater than 25 percent of the standard. In this case, with a height standard of 70 feet, an increase of up to 17.5 feet can be approved by the zoning administrator. This allows for a building height of up to 87.45 feet. Further, a height increase from 70 feet to 85 feet is not reasonably anticipated, in and of itself, to result in an adverse impact to the physical environment.

The site is separated from SJC by De La Cruz Boulevard, and the site boundary is approximately 100 feet west of SJC. The SDC site is within the AIA established by the CLUP. The SDC and SBGF are thus subject to policies identified by the CLUP. See **Section 4.9, Hazards and Hazardous Materials** for further discussion of CLUP compliance.

The site is not subject to any adopted habitat conservation plans or natural community conservation plans as discussed in **Section 4.4, Biological Resources**. Thus, the SDC and SBGF would be consistent with the land use and zoning of the project site, and this impact would be less than significant.

4.12 Mineral Resources

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

The General Plan states that there are no significant mineral resources located within the City. The SDC site is not mapped as a mineral resource zone by the California Geological Survey in their Mineral Land Classification mapping system.[2]

Impact Discussion

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

and

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. There are no significant mineral resources located within the City. Therefore, the SDC and the SBGF would not have an impact to mineral resources of value to the region or residents of the state. No impact to mineral resources would occur.

[2]California Department of Conservation. 2019. *DOC Maps: Mines and Mineral* Resources. Accessible at: https://maps.conservation.ca.gov/mineralresources/

4.13 Noise

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

This discussion is based on a Noise Study conducted by Rincon Consultants in August 2019, which is included as **Appendix N**.

Regulatory Setting

City of Santa Clara General Plan

The General Plan contains goals and policies that are designed to control noise within the city. In addition, the General Plan identifies noise and land use compatibility standards for various land uses. **Table 4.13-1** includes acceptable noise levels outlined in the General Plan. Industrial land uses are considered compatible in noise environments of 73 day-night average level (DNL)/community noise

equivalent level (CNEL) or less.[2] The guidelines state that where the exterior noise levels are greater than 73 DNL/CNEL and less than 83 DNL/CNEL, the design of a project should include measures to reduce noise to acceptable levels.

Table 4.13-1 General Plan Noise and Land Use Compatibility Standards

Land Use	Compatible (DNL/CNEL)	Require Design Standard (DNL/CNEL)[1]	Incompatible (DNL/CNEL)[2]
Residential	<57	58-73	>73
Educational	<57	58-73	>73
Recreational	<67	68-77	>77
Commercial	<67	68-77	>77
Industrial	<73	73-83	>83
Open Space	<85	N/A	N/A

[1]Requires design standard and insulation to reduce noise levels
[2]Avoid land use except when entirely indoors and an interior level of 45 DNL can be maintained N/A = no applicable noise standard
Source: Santa Clara, 2010

The General Plan also establishes the following goals and policies that are relevant to the SDC and SBGF:

Goal 5.10.6-G1. Noise sources restricted to minimize impacts in the community.

Goal 5.10.6-G2. Sensitive uses protected from noise intrusion.

Goal 5.10.6-G3. Land use, development and design approval that take noise levels into consideration.

Policy 5.10.6-P1. Review all land use development proposal for consistency with the General Plan compatibility standards and acceptable noise exposure levels defined on Table 5.10-1.

Policy 5.10.6-P2. Incorporate noise attenuation measures for all projects that have noise exposure levels greater than General Plan "normally acceptable" levels, as defined on Table 5.10-1.

Policy 5.10.6-P3. New development should include noise control techniques to reduce noise to acceptable levels, including site layout (setbacks, separation and shielding), building treatments (mechanical ventilation system, sound-rated windows, solid core doors and baffling) and structural measures (earthen berms and sound walls).

[2] Community noise is usually measured using day-night average level (DNL), which is the 24-hour average noise level with a +10-dBA penalty for noise occurring during nighttime hours (10:00 p.m. to 7:00 a.m.). Community noise can also be measured using community noise equivalent level (CNEL), which is the 24-hour average noise level with a +5-dBA penalty for noise occurring from 7:00 p.m. to 10:00 p.m. and a +10 dBA penalty for noise occurring from 10:00 p.m. to 7:00 a.m. Noise levels described by DNL and CNEL usually differ by about 1 dBA.

Policy 5.10.6-P4. Encourage the control of noise at the source through site design, building design, landscaping, hours of operation and other techniques.

Policy 5.10.6-P6. Discourage noise sensitive uses, such as residences, hospitals, schools, libraries, and rest homes, from areas with high noise levels, and discourage high noise generating uses from areas adjacent to sensitive uses.

Policy 5.10.6-P7. Implement measures to reduce interior noise levels and restrict outdoor activities in areas subject to aircraft noise in order to make Office/Research and Development uses compatible with the Norman Y. Mineta International Airport land use restrictions.

City of Santa Clara Municipal Code

The City's noise ordinance is codified in Chapter 9.10, Regulation of Noise and Vibration, of the SCMC. The noise ordinance requires protection from unnecessary, excessive, and unreasonable noise or vibration from fixed sources in the community. Applicable provisions of the City's noise ordinance are discussed below.

SCMC Section 9.10.40 limits exterior noise levels at residences to 55 dBA during daytime hours of 7:00 a.m. to 10:00 p.m. and 50 dBA during nighttime hours of 10:00 p.m. to 7:00 a.m.; noise levels at commercial uses to 65 dBA during daytime hours and 60 dBA during nighttime hours; noise levels at light industrial uses to 70 dBA at any time; and noise levels to 75 dBA at heavy industrial uses at any time. These noise levels are not applicable to emergency work; licensed outdoor events; City-owned electric, water, and sewer utility systems; construction activities occurring within allowable hours; permitted fireworks displays; or permitted heliports.

Section 9.10.230 of the SCMC states that construction activities are not permitted within 300 feet of residentially zoned property except within the hours of 7:00 a.m. and 6:00 p.m. on weekdays and 9:00 a.m. and 6:00 p.m. on Saturdays.

SCCM Section 9.10.050 provides vibration standards and states that, "it shall be unlawful for any person to operate or cause, permit, or allow the operation of, any fixed source of vibration of disturbing, excessive, or offensive vibration on property owned, leased, occupied, or otherwise controlled by such person, such that the vibration originating from such source is above the vibration perception threshold of an individual at the closest property line point to the vibration source on the real property affected by the vibration."

Environmental Setting

Overview of Sound Measurement

Sound is a vibratory disturbance created by a moving or vibrating source, which is capable of being detected by the hearing organs (e.g., the human ear). Noise is defined as sound that is loud, unpleasant, unexpected, or undesired and may therefore be classified as a more specific group of sounds. The effects of noise on people can include general annoyance, interference with speech communication, sleep disturbance, and, in the extreme, hearing impairment. Noise that occurs at night tends to be more disturbing than that occurring during the day.

Noise levels are commonly measured in decibels (dB) using the A-weighted sound pressure level (dBA). The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. dB are measured on a logarithmic scale. This means that a doubling of the energy of a noise source, such as a doubling of traffic volume, would increase the noise level by 3 dB; similarly, dividing the energy in half would result in a decrease of 3 dB.

One of the most frequently used noise metrics is the equivalent noise level (Leq); it considers both duration and sound power level. Leq is defined as the single steady A-weighted level equivalent to the same amount of energy as that contained in the actual fluctuating levels over a defined period of time. Typically, Leq is summed over a one-hour period.

Human perception of sound is not linear in terms of dBA or in terms of sound energy. Two sources of noise added together do not “sound twice as loud” as one source. It is widely accepted that the average healthy ear can barely perceive an increase (or decrease) of up to 3 dBA in noise levels; that a change of 5 dBA is readily perceptible; and that an increase of 10 dBA sounds twice as loud.

Sound dissipates as the observer moves farther away from the noise source. The manner by which noise reduces with distance depends on factors such as the type of noise source (e.g., point or line), the path the sound will travel, site conditions, and obstructions. Noise levels may be reduced by intervening structures; the amount of attenuation provided by this shielding depends on the size of the object and the frequencies of the noise levels. Natural terrain features, such as hills and dense woods, and man-made features, such as buildings and walls, can significantly alter noise levels. Generally, a large structure blocking the line of sight will provide at least a 5-dBA reduction in noise levels at the receiver. Structures can substantially reduce occupants’ exposure to noise as well. The Federal Highway Administration (FHWA) guidelines indicate that modern building construction generally provides an exterior-to-interior noise level reduction of 20 to 35 dBA with closed windows.

Vibration

The type of vibration considered in environmental analysis consists of waves that move from a source through the ground to adjacent structures. This is called groundborne vibration. The number of wave cycles per second makes up the vibration frequency, described in terms of hertz (Hz). The frequency of a vibrating object describes how rapidly it vibrates. The normal frequency range of most groundborne vibration that can be felt by the human body is 1 Hz to 200 Hz.

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations diminish much more rapidly than low frequencies, so low frequencies tend to dominate the spectrum at large distances from the source.

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. The PPV and RMS velocity are normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal. PPV is often used in monitoring of construction vibration because it is related to the stress experienced by buildings as a result of vibration.

Although PPV is appropriate for evaluating the potential for building damage, it is not suitable for evaluating human response. The human body responds to average vibration amplitude, which is measured as RMS or vibration decibels (VdB). As with airborne sound, the RMS velocity is often expressed in decibel notation as VdB, which serves to compress the range of numbers required to describe vibration. Therefore, this analysis measures vibration impacts in terms of VdB. Vibration significance ranges from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, the general threshold where minor damage can occur in fragile buildings.

Sensitive Receivers

Not all land uses are equally sensitive to noise. Some settings, such as homes or schools, require a quieter environment. The City's General Plan Noise Element identifies noise-sensitive land uses as residences, hospitals, schools, libraries, and rest homes.

Project Noise Setting

The most prevalent source of noise in the SDC site vicinity is vehicular traffic on De La Cruz Boulevard and Martin Avenue, and noise from SCJ. Additionally, the railroad tracks located adjacent to the SDC site to the west result in noise from passing trains. Ambient noise levels are generally highest during the daytime and rush hours unless congestion substantially slows speeds, which tends to reduce ambient noise levels.

The SDC site is predominantly surrounded by commercial land uses, however the adjacent land use designation is heavy industrial and the parcels are zoned heavy industrial. The nearest noise-sensitive land uses (as defined in the General Plan) are single family residences located 0.7 mile to the south. To characterize ambient sound levels at and near the SDC site, two 15-minute sound level measurements were conducted on Wednesday, July 3, 2019 during the morning between 10:07 a.m. and 10:47 a.m. **Table 4.13-2** summarizes the results of the noise measurements and **Figure 9** shows the noise measurement locations.

Noise Measurement 1 captured ambient noise on the eastern boundary of the SDC site along De La Cruz Boulevard. This noise measurement also characterizes noise from the SJC east of the SDC site. Noise Measurement 2 measures ambient noise on the southern portion of the project site along Martin Avenue; the primary noise source at this location is vehicular traffic on Martin Avenue.

Methodology

Construction Noise

Construction noise was estimated using the FHWA Roadway Construction Noise Model (RCNM). RCNM predicts construction noise levels for a variety of construction operations based on empirical data and the application of acoustical formulas. Using RCNM, construction noise levels were estimated at noise-sensitive receivers near the SDC site. RCNM provides reference noise levels for standard construction equipment, with an attenuation of 6 dBA per doubling of distance for stationary equipment.

Each phase of construction has a specific equipment mix, depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some may have high-impact noise levels. The maximum hourly Leq of each phase is determined by combining the Leq contributions from each piece of equipment used in that phase. In typical construction projects, grading activities generate the highest noise levels because grading involves the largest equipment and covers the greatest area. Typical heavy construction equipment during SDC grading could include dozers, excavators, loaders, and dump trucks.

Noise Measurement Locations Figure 9

Source: Rincon, 2019

SDC construction is estimated to occur from February 2020 to March 2021. Construction phases would include site preparation, grading, paving, and utility installation, followed by building construction. Construction would not require blasting or pile driving. It is assumed that diesel engines would power all construction equipment. For assessment purposes, and to be conservative, the maximum hourly noise level that would occur during of all phases of construction activities has been used for assessment. In addition, construction equipment would not be in constant use during the 8-hour operating day.

A potential construction scenario includes a loader, excavator, and a dump truck working to grade the site. Therefore, a loader, excavator, and dump truck were analyzed together for construction noise impacts due to their likelihood of being used in conjunction at the same time. At 50 feet, a loader, excavator, and dump truck would generate a noise level of 79.9 dBA Leq. Due to the dynamic nature of construction, maximum hourly noise levels were calculated from the center of the site. Construction noise levels were evaluated at the nearest residential receivers, 0.7 mile south of the site.

Table 4.13-2 Summary of Short-Term Noise Measurements (dBA)

#	Measurement Location	Sample Times	Approximate Distance to Primary Noise Source	L_{eq} (dBA)
1	Eastern boundary of the SDC site along De La Cruz Boulevard	10:07 – 10:22 a.m.	50 feet from centerline of De La Cruz Boulevard	65.4
2	Southern portion of the SDC site along Martin Avenue	10:32 – 10:47 a.m.	45 feet from centerline of Martin Avenue	70.6

Source: Rincon, 2019

Mechanical Equipment

Mechanical equipment for the SDC would be located on the building roof and would include 52 air chillers, three exhaust fans, and five dedicated outdoor air systems (DOAS). Rooftop equipment would prevent overheating of server equipment housed inside the SDC building. Three different types of Cook exhaust fans would be placed on the roof. Noise levels from the exhaust fans would be 59 dBA at three feet, 58 dBA at three feet, and 75 dBA at three feet.

Five DOAS units would be placed on the southeastern side of the SDC roof. Each DOAS unit would include six fans and would have a specific noise level that corresponds to the model number (see **Appendix N** for DOAS equipment specifications). Noise levels from two DOAS fans would range from 94 to 104 dBA at three feet.

The 52 air chillers would be York chillers model YVFA0459. The chillers would include a low sound kit to reduce noise and high airflow fans with variable speed control. This analysis conservatively assumes that the chillers would be running with a 100 percent load factor 24-hours a day. These conditions would only occur on the hottest design day and assuming that the entire SDC building is housing servers that

are using electricity at the maximum design for the building. At this infrequent and conservative scenario, the sound power level for the chillers with a 100 percent load would range from 98 to 112 depending on the actual ambient air conditions. Maximum temperatures in the City are approximately 90 degrees Fahrenheit. Therefore, the chillers would have a Sound Power Level of 112 or sound pressure level of 101 dBA at three feet for this conservative scenario on the hottest design day. On an average day the chillers would operate with a load factor of 87 percent which would reduce noise levels by approximately 1 dBA. However, this analysis conservatively assumes a 100 percent load factor 24 hours a day.

It is important to note that while the SDC has been designed to accommodate full Critical IT load on the hottest design day, it is C1's experience that clients rarely utilize the entire Critical IT load available inside a data hall(s) that it rents. Also, the average ambient temperature conditions for a data center in the City area are much lower than the design day. The average Critical IT load is expected to be more on the order of 47 MW and the average total mechanical building load is expected to be approximately 11 MW.

Backup Generator Noise

The SBGF would include 54 backup generators on the site. Each backup generator would result in a noise level of 98.7 dBA at 23 feet without any noise enclosures. C1 has committed to only performing maintenance testing on one backup generator at a time, as described in **Section 2, Project Description**.

Delivery and Trash Hauling Trucks

Operation of the SDC would include delivery and trash hauling trucks going to and from the SDC site. Trucks would enter the SDC site via Martin Avenue to load and unload materials. A loading dock screened by a concrete wall is located at the southeast corner of the proposed SDC building.

Offsite Traffic Noise

The SDC would generate vehicle trips, thereby increasing traffic on area roadways. To determine the traffic noise from the SDC, SDC traffic counts were estimated using ITE trip generation manual rates (9th edition). The ITE trip rate for a data center is 0.99 weekday trips for every thousand square feet. The SDC would be 702,114 square feet and result in 695 average daily trips. It was assumed that all SDC trips would use De La Cruz Boulevard where the main access to the SDC site would be located. Assuming peak hour is 10 percent of daily traffic, the SDC's estimated peak hour traffic would be approximately 70 vehicles.

Groundborne Vibration

Operation of the SDC would not include substantial vibration sources. Thus, construction activities associated with the SDC have the greatest potential to generate groundborne vibration affecting nearby receivers, especially during grading and paving of the site. Neither blasting nor pile driving would be required for construction of the SDC or SBGF.

A quantitative assessment of potential vibration impacts from construction activities, such as vibratory compaction, drilling, or excavation, was conducted. The vibration level threshold at which transient vibration sources (such as construction equipment) are distinctly perceptible is 0.24 in./sec. PPV. This is roughly equivalent to 94 VdB. This analysis uses the distinctly perceptible threshold for purposes of assessing vibration impacts for consistency with the City's perception threshold.

Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors and the vibration level threshold for human perception is assessed at occupied structures. Therefore, vibration impacts are assessed based on anticipated vibration levels at adjacent structures surrounding the SDC site.

Significance Thresholds

Construction Noise

Because the City has not adopted a numerical threshold to determine the significance of construction noise impacts, the construction noise would be significant if it exceeds the Federal Transit Administration criterion of 80 dBA Leq for an 8-hour period. Section 9.10.230 of the SCMC does not apply to the SDC because the nearest residences are over half a mile away.

On-site Operational Noise

On-site operational noise from the proposed rooftop equipment and delivery trucks would be considered significant if noise levels exceed the City's noise standards established in Section 9.10.40 of the SCMC. Because the SDC site is surrounded by heavy industrial uses, for the purpose of this analysis a significant impact would occur if on-site operational noise exceeds 75 dBA at any time at surrounding land uses.

Offsite Traffic Noise

For traffic-related noise, impacts would be considered significant if SDC-generated traffic would result in exposure of sensitive receivers to an unacceptable increase in noise levels. For purposes of this analysis, a significant impact would occur if SDC-related traffic increases the ambient noise environment of noise-sensitive locations by 3 dB or more where the ambient noise level is 67 DNL/CNEL or greater. In addition, a significant impact would also occur if SDC-related traffic increases the ambient noise environment of noise-sensitive locations by 5 dB or more regardless of the ambient noise level.

Construction Vibration

SCMC Section 9.10.050 states that there would be a significant vibration impact if vibration is perceptible at the closest property line from the vibration source. This would occur if the SDC and the SBGF would subject adjacent land uses to construction-related ground-borne vibration that exceeds the distinctly perceptible vibration annoyance potential criteria for human receivers of 94 VdB (equivalent to 0.24 in./sec. PPV).

Airport Noise

Given that the SDC site is in the vicinity of SJC and in an area covered by an airport land use plan, significant impact would occur if the SDC and the SBGF expose people residing or working in the SDC site vicinity to excessive noise levels.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant (Measures Incorporated into the Project). As described below, based on measures incorporated into the project, construction and operational noise from the SDC and SBGF would not result in substantial noise increases in excess of established standards.

Construction

Over the course of a typical construction day, construction equipment would be approximately 0.7 mile from the nearest residential structures to the south. Due to the nature of construction, where equipment is mobile throughout the day, the precise distance between construction equipment and the closest sensitive receptors would vary within a small margin. This analysis uses a 0.7 mile distance to evaluate noise levels at the nearest receptors.

At 0.7 mile away, a loader, excavator, and dump truck would generate a noise level of 43.8 dBA Leq (8-hour. This combination of equipment represents the loudest phase of construction. Therefore, construction noise levels with this equipment would not exceed the Federal Transit Administration construction noise threshold of 80 dBA Leq (8-hour) at residential land uses. Other construction activities, such as building construction, would be anticipated to use equipment with a combined noise level less than the simultaneous use of a loader, excavator, and dump truck. Impacts would be less than significant.

Operational Noise

Mechanical Noise

Mechanical equipment would be approximately 100 feet from the adjacent property zoned heavy industrial and located on the roof of the proposed 85-foot SDC building. Therefore, equipment

would be located approximately 131 feet from the property line. In addition, the nearest sensitive receivers are located approximately 0.7 miles south of the SDC site.

Exhaust Fans

Exhaust fans would operate at 59 dBA, 58 dBA, and 75 dBA at 3 feet. Therefore, noise from all three exhaust fans would be 75.2 dBA at three feet. Therefore, exhaust fan noise would be approximately 42 dBA at the adjacent properties and 14 dBA at the nearest residential uses. Given the existing urban context, the 14-dBA sound level from the exhaust fans would not be readily perceptible or increase the ambient noise environment at residential uses.

DOAS Equipment

Each DOAS unit would include six fans, three fans pulling air in and three fans pushing air out of the proposed SDC building. Noise from all five DOAS units would be approximately 110 dBA at three feet. Therefore, the noise level produced by the DOAS units would be approximately 77 dBA at the adjacent properties and 48 dBA at nearest residential receptors. This number does not represent an increase over ambient noise levels, but rather the noise produced by the DOAS units alone.

Air Chillers

There would be 52 air chillers located on the SDC roof. If each chiller would produce a noise level of 101 dBA at 3 feet, the combined noise level would be approximately 85 dBA at adjacent properties and 57 dBA at the nearest residential receptors. This number does not represent an increase over ambient noise levels, but rather the noise produced by the chillers alone.

Overall Mechanical Noise

To determine the continuous operational noise level at adjacent areas zoned for industrial and residential uses, the sum of exhaust fans, DOAS equipment, and air chiller noise was calculated. The total continuous on-site operational noises are summarized in **Table 4.13-3**.

Regarding noise levels at residential receivers, the built environment between the SDC site and residences would provide a 4.5 dBA shielding attenuation for the first row of intervening buildings and a 1.5 dBA shielding attenuation for each subsequent row of intervening buildings. There are more than four rows of intervening buildings that would block the line of sight between the SDC site and the nearest sensitive receptors, which would reduce SDC rooftop noise by at least 9 dBA.[3] Therefore, noise levels at the nearest residences created by the SDC and the SBGF would not exceed the City's daytime or nighttime noise standards. Impacts at the nearest residential receivers would be less than significant.

[3]Building heights consider approximately 10 feet of elevation change.

Table 4.13-3 Operational Noise Levels and Significance Thresholds

Noise Source	Exterior Noise Level at Property line (dBa)	Exterior Noise Level at Residential Property Line (dBa)	Exterior Noise Level at Residential Property Line (dBa) with Attenuation from Built Environment*	Daytime Significance Threshold Heavy Industrial/ Residential (dBa)	Nighttime Significance Threshold Heavy Industrial/Residential (dBa)	Exceed Threshold? Heavy Industrial /Residential
Exhaust Fans	42	14	5	75/55	75/50	No/No
DOAS Equipment	77	48	39	75/55	75/50	Yes/No
Air Chillers	85	57	48	75/55	75/50	Yes/No
Total Operational Noise	**85.6**	57.5	48.5	75/55	75/50	Yes/No

Source: Rincon 2019

As shown in **Table 4.13-3s**, operational activities would generate an exterior noise level of approximately 86 dBA at the adjacent property (Heavy Industrial zoning) and 58 dBA at the nearest residential property. Total operational noise would exceed the City's exterior noise standard of 75 dBA at the adjacent property line. Impacts at the adjacent property would be potentially significant and would require noise reduction measures such as rooftop screening and/or noise reduction wraps.

As described in **Section 2, Project Description**, the applicant has incorporated measures into the SDC design to ensure the appropriate noise reduction is achieved. With implementation of this measure, which requires the preparation of a design-level acoustical analysis for and implementation of recommendation in the analysis, exterior noise levels would not exceed the City's standards at adjacent land uses and the impact would be less than significant. These measures are repeated below:

> The applicant shall complete a design level acoustical analysis and include appropriate site and building design, building construction, and noise attenuation techniques to ensure that the SDC's rooftop mechanical equipment meets the City's applicable exterior noise standard at the adjacent land uses. A qualified acoustical consultant shall review the final site plan, building elevations, and roof plan prior to issuance of a building permit to calculate the expected exterior noise levels at nearby land uses and require appropriate noise shielding. The applicant shall implement all recommendations of the acoustical analysis, which may include but not be limited to rooftop screening and/or acoustical wraps. In addition to the noise attenuation techniques that may be identified in the design level acoustical analysis, C1 shall consider the following

potential feasible measures that are capable of meeting the City's applicable noise performance standard:

> In the realm of physical acoustical screening (like a noise wall), the use of a Perforated Fiberglass Sound-Absorptive Noise Barrier System would allow for a lightweight screening. This solution would provide efficient performance, as the wall system contains no gaps due to its tongue-and-groove design in 12-inch wide segments. This material features a noise reduction coefficient (NRC) rating of 1.05 and sound transmission class (STC) rating of 35. This results in a noise reduction of up to 25 dBA. For application at the SDC, screening would be provided at the perimeter of the rooftop platforms surrounding the air-cooled chillers. The screening walls would be approximately 8 feet high to align with the top of the chiller units.
>
> Noise attenuation wraps for air cooled chillers can be used to produce noise reductions of 4 dBA to about 10 dBA. HUSH COVER™ removable sound blankets attenuate overall decibels and some tonal frequencies. Each chiller would be fitted with the HUSH CORE screw chiller noise reduction system or equal. The chiller noise reduction system to be applied to the suction and discharge piping, compressor housing, and oil separators would be a removable blanket insulation with Velcro flaps. The insulation mass shall be 3 pounds per square foot and shall be applied with 100 percent coverage. The noise reduction product shall be furnished and installed by the manufacturer.

Delivery and Haul Truck Noise

Operation of the SDC would include delivery and trash hauling trucks going to and from the SDC site. The California Motor Vehicle Code establishes maximum sound levels for trucks operating at speeds less than 35 miles per hour of 86 dBA Leq at 50 feet. In the absence of any noise barrier, noise from trash hauling and deliveries could be audible at adjacent uses. However, trash hauling is an existing activity that occurs on local streets in the SDC site vicinity. Trash hauling and delivery trucks would not be audible at the closest sensitive receivers, single family residences approximately 0.7 mile south of the SDC site, based on typical sound attenuation rates, as well as sound barriers such as existing buildings. Delivery and trash truck trips to the site would be a periodic source of operational noise but would not substantially increase ambient noise levels at adjacent uses, or at the nearest sensitive receivers. Impacts would be less than significant.

Backup Generator Noise

The SBGF would include 54 backup generators for use during an emergency when electricity cannot be supplied by SVP. Section 9.10.070(a) of the SCMC exempts noise for emergency work, including the operation of emergency generators necessary to provide services. Aside from emergency operation, maintenance testing of each backup generator would occur no more than 50 hours

annually per BAAQMD permit conditions. Operation of one backup generator would result in a noise level of 55 dBA at residences approximately 0.7 mile south of the proposed backup generator location. However, the backup generators would be equipped with acoustical enclosures designed to reduce noise levels by 15 dBA at 23 feet from the source. Noise levels would therefore be reduced to 40 dBA at the nearest residences. Backup generator noise levels would be further reduced at the nearest residences due to shielding from intervening buildings. Intervening buildings provide a shielding attenuation of 4.5 dBA for the first row of intervening buildings and a 1.5 dBA shielding attenuation for each subsequent row of intervening buildings. There are more than four rows of intervening buildings that would block the line of sight between the SDC site and the nearest sensitive receptors, which would reduce backup generator noise by at least 9 dBA to approximately 31 dBA at the nearest receivers, thereby meeting the City's noise requirements.

Therefore, temporary noise from operation of the backup generators would be exempt from noise standards provided in the SCMC and backup generators would not exceed City noise standards at the nearest receivers. Impacts would be less than significant.

Off-Site Traffic Noise

The SDC would generate new vehicle trips that would use area roadways. A one-hour equivalent traffic volume observed during the site visit was 528 vehicles on De La Cruz Boulevard. As estimated above, the SDC would generate approximately 70 vehicle trips during the peak hour on De La Cruz Avenue. A general rule of thumb is that a doubling of traffic would increase noise levels by 3 dBA, which would be considered a significant impact. The SDC's vehicle trips would increase traffic by approximately 13 percent, which would result in a less than 1 dBA increase. Therefore, off site traffic noise increases from the SDC and the SBGF would be less than significant.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant. Construction activities known to generate excessive ground-borne vibration, such as pile driving, would not be required for SDC or SBGF construction. The greatest anticipated source of vibration during general construction activities would be from a vibratory roller, which may be used during paving of the parking lot. This piece of equipment may be used within 25 feet of the nearest property line. A vibratory roller would create approximately 0.210 in./sec. PPV at 25 feet. This would be lower than what is considered a distinctly perceptible impact for humans of 0.24 in./sec. PPV (94 VdB). Therefore, temporary impacts associated with the roller (and other potential equipment) would be less than significant. Operation of the SDC would not include substantial vibration sources. Therefore, operational vibration impacts from the SDC and the SBGF would be less than significant.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant (Measures Incorporated into the Project). SJC is located east of the SDC site across De La Cruz Boulevard. The eastern half of the SDC site is within the airport's 65 dBA noise contour. However, the SDC would not place sensitive land uses within the airport noise contour. The CLUP's generally acceptable noise level for land use compatibility in the western half of the SDC site is 70 dBA. With mitigation incorporated into the project, as described above, operation of the SDC would result in noise levels consistent with this standard, and the impact would be less than significant. The SDC and SBGF and would be compatible with policies outlined in the CLUP. Specifically, the proposed building would be 85 feet tall and thus would not exceed the height restrictions identified in Section 3 the CLUP. See **Section 4.9, Hazards and Hazardous Materials** for a detailed discussion of airport hazards. The SDC site is not in proximity to a private airport. Therefore, the SDC and the SBGF would not expose people residing or working in the SDC site vicinity to excessive noise levels from private airport noise.

4.14 Population and Housing

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

A jobs-to-housing ratio is generated by dividing the number of jobs in a city by the number of housing units in the same city. A balance between jobs and housing can help to alleviate issues such as congestion and transportation-related environmental impacts by allowing people to work closer to their homes. Given the high cost of housing in California and in the Bay Area in particular, most households require more than one wage-earner to afford housing in the region. The jobs-to-housing ratio in the City was estimated at 2.50 in 2010 and is projected to slightly decrease to 2.48 by 2040.[2]

Existing land uses are often used as the basis growth projections within cities and regions. Growth projections include predictions of future population, employees, and housing units over time. Construction of large employment centers can induce population growth by enticing new employees to move from other locales. Population growth can also be induced through the creation of large housing developments. In either case, rapid growth can disturb the jobs-housing balance of a city to create an imbalance and produce environmental impacts by increasing demand for services and infrastructure.

[2] Association of Bay Area Governments. 2017. *Bay Area Plan 2040 – Final Supplemental Report*. Available: http://2040.planbayarea.org/sites/default/files/2017-07/Regional%20Forecast%20Supplemental%20%20Report_Final_7-2017_0.pdf. Accessed: July, 2019.

The City's growth is planned for through the General Plan and through the Plan Bay Area 2040, a long-range regional plan that identifies land-use strategies to enable more economically sustainable growth and development.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building, housing computer servers and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event a power outage. This discussion considers the impacts associated with both of these project components holistically.

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than Significant. The SDC and SBGF would be industrial uses, and the SDC project does not include the construction of residential units. The proposed use is permitted under the existing zoning and land use designation and is therefore consistent with the General Plan and other long-range growth assumptions such as those incorporated into Plan Bay Area 2040. The SDC is expected to require up to 25 employees onsite at any given time. The number of employees proposed for the SDC is considerably less than employment at the site from the prior uses the SDC replaces. The SBGF would not require dedicated employees separate from the SDC. This would not result in a substantial increase in employment such that population growth could be induced indirectly. No mitigation is required.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The SDC site does not contain housing; therefore, the SDC and SBGF would not displace individuals or residents, necessitating the construction of replacement housing elsewhere. No impact would occur.

4.15 Public Services

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☒	☐
ii) Police protection?	☐	☐	☒	☐
iii) Schools?	☐	☐	☒	☐
iv) Parks?	☐	☐	☒	☐
v) Other public facilities?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

The information below was compiled through consultation with public service providers and research of publicly available emergency service data. Although future employees may relocate to the City in order to work at the SDC, it is considered more likely that local employees would be recruited. Regardless, this discussion assumes data center employees to be net new in order to present a conservative analysis.

Regulatory Setting

Fire protection

Fire protection services for the SDC site are provided by the Santa Clara Fire Department (SCFD) which comprises 180 personnel and 10 fire stations.[1] The closest fire station to the SDC site is Station 2 located at 1900 Walsh Avenue, 1.3 miles east of the SDC site.

Police protection

Police service to the SDC site is provided by the Santa Clara Police Department (SCPD) which operates from its headquarters at 601 El Camino Real, 5.6 miles west of the SDC site, and the Northside Police Substation at 3992 Rivermark Parkway, 2.2 miles north of the SDC site. The SCPD has 159 sworn officers, 80 support personnel and a varying number of part-time or per diem employees, volunteers and Police Reserves.[2] In 2018, the SCPD received approximately 58,912 police calls and 24,869 self-initiated calls for police service.

Schools

According to the General Plan, six public school districts serve the City. These are: Santa Clara Unified School District, San Jose Unified School District, Cupertino Union School District, Fremont Union High School District, Campbell Union School District, and Campbell Union High School District.[3] The closest Santa Clara Unified School District schools to the SDC site are Bracher Elementary School, located at 2700 Chromite, and Scott Lane Elementary located at 1925 Scott Boulevard, 1 mile southwest and 0.70 mile south, respectively.[4] There are also private schools in the vicinity of the SDC, the closest being Nurse Builders Academy, located 0.5 miles south of the SDC site.

Parks

The Santa Clara Parks and Recreation Department (Department) provides parks and recreational services in the City. The Department maintains the various parks and recreation facilities and works cooperatively with public agencies to coordinate recreational activities at these facilities. As of July 2019, the Department maintains and operates a total of 38 parks throughout the City. Facilities include the Santa Clara Golf and Tennis Club, Community Recreation Center, Senior Center, Youth Activity Center, International Swim Center, Reed Street Dog Park, and Skate Park. Ulistac Natural Area, a 40-acre open space park on the former Fairway Glen golf course, opened in 2001. Counting the Golf and Tennis Club's 155 acres, the

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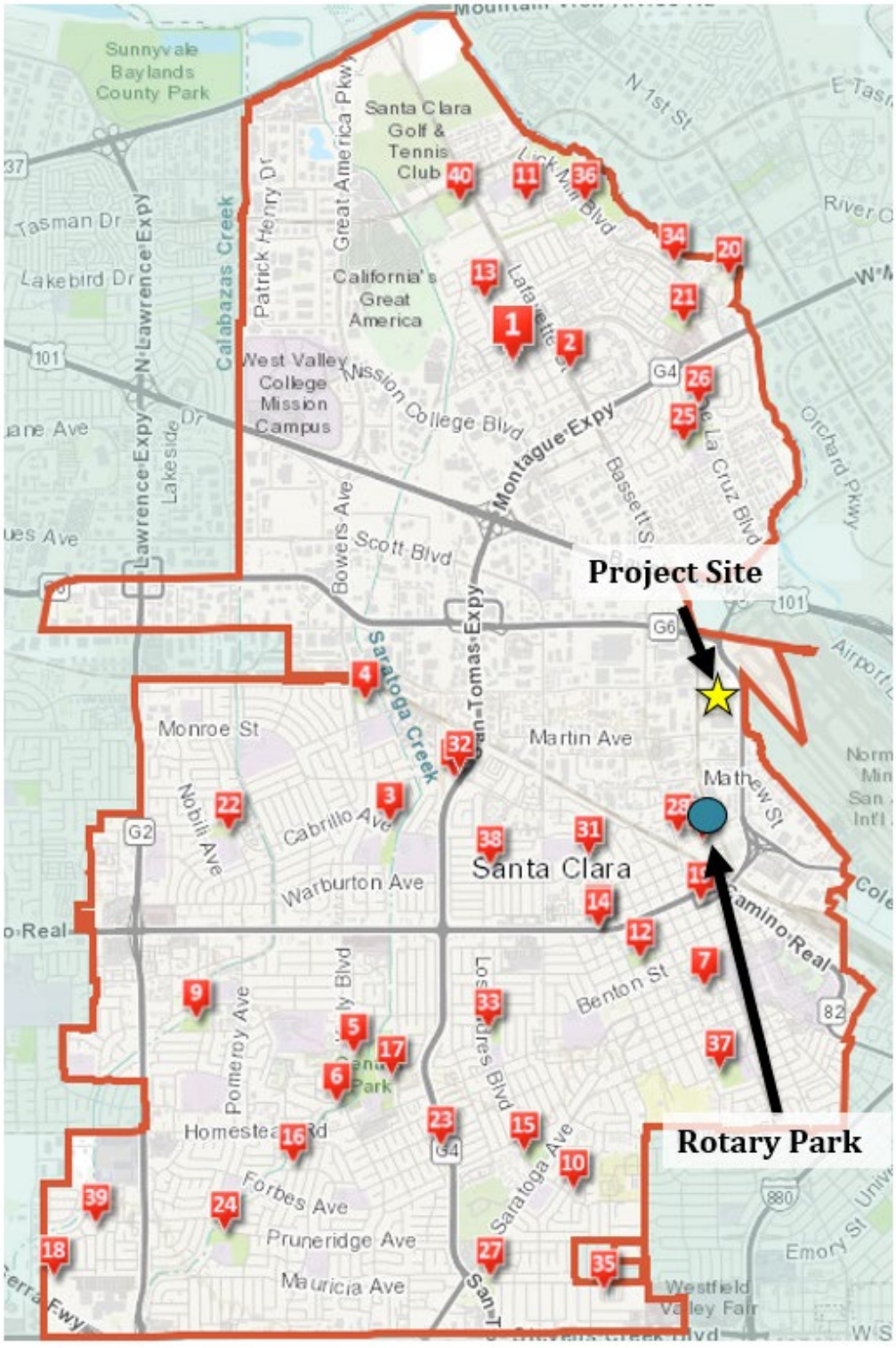
[1] Santa Clara Fire Department. 2019. *History of the Fire Department*. Available: http://santaclaraca.gov/government/departments/fire/about-us/history. Accessed: July 2019.
[2] Santa Clara Police Department. *About Us.* Available: http://santaclaraca.gov/government/departments/police-department/about-us. Accessed: July 2019.
[3] City of Santa Clara. 2010. Santa Clara 2010-2035 General Plan. 2010. *School Facilities and Information*. Available: http://santaclaraca.gov/home/showdocument?id=12895. Accessed: July 2019.

City's 38 parks, playgrounds and open space totals approximately 450 acres. As discussed in **Section 4.16, Recreation**, the closest neighborhood park to the SDC site is Rotary Park, which is 1.5 miles south-west of the SDC site (Figure 10).



City Parks and Pool Facilities Figure 10

Source: City of Santa Clara, 2019

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building, housing computer servers and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event a power outage. This discussion considers the impacts associated with both of these project components holistically.

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

i. Fire protection impacts?

and

ii. Police protection?

Less than Significant. Fire and police protection services are currently provided to the SDC site by the SCFD and SCPD. The project would be required to adhere to current fire codes to reduce potential fire hazards and would be consistent with appropriate safety standards to minimize criminal activity. SCFD would also review the SDC as part of the City's overall review and approval process, and any design changes or improvements requested by SCFD would be required to be implemented prior to construction. The SDC is consistent with the City's existing land use and zoning designations which are taken into consideration for long-term planning of fire protection and police protection.

Implementation of the SDC and SBGF would not create a substantially increased demand for police or fire services. The project would introduce approximately 25 full time employees to a currently vacant site. Because the SDC would not include housing or other uses that would induce substantial population growth in the area, the SDC would not increase demand on fire or police protection providers such that new facilities would be required. Therefore, this impact would be less than significant. No mitigation is required.

iii. Schools?

and

iv. Parks?

Less than Significant. The SDC would not include any residential uses. As stated in **Section 1, Introduction**, this analysis assumes that all data center employees (approximately 25, including 24-hour on-site security service) would be new to the City. However, this small net increase in the daily employee population in the City would not result in a substantial increase in usage of local recreational facilities. Although future employees might use City recreation facilities on breaks, this

use would be unlikely to place a major physical burden on existing parks. This is further described in **Section 4.16, Recreation**. Likewise, this small net increase in daily employee population would correspond to a negligible increase in school-aged children. Therefore, the SDC and SBGF would not have a significant impact on school or park facilities within the City. No mitigation is required.

v. Other public facilities?

No Impact. Open space and other public facilities such as libraries, are typically provided to serve residents within the City. Given the SDC has no residential component, implementation of the SDC and SBGF would not increase demand for open space or other public facilities. Therefore, there would be no impact to public facilities.

4.16 Recreation

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Environmental Setting

As discussed under **Section 4.14, Public Services**, the Department provides parks and recreational services throughout the City. The Department is responsible for maintaining and programming parks and recreation facilities and works cooperatively with public agencies in coordinating all recreational activities within the City. According to the City's map of parks and pool facilities around the City (**Figure 10**), the nearest general use public park to the project site is Rotary Park.

In evaluating whether a project may increase demand for recreational facilities, it is important to consider several factors. These include the distance between the project and nearby recreation facilities and the type of project. Parks and recreation facilities are most frequently used by residents of the area immediately surrounding the recreation site during their free time. While non-residential uses may generate some users of parks and recreation facilities, such as employees walking to a nearby park during a lunch break, this type of use is considered minor compared to broader use by residents.

Impact Discussion

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

OR

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than Significant. The SDC would not include any residential uses. It is estimated that a maximum of 25 full-time employees would occupy the building over each 24-hour period. The SDC would be staffed 24 hours a day, including security personnel. Although future employees might use City parks or trails briefly and intermittently, based on the distance between the SDC site and the closest public recreation areas, this is unlikely. However, if employees do travel to nearby parks and trails, this use would be unlikely to place a major physical burden on existing recreation areas and would not require the construction or expansion of recreational facilities. Therefore, the SDC and the SBGF would not have a significant impact on park facilities in the City. No mitigation is required.

4.17 Transportation

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

On September 27, 2013, Governor Brown signed SB 743. SB 743 required changes to the CEQA guidelines regarding the analysis of transportation impacts. These changes shifted the focus of transportation impact analysis away from vehicle delay (level of service, or LOS) and towards the reduction of GHG emissions. The 2019 CEQA Guidelines were revised to reflect this change, including Appendix G of the CEQA Guidelines. The Office of Planning and Research has issued several technical advisories on implementation of SB 743 which identify VMT as the most appropriate metric to evaluate a project's transportation impacts.

In December 2018, the 2019 CEQA Guidelines were adopted and are now in effect. Lead agencies are required to use the new CEQA Guidelines as of April 2019. Section 15064.3(b) of the 2019 CEQA Guidelines outlines appropriate criteria for evaluating transportation impacts and focuses on evaluation using VMT. For land use projects, the Guidelines allow for lead agencies to establish appropriate thresholds of significance for increases in VMT, and note that projects within 0.5-mile of an existing

major transit stop or a stop along a high quality transit corridor should be presumed to have a less-than-significant impact related to VMT. In addition to the April 2019 timeline, lead agencies have until July 1, 2020 to eliminate the use of LOS analysis in the evaluation of transportation impacts.

Local Plans

City

The General Plan identifies an overall goal of reducing VMT while creating a safe, efficient, and integrated transportation system. The General Plan policies relating to transportation include expanding public transit systems, creating a comprehensive pedestrian and bicycle circulation network, and designing streets to increase pedestrian safety. The City's 2018 Bicycle Plan supplements the General Plan, creating a framework for making bicycle transportation more accessible to all City residents. The Bicycle Plan's objectives range from increasing safety along bicycle routes to upgrading existing bikeways and increasing bicycle mode share to 5 percent by 2026.

County

Santa Clara County's 2017 Congestion Management Program (CMP) outlines a comprehensive transportation improvement plan that includes the City. The CMP promotes methods of reducing single-occupant automobile travel and requires local lead agencies to prepare traffic analysis to document the impact new developments would have on the CMP roadway network. If a project would generate more than 100 peak-hour trips on CMP roadways, a traffic impact analysis is required.

Environmental Setting

Regional Access

Regional automobile access to the SDC site is provided by US-101, located to the north. US-101 is a north-south freeway which connects from San Francisco through San Jose before continuing south. Primary access to and from US-101 is provided via De La Cruz Boulevard. Caltrain's Santa Clara Station is located approximately 1 mile south of the SDC site. Amtrak's Capitol Corridor service also operates out of this station.

Local Access

Roadways that provide primary circulation in the immediate vicinity of the SDC site include De La Cruz Boulevard, Martin Avenue, and Lafayette Street. Access provided by each roadway is discussed below:

- **De La Cruz Boulevard** is generally a six-lane divided north-south arterial
- **Martin Avenue** is a four-lane divided east-west street. Martin Avenue begins at De La Cruz Boulevard and continues to the west
- **Lafayette Street** is a four-lane divided north-south arterial
- **Central Expressway** is generally a six-lane east-west expressway

The General Plan provides traffic conditions in the vicinity of the SDC site for existing (2008) and projected future (2035) conditions. The LOS on De La Cruz Boulevard between Central Expressway and Coleman Avenue was LOS C in 2008 and is expected to reach LOS D in 2035. The LOS on Lafayette Street between Walsh Avenue and Reed Street was LOS C in 2008 and is expected to reach LOS D in 2035. The LOS on Central Expressway between Lafayette Street and De La Cruz Boulevard was LOS D in 2008 and is expected to reach LOS E in 2035. Martin Avenue was not included in the General Plan's analysis.

Several intersections within the SDC site vicinity are listed in the CMP published by the Santa Clara Valley Transportation Authority.[2] Such intersections include Central Expressway/De La Cruz Boulevard and Lafayette Street/De La Cruz Boulevard. These intersections both currently operate at an acceptable LOS of E or better.

Transit

The Santa Clara Valley Transportation Authority provides bus service within Santa Clara County. Bus Route 304 serves the SDC site, operating between South San Jose and the Sunnyvale Transit Center. A bus stop for this route is located approximately 450 feet northeast of the site. On weekdays, Route 304 buses arrive every 30 to 40 minutes during a morning service from 5:42 a.m. to 8:49 a.m. and during an evening service from 4:33 p.m. to 7:07 p.m.

Caltrain's Santa Clara Station is the closest light rail station to the SDC site, located approximately 1 mile south of the SDC site. Caltrain operates between Gilroy and San Francisco with trains arriving at the Santa Clara Station every 30 minutes to an hour from 3:33 a.m. to 10:35 p.m. on weekdays. Amtrak's Capitol Corridor service also operates out of the Santa Clara Station, providing passenger rail service between Auburn and San Jose. Capitol Corridor trains arrive infrequently from 7:21 a.m. to 8:39 p.m. on weekdays.

Bicycle and Pedestrian Facilities

The City's Bicycle Plan identifies a bike lane along De La Cruz Boulevard. The bike lane transitions from a Class II facility to a Class III facility from north to south and passes by the SDC site. These bicycle corridors do not directly feed into to any routes, lanes, or paths that connect to the larger City-wide bicycle network. Class II bicycle lanes are striped, preferential bicycle lanes for one-way travel on roadways. Class III bicycle routes consist of signed roadways shared by bicycles and automobiles. Based on observations of bicycle corridors gathered as part of the Bicycle Plan, the Class II bicycle lane along De La Cruz Boulevard has an all-day bicycle count of 16, while the Class III bicycle route has an all-day

[2] Santa Clara Valley Transportation Authority. 2016. *2016 CMP Monitoring and Conformance Report.* Available: http://vtaorgcontent.s3-us-west-1.amazonaws.com/Site_Content/2017_CMP_Document.pdf. Accessed: July 2019

bicycle route of 1.[3] Sidewalks are limited in the SDC's vicinity, and there are no existing sidewalks along the SDC site's perimeter. There are sidewalks north of the SDC site along the west side of De La Cruz Boulevard and south of the SDC site along Martin Avenue.

Impact Discussion

Based on the 2019 CEQA Guidelines, this analysis focuses on VMT as the appropriate measure of transportation impacts related to vehicular traffic. Consistent with Section 15064.3 of the Guidelines, the project is evaluated as a land use project and uses the corresponding criteria for evaluate outlined in Section 15064.3(b)(1). This criteria states that projects within 0.5-mile of an existing stop along a high-quality transit corridor should be presumed to cause a less-than-significant transportation impact. Further, this section includes a qualitative analysis of construction VMT pursuant to Section 15064.3(3).

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

a) Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant. The SBGF would not, in and of itself, result in notable trip generation. Trips associated with the SBGF would be to occasionally refill the integrated diesel fuel tanks. These trips are captured in the overall trip generation described below. The discussion of the SDC below applies to and includes the SBGF.

Construction of the SDC would temporarily result in trips to and from the site for construction vehicles, equipment, and the delivery of construction materials. This is consistent with the intended use of public roadways in the City, as well as the use of regional highways. The volume of trips during construction is not reasonably anticipated to result in congestion, and no roadway closures or detours would be required.

The SDC would not involve any off-site improvements and would not result in any changes to the City's existing circulation system, including pedestrian, transit, roadway, or bicycle facilities. The SDC would include the addition of a sidewalk along its frontage on Del La Cruz Boulevard. The SDC would also include a bicycle rack and nine bike lockers. The SDC parking lot would include nine electric vehicle charging stations. Given that project improvements would be confined to the SDC site (and

[3]City of Santa Clara. 2018. City of Santa Clara Bicycle Plan Update 2018. Available: http://santaclaraca.gov/home/showdocument?id=64549. Accessed: July 2019

would not include off-site changes to the transportation system), the SDC and SBGF would not directly affect the circulation system or conflict with the City's Bicycle Plan or transportation components of the General Plan. Indirect effects to the transportation system are discussed below.

The SDC would not conflict with the CMP because it would not generate significant new congestion. According to the ITE, data centers feature among the lowest trip generation rates at 0.99 daily trips per every 1,000 square feet.[4] Using the ITE rate, the SDC would produce an estimated 695 daily trips. However, a maximum of 25 full-time employees would occupy the site over each 24-hour period, making the ITE rate conservatively high in this case. Data centers as a use do not inherently require additional employees based on size, and visitors to data centers are typically limited to customers who may visit when setting up or maintaining equipment. It would be unlikely that the SDC would generate more than 100 trips during peak hours, as a peak-hour trip generation of 100 or more would require four times the typical number of employees to visit the site during the peak hour. Assuming peak hour is 10 percent of daily traffic, the SDC's estimated peak hour traffic would be approximately 70 vehicles.

A one-hour equivalent traffic volume observed at the SDC site in 2019 showed 528 vehicles on De La Cruz Boulevard during the AM peak (see **Appendix N**, Noise Study). The SDC's vehicle trips would increase traffic by approximately 13 percent during the peak hour. This would slightly increase vehicle trips along this roadway. However, the City's CAP requires all new developments greater than 10,000 nonresidential square feet to draft and implement a VMT reduction strategy that reduces drive-alone trips. As a condition of approval, C1 will develop a Transportation Demand Management Program for the SDC, as required by the City. The Transportation Demand Management Program would reduce individual vehicle trips to and from the SDC site.

Trips generated by SDC operation would be consistent with the local zoning (Heavy Industrial) which allows for data center uses, and the amount of traffic generated by the SDC can reasonably be accommodated on the existing roadway system based on existing and future LOS forecasts. Therefore, the SDC and the SBGF would not conflict with any applicable plan, ordinance or policy establishing measures of effectiveness for performance of the circulation system. This impact would be less than significant, and no mitigation is required.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Less than Significant. As mentioned above, the SDC is located within less than 0.5-mile of a stop along an existing high-quality transit corridor with 30-minute headways during weekday commute hours. Therefore, the SDC would be unlikely to generate significant new VMT based on the 2019 CEQA Guidelines. Additionally, data centers require a very low number of employees in comparison

[4] Institute of Transportation Engineers. October 17, 2018. *Trip Generation Manual: 10th Edition*. Available: http://agenda.fauquiercounty.gov/AttachmentViewer.aspx?AttachmentID=16647&ItemID=6365. Accessed: July 2019.

to building size. The SDC would require a maximum of 25 full time employees over each 24-hour period. As described above, SDC employees are reasonably anticipated to be sourced from existing South Bay residents living and working in the area. Therefore, the SDC would be unlikely to generate significant new VMT. The SBGF would not require dedicated employees separate from or in addition to the employees required for the SDC. Further, C1 will develop a Transportation Demand Management Program for the SDC as required by the City. This impact would be less than significant, and no mitigation is required.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

No Impact. The SDC does not include any changes to local streets, intersections, or involve incompatible land uses. Access to the SDC site would continue to be provided via curb cuts on Martin Avenue and De La Cruz Boulevard. As such, the SDC and the SBGF would not introduce or increase hazards to design features. No impact would occur.

d) Would the project result in inadequate emergency access?

No Impact. Emergency access to the SDC site would continue to be provided by existing roadways. Emergency access would be provided via curb cuts on Martin Avenue and De La Cruz Boulevard. As a condition of approval, the SDC would be required to comply with all emergency access standards of the SCFD and SCPD. Therefore, the SDC and the SBGF would not result in inadequate emergency access. No impact would occur.

4.18 Tribal Cultural Resources

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) 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:				
i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☐	☐	☒	☐
ii. 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Information in this section was incorporated from a Sacred Lands File search and a CHRIS records search, which were completed for the SDC site in June and July of 2019.

Regulatory Setting

A California Native American tribe is defined as a "Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of the Statutes of 2004" (PRC, §21073). AB 52 amended CEQA to specifically include consideration of tribal cultural resources when evaluating impacts to the environment (PRC, Section [§] 21084.2). Under AB 52, lead agencies implementing CEQA are responsible to conduct tribal consultation with California Native American tribes about tribal cultural resources within specific timeframes, observant of tribal confidentiality. In order to be a part of consultation under AB 52, Native American tribes must contact the lead agency and request to be included on the lead agency's AB 52 contact list. If tribal cultural resources could be impacted by project implementation, lead agencies are to continue consultation to the point of agreement or termination.

Tribal cultural resources are either of the following:

1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:

a) Included or determined to be eligible for inclusion in the California Register of Historical Resources.

b) Included in a local register of historical resources as defined in PRC, §5020.1(k).

2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in PRC, §5024.1(c). In applying the aforesaid criteria, the lead agency shall consider the significance of the resource to a California Native American tribe (PRC, §21074[a]).

Historic resources, unique archaeological resources, and non-unique archaeological resources may be a tribal cultural resource if they conform to the criteria of PRC, §21074(a).

Environmental Setting

As stated in **Section 4.5, Cultural Resources**, a literature review was completed for the SDC site to determine the presence or absence of historic structures and the likelihood of buried archeological resources. The evaluation determined there are no eligible historic resources on or around the site, and the likelihood for buried historic-period archeological resources is moderately high. Based on CHRIS search results, the potential for buried Tribal cultural resources was also determined to be high. The results of the Sacred Lands search were negative for known Native American resources within the site or surrounding area. However, the NAHC noted that the absence of specific site information in the Sacred Lands File does not confirm absence of Native American cultural resources.

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of an emergency power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

a) 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:

i. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?)

OR

ii. 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 Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less than Significant (Measures Incorporated into the Project). On July 2, 2019, letters were sent to the following Native American tribes based on the recommendation of the NAHC: Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, North Valley Yokuts Tribe, the Ohlone Indian Tribe, Amah Mutsun Tribal Band, Indian Canyon Mutsun Band of Costanoan, and Amah Mutsun Tribal Band of Mission San Juan Bautista. The letters contained information about the SDC and SBGF; an inquiry for any unrecorded Native American cultural resources or other areas of concern within or adjacent to the SDC site; and a solicitation of comments, questions, or concerns with regard the SDC or SBGF. To date, one response was received from the Ohlone Indian Tribe. The response did not identify any concerns with the SDC project or any potential Tribal resources. The response requested a copy of the CHRIS search results, which were provide to the Tribe on July 15, 2019.

While there are no known Tribal cultural resources at the SDC site, based on the above information it is possible that buried resources could be encountered during construction. This potential impact would be reduced to a less-than-significant level through mitigation incorporated into the project. The mitigation would include having a qualified, Native American on-site monitor during excavation and grading activities. This mitigation is described in **Section 2, Project Description**, and repeated below:

A Native American monitor shall be retained to monitor all project-related, ground-disturbing construction activities (e.g., boring, grading, excavation, drilling, trenching). The appropriate Native American monitor shall be selected based on consultation between the City and the NAHC or as a part of AB 52 consultation (if requested).[2] Monitoring procedures and the role and responsibilities of the Native American monitor shall be outlined in a document submitted to the City prior to construction. In the event the Native American monitor identifies cultural or archeological resources, the monitor shall be given the authority to temporarily halt construction (if safe) within 50 feet of the discovery to investigate the find and contact the assigned on-site archeologist (if not present). The Native American monitor shall be provided an opportunity to participate in the documentation and evaluation of the find. If a Treatment Plan or Data Recovery Plan is prepared, the Native American monitor shall be provided an opportunity to review and provide input on the Plan.

[2]In accordance with Section 21080.3.1 of the California Public Resources Code and AB 52, the City has provided a Notice of Opportunity to Native American tribes to request consultation for projects within the city. To date, the City has not received any requests from regional tribes to be included on the AB 52 list.

4.19 Utilities and Service Systems

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

Federal Clean Water Act

The SWRCB and its nine RWQCBs are responsible for the regulation and enforcement of the water quality protection requirements of the federal CWA and the state's Porter-Cologne Water Quality Control Act. The NPDES permitting program allows point source dischargers to comply with the CWA and Porter-Cologne Water Quality Control Act. This regulatory framework protects the beneficial uses of the state's surface and groundwater resources for public benefit and environmental protection.

California Water Code, Sections 10910-10915

California Water Code, Sections 10910-10915, requires water service providers to evaluate stresses to the water supply service system caused by development. The code sections require public water systems to prepare WSAs for certain defined development projects subject to CEQA, including commercial uses having more than 500,000 square feet of floor space and projects that would demand the equivalent to or greater than the amount of water required by a 500 dwelling unit.

California Energy Efficiency Standards for Residential and Nonresidential Buildings— Green Building Code (2011), Title 24 Update (2014)

The CALGreen applies to planning, design, operation, construction, use, and occupancy of newly constructed buildings and requires installation of energy- and water-efficient indoor infrastructure. The related construction waste management plan must be prepared for new developments to allow for diversion of 50 percent of the generated waste away from the landfill.

City of Santa Clara General Plan

The General Plan includes numerous policies related to utilities and service systems. With respect to waste, General Plan Policy 5.10.1-P8 aims to achieve an 80 percent reduction in solid waste tonnage by 2020 and/or meet waste reduction goals consistent with the CAP.

Santa Clara Municipal Code

SCMC Section 8.25.285 requires applicants seeking building or demolition permits for projects greater than 5,000 square feet to recycle at least 50 percent of construction/demolition wastes. Furthermore, Section 8.25.275 requires commercial businesses to contract with commercial recycling services if more than 4 cubic yards of wastes are generated per week.

Environmental Setting

Potable Water

The Santa Clara Department of Water and Sewer Utilities provides water service to the City and would serve the SDC site. The Santa Clara Water Utilities' water system consists of 7 storage tanks, roughly 335 miles of water mains, and 26 wells that tap underground aquifers, providing 62 percent of the City's water supply.[2] The City's water system produces an average of 15.7 million gallons per day and has a water storage capacity of 28.8 million gallons.[3] The City's remaining water supply is purchased from Valley Water and the San Francisco Hetch Hetchy System, two wholesale water agencies. Approximately 16 percent of the City's water use is composed of recycled water, discussed below.

Recycled Water

The City's fourth source of water consists of tertiary treated (or 'recycled') water which accounts for approximately 16 percent of the City's water use. Recycled water within the City is supplied from the jointly owned RWF. Recycled water from the plant is delivered to the City through a system of water pipelines totaling 33 miles.[2] The City utilizes recycled water in order to offset and conserve use of potable water citywide. Recycled water is primarily used for irrigation within the City. However, several industries use recycled water in industrial processes, cooling towers, or for flushing toilets.[4]

Wastewater

Wastewater from the City is collected and treated at the RWF. The RWF is operated by the City of San Jose's Department of Environmental Services. The RWF provides primary, secondary, and tertiary treatment of wastewater and has capacity to treat 167 million gallons per day, with an average treatment of 110 million gallons per day.[5]

The City owns and operates the wastewater collection system within its jurisdiction. According to the City's UWMP, the system includes over 270 miles of sewer mains and 7 pump stations to convey an average of 15 million gallons per day of wastewater to the RWF, located just north of Highway 237 in San Jose.

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[2] City of Santa Clara Water & Sewer Utilities. 2019. *Recycled Water Utility.* Available: http://santaclaraca.gov/government/departments/water-sewer-utilities/water-utility. Accessed: July 2019.
[3] City of Santa Clara Water & Sewer Utilities. 2019. *Fact Sheet*. Available: http://santaclaraca.gov/government/departments/water-sewer-utilities/fact-sheet. Accessed: July 2019.
[4] City of Santa Clara Water and Sewer Utilities. 2015. *Urban Water Management Plan*. http://santaclaraca.gov/home/showdocument?id=48088. Accessed: July 2019.
[5] City of San Jose. 2016. *San Jose-Santa Clara Regional Wastewater Facility Fact Sheet*. http://www.sanjoseca.gov/DocumentCenter/View/34681. Accessed: July 2019.

Solid Waste

According to the City's General Plan EIR, solid waste collection services are provided by the Mission Trail Waste System (Mission Trail) through a contract with the City.[6] Mission Trail's services include the collection of yard waste. The City has an agreement with the owners of the Newby Island Landfill, located in San Jose, for the landfill to provide disposal capacity for the City through 2024. Stevens Creek Disposal and Recycling provide recycling services for the City.

Natural Gas and Electricity Services

Electric and gas services within the City are provided by SVP and Pacific Gas and Electric. Operated by the City, SVP owns more than 510 MW of electric-generating resources supplemented by purchase agreement for 261-MW of additional capacity for a total capacity of 771 MW.[7] This capacity far exceeds the City's current peak electricity demand of approximately 526 MW.[8]

Impact Discussion

The proposed development consists of two components, the SDC and the SBGF. The SDC would consist of a four-story building that would house computer servers, an electrical substation, and a cooling system. The SBGF would consist of 54 backup generators and associated electrical interconnection facilities able to provide the SDC with reliable energy in the event of a power outage. This discussion considers the impacts associated with both project components holistically, unless otherwise noted.

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater or storm water drainage, electric power, natural gas, or telecommunications facilities the construction or relocation of which could cause significant environmental effects?

and

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant. Servers, cooling equipment, and lighting within the SDC would require electricity usage that would amount to a maximum of 96.5 MW. The initial build of the SDC would require 7.5 MW per day, and this demand is anticipated to expand over time. As of July 2019, SVP has agreed to provide 27 MW to the SDC site until completion of the onsite substation, after which SVP would provide another 72 MW (**Appendix B**). The total capacity provided would not exceed 99 MW, and construction of new or expanded SVP facilities, other than a new distribution substation to

[6] City of Santa Clara. January 2011. *Integrated Final Environmental Impact Report (City of Santa Clara 2010-2035 General Plan – Volume I EIR Text)*. Available: http://santaclaraca.gov/home/showdocument?id=12900. Accessed: July 2019.
[7] Ibid.
[8] Silicon Valley Power. 2019. *Utility Fact Sheet*. Available: http://www.siliconvalleypower.com/svp-and-community/about-svp/utility-fact-sheet. Accessed: July 2019.

serve the SDC site, would not be required.[9] The new substation would be located on the western portion of the SDC site, as depicted in **Figure 2**. As noted in **Section 2, Project Description**, SVP would own and be responsible for maintenance of the substation and its equipment. The SBGF would not require electric power, as its purpose is to produce electric power in the event of an emergency.

The SDC would require water during operation and produce wastewater, while the SBGF would not result in water use or generation of wastewater. The SDC would include a 6-inch sanitary sewer line and a 4-6-inch water line to meet the SDC's wastewater and potable water needs. Operation of the SDC would require the use of air-cooled chillers to maintain cool temperatures for server operation. These chillers would use water in a closed loop economizing system. After an initial input of approximately 144,512 gallons of water, the system would not require additional water during operation.

The SDC's potable water needs during operation would result entirely from employees, landscape irrigation, and a humidification system. An estimated 686,672 gallons of water (or 2.1 acre-feet) would be used annually to irrigate landscaping. Considering employee, humidification system, and landscaping water needs, the SDC would consume 1,565,351 gallons (or 4.82 acre-feet) of potable water annually. On average, Californians consume 85 gallons of water per day.[10] At this rate, a 500-dwelling housing unit would consume approximately 143 acre-feet of water annually.[11] At under 5 acre-feet per year, the SDC would have significantly less water demand than a 500-dwelling housing unit. In addition, the majority of the square footage used to house servers is considered to be an industrial and not a commercial use. Therefore, implementation of the SDC and SBGF would not require the preparation of a WSA (see **Appendix M**).

The City is anticipated to have more than adequate water supply in the future, with an anticipated demand of 23,532 acre-feet and a supply of 33,484 acre-feet in 2020.[12] These projections are based on existing land use. Given that data centers are a permitted use under the Heavy Industrial land use designation, the SDC would be consistent with the UWMP assumptions. The anticipated amount of

[9] SVP. 2019. *Written communication with Kevin Keating, Electric Division Manager, SVP*. July 22, 2019.
[10]Legislative Analyst's Office. 2017. *Residential Water Use Trends and Implications for Conservation Policy*. Available: https://lao.ca.gov/Publications/Report/3611. Accessed July 2019.
[11]Bay Area Census. 2010. *Santa Clara County*. Available: http://www.bayareacensus.ca.gov/counties/SantaClaraCounty.htm. Accessed July 2019.
[12] City of Santa Clara Water and Sewer Utilities. 2015. *Urban Water Management Plan*. Available: http://santaclaraca.gov/home/showdocument?id=48088. Accessed: July 2019.

wastewater generated from the SDC would constitute less than 1 percent of the RWF's unused capacity.[13] Thus, the SDC and SBGF would not require the construction of new water or wastewater facilities and would have sufficient water supplies to serve the SDC.

As previously discussed in **Section 4.9, Hydrology and Water Quality**, SDC and SBGF site modifications would not increase stormwater runoff. The SDC site would adhere to NPDES permit requirements, ensuring stormwater runoff would not exceed existing runoff currently experienced at the site. Therefore, the SDC and the SBGF would not require the construction of new stormwater drainage or expansion of existing facilities. The SDC and the SBGF would require minimal use of natural gas and would not include any new uses or structures that would require the construction of new telecommunications infrastructure. Therefore, impacts related to utility demand would be less than significant. No mitigation is required.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant. As mentioned above, the SDC's wastewater needs would amount to less than 1 percent of the RWF's unused capacity. The RWF would have adequate capacity to serve the SDC's projected demand in addition to the RWF's existing commitments. This impact would be less than significant, and no mitigation is required.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant. Construction activities such as utility trenching and foundation excavation would generate construction debris and excavated materials on site. The SDC would be subject to City and state requirements to recycle up to 50 percent of its construction and demolition wastes. Material that cannot feasibly be used on site or recycled would be off hauled by trucks to the Newby Island Sanitary Landfill.

Employees at the SDC would generate solid waste during SDC operation. The SBGF would not generate solid waste. As a maximum of 25 fulltime employees would be present at the SDC site at any given time, the SDC would not generate a significant amount of solid waste. In 2017, employees in California had an average disposal rate of 11.9 pounds per day.[14] At this rate, employees working at the SDC would generate 892.5 pounds of solid waste per day. The SDC would be required to adhere to the City's recycling and waste reduction programs pertaining to industrially zoned properties. A contract would be established with a hauler to provide garbage, recycling, organics

[13] Wastewater from the site would continue to be treated by the RWF in San Jose. RWF has a treatment capacity of 167 million gallons per day and an average daily treatment of 110 million gallons per day. Therefore, RWF has an additional 57 million gallons per day of capacity remaining.

[14] Cal Recycle. 2019. *California's 2017 Per Capita Disposal Rate Estimate*. Available: https://www.calrecycle.ca.gov/lgcentral/goalmeasure/disposalrate/mostrecent. Accessed: July 2019.

recycling, and debris bin services or ensure that waste is processed at a facility that achieves a 50 percent recovery rate. The applicant would also be required to provide the City Public Works Department a site plan showing the proposed locations of waste containers.[15] The Newby Island Sanitary Landfill has the capacity to accept the City's solid waste as anticipated by the General Plan through 2024. Given that the SDC would be consistent with the existing land use regulations and underlying local zoning, it would not result in an unplanned increase in solid waste. Therefore, SDC operation would not impair the City's ability to meet its solid waste reduction goals. The impact resulting from the SDC on landfill capacity would be less than significant. No mitigation is required.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant. The SDC's solid wastes would be disposed of in accordance with the federal CWA and with state and City requirements for safe waste handling and disposal. The SDC and the SBGF's compliance with NPDES would ensure consistency with the federal CWA's requirements requiring the protection of water quality from waste discharges.

Assembly AB 939 relates to solid waste diversion requirements for the State of California. In 1995, all jurisdictions in California were required by AB 939 to divert 25 percent of waste generation from landfill. By the year 2000, all California jurisdictions were required to divert 50 percent of waste generation from landfills. In 2011, AB 341 required that 75 percent of solid waste be diverted from landfills by 2020. It is reasonably assumed that the amount of solid waste generated by the SDC's maximum of 25 fulltime employees would be typical of other industrial uses in the City. The solid waste generated at the SDC would also not reasonably be anticipated to impede the achievement of the General Plan's goal of 80 percent reduction for solid waste tonnage by 2020 as described in General Plan Policy 5.10.1-P8. As 50 percent of construction waste would be recycled, construction of the SDC would not conflict with City Code Section 8.25.285. As mentioned above, a contract would be established with a hauler to provide for solid waste removal per the City's policies.

Therefore, the SDC would not result in a net increase of solid waste in the City that would jeopardize the City's consistency with federal, state, or local regulations related to solid waste. This impact will be less than significant for the SDC and the SBGF, and no mitigation is required.

[15] City of Santa Clara. 2019. *Commercial and Industrial Garbage and Recycling.* Available: http://santaclaraca.gov/government/departments/public-works/environmental-programs/commercial-garbage-recycling. Accessed: July 2019.

4.20 Wildfire

	Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☒
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☒

Environmental checklist established by CEQA Guidelines, Appendix G.

Discussion

Regulatory Setting

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity Zone (FHSZ) Maps contain both proposed FHSZ Maps for State Responsibility Areas (SRAs) as well as separate Very High Fire Hazard Severity Zone (VHFHSZ) Maps for Local Responsibility Areas (LRAs). LRA maps take into account local ordinances that may affect communities' wildfire risk indirectly, such as building codes and hazard mapping requirements.

Santa Clara County Community Wildfire Protection Plan

Various regulations have been adopted through the Santa Clara County Wildfire Protection Plan in order to protect lives and property from risks caused wildfire. The SDC site is not in a wildfire-susceptible area or open space, as defined in the plan.

Environmental Setting

The SDC site is zoned Heavy Industrial and located 100 feet west of SJC. The SDC site and surrounding area is relatively flat and fully developed with industrial uses.

CAL FIRE identifies fire hazards based on relevant factors such as potential fuel, terrain, and weather. There are no LRAs or SRAs with a VHFHSZ designation within the urbanized area of Santa Clara County.[2] The SDC site is located within an area of Non-VHFHSZ, which extends throughout most of the city (**Figure 11**).

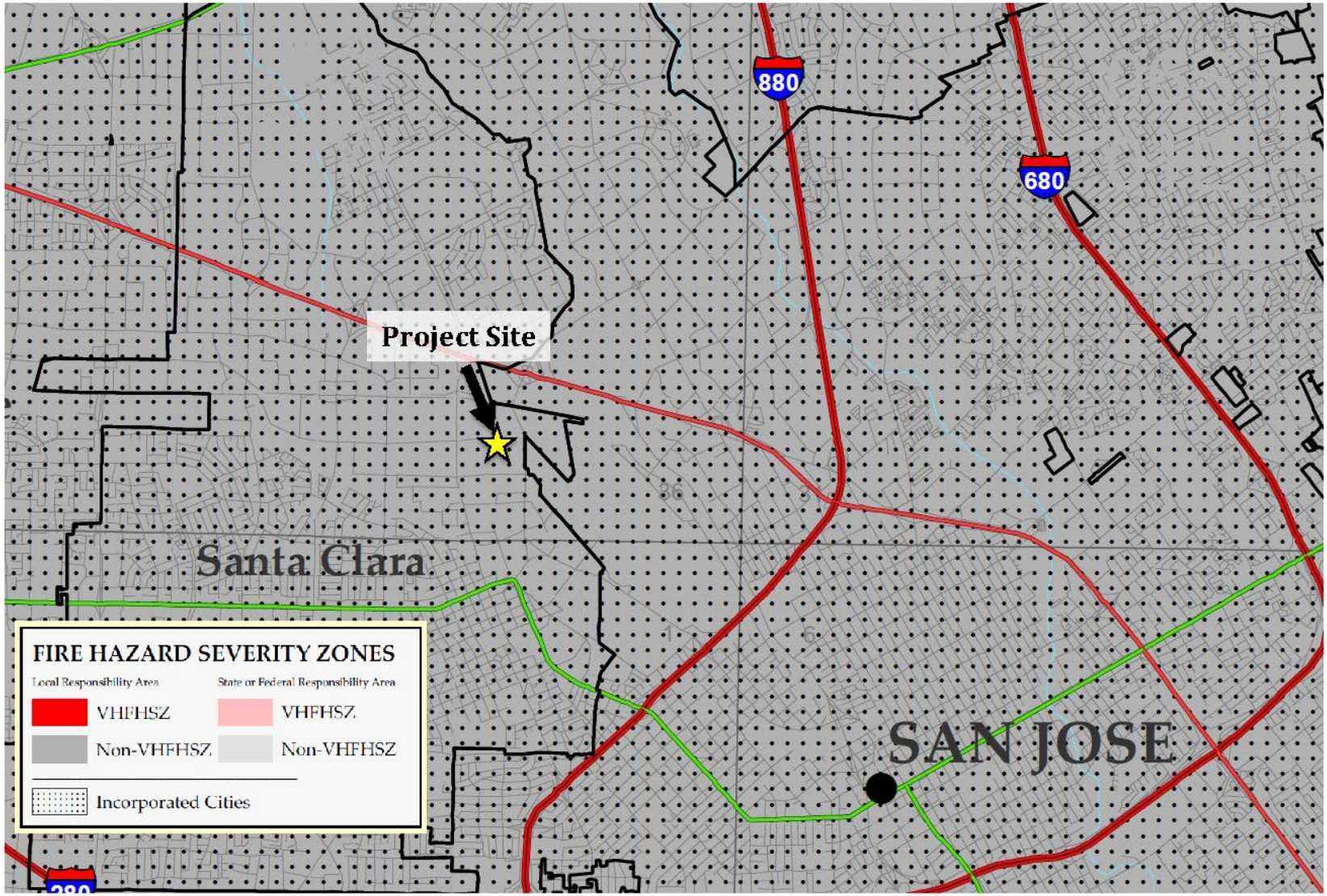
Impact Discussion

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

No Impact. Given that the risk of wildfire at or near the SDC site is low, there is similarly low potential for the SDC to indirectly or directly interfere with emergency services during a wildfire event. Construction is not anticipated to require any closure of existing streets or emergency access routes. Construction would require construction vehicles to travel to and from the SDC site. Based on the size of the SDC and its location in an urbanized area, construction traffic is not anticipated to create congestion which could interfere with emergency access. Emergency response access during the construction would not be impeded.

The SDC and SBGF would not involve the development of structures that could potentially impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No streets would be closed, rerouted, or substantially altered as a result of SDC operation, as SDC and SBGF improvements would be entirely within the private parcel described in **Section 2, Project Description**. The SDC and the SBGF would not involve the addition of large numbers of people to the local area who would need to evacuate during a wildfire. Thus, the SDC and SBGF would not reasonably interfere with emergency operations or evacuation routes. Adequate emergency access to the SDC site and surrounding industrial area would be maintained. Therefore, no impact would occur.

[2] California Department of Forestry and Fire Protection (CAL FIRE), Fire and Resource Assessment Program. 2008. *Very High Fire Hazard Severity Zones in LRA – Santa Clara County 2008.*



Santa Clara Fire Hazard Severity Zones Figure 11

Source: CAL FIRE, 2008

b) Would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

And

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

And

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

No Impact. The SDC site is located within a Non-VHFHSZ LRA, indicating the risk of wildfire is low. The SDC site is not located within a SRA. The nearest VHFHSZ LRA is 7 miles from the SDC site, located on the East side of San Jose at Alum Rock Park. The SDC site does not contain any significant wildfire hazards such as wildfire fuel (brush or other organic material), does not have unique or sloping terrain that would exacerbate wildfires, and the SDC and SBGF would not reasonably be anticipated to create a new wildfire risk. Since the SDC site is relatively flat and surrounded by urban development, slope and prevailing winds are unlikely to exacerbate the already low risk of wildfire. The SDC and SBGF would not involve the installation or maintenance of infrastructure that might exacerbate fire risk, such as placement of overhead electrical lines in forested areas. The flat, urban landscape of the surrounding area also precludes impacts such as downstream flooding and landslides from post-fire conditions such as slope instability and drainage changes. Therefore, no impact would occur.

5 ALTERNATIVES

5.1 Evaluation Criteria

The overall objective of the SBGF was to provide the most reliable and flexible backup generating system to support SDC clients. Central to C1's mission is to provide data centers that provide the highest quality uninterruptible power supply. With this overall objective, C1 conducted an alternative analysis and used the following criteria as a means of evaluating and ranking alternatives:

- **Commercial Availability and Feasibility.** The selected alternative must currently be in use and proven as an accepted industry standard for technology. It must be operational within a reasonable timeframe where permits and approvals are required.
- **Technical Feasibility.** The selected alternative must utilize technology systems that are compatible with one another.
- **Reliability.** The selected alternative must utilize technology that is reliable in the case of an emergency.
- **Industry Standard.** The selected alternative must be considered industry standard or best practice. The customers of C1 are informed consumers and will request C1 to provide a detailed description of the type of backup generation that C1 provides as part of the customer's due diligence. If the alternative does not meet the customer's requirements, they will not put their servers in the SDC.

As part of the development of the SDC and the SBGF, C1 considered alternatives to the backup generators as proposed. As discussed more fully below, C1 considered a smaller capacity system as well as alternative generating technologies. For completeness purposes, a discussion of the No Project Alternative is also included.

5.2 Alternative 1: Reduced Capacity System

C1 considered a backup generating system with fewer emergency generators. However, any generating capacity less than the total demand of the SDC at maximum occupancy, with redundancy, would not allow C1 to provide the critical and reliable electricity needed during an emergency power outage. It is important to note that in addition to electricity that would be directly consumed by the servers themselves, the next largest electrical demand of the data center building would be related to cooling the server rooms. For the servers to reliably function, they must be kept within temperature tolerance ranges. The industry standard is to design and operate a building that can meet those ranges even during a loss of utility electric power. Therefore, for C1 to provide the reliability required by its clients, it is necessary to provide a backup generating system that could meet the maximum load during full occupancy on the hottest design day and include redundancy as described in Section 2.2. A reduced capacity system would not fulfill the basic objectives of the SBGF.

5.3 Alternative 2: Alternative Generating Technologies

C1 considering using three alternative technologies: gas-fired turbines; flywheels; and batteries. None of the three technologies considered could meet the overall project objective because they were commercially or technically infeasible and/or would not meet the necessary standard of reliability during an emergency.

Flywheels

Flywheel energy storage systems use electric energy input which is stored in the form of kinetic energy. Kinetic energy can be described as "energy of motion," in this case the motion of a spinning mass, called a rotor. The rotor spins in a nearly frictionless enclosure. When short-term backup power is required because utility power fluctuates or is lost, the inertia allows the rotor to continue spinning and the resulting kinetic energy is converted to electricity.[1]

C1 considered the use of flywheel technology, but concluded they would not be a viable option for the following reasons:

- Flywheel technology does not perform within the required reliability levels of C1and is prone to system failure.
- Flywheel technology requires an extensive amount of maintenance to keep each energy storage system functioning.
- Flywheel systems still require backup generation to maintain the electrical load.

Gas-Fired Engines

C1 considered using natural gas-fired engines instead of diesel generators to supply backup power for the SDC. This technology option was rejected because it is not technically feasible. The UPS systems described in Section 2.2 require backup generation that starts very quickly, and natural gas engines are too slow to start. Loss of natural gas delivery, such as broken pipe or loss of supply, would render the natural gas engines inoperable and unable to reliably provide backup electrical power in an emergency. Further, emergency conditions resulting in loss of power from SVP may also result in temporary loss of gas utility service. Therefore, natural gas engines are not considered reliable enough to meet the industry standard or needs of the SDC. Storage of sufficient natural gas on site to maintain emergency electricity to the SDC during an outage would not be tenable given the volume of natural gas that would be required. Finally, natural gas-fired engines are not considered industry standard for data centers.

Battery Storage

C1 considered using batteries alone as a source of emergency backup power. The primary reason batteries alone were rejected by C1was the limited duration of battery power. Batteries can provide power quickly, which is the reason C1 has incorporated them into the overall backup electrical system

[1] Energy Storage Association. 2019. Flywheels – Executive *Summary.* Available: http://energystorage.org/energy-storage/technologies/flywheels. Accessed July 2019.

design. As described in **Section 2.2, Backup Electrical System Design**, batteries would be initiated at the first sign of electricity interruption. However, the current state of battery technology does not allow for very long durations of discharge at building loads as high as planned for the SDC. Once the standalone batteries are completely discharged, 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, and clients and their insurance companies would not consider batteries to provide the redundancy necessary. Therefore, because battery storage cannot provide the duration that may be necessary during an emergency, this technology option was rejected as technically and commercially infeasible.

5.4 No Project Alternative

Consumer demand for data storage has grown substantially in recent years. The SDC, including the SBGF, is proposed in response to this heightened demand. The "No Project" Alternative would leave the SDC exposed to electricity outages. Simply put, C1's clients would not locate their servers in the SDC without a highly reliable backup generating facility to support it. Therefore, the No Project Alternative is rejected as commercially infeasible and not consistent with industry standards.

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6 REFERENCES

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