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SJC02 Reconductored Transmission Line Revised Project Description(19-SPPE-04)

Small Power Plant Exemption Application

For the

San Jose Data Center
San Jose, California

October 2020

Submitted to the:
California Energy Commission

Submitted by:
Microsoft Corporation

With Technical Assistance by:
Jacobs Engineering Group Inc.

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Acronyms and Abbreviations

µg/m3	microgram(s) per cubic meter
A	Agricultural
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACM	asbestos-containing materials
ADMRT	Air Dispersion Modeling and Risk Assessment Tool
AEP	Association of Environmental Professionals
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
APCO	Air Pollution Control Officer
A(PD)	Agriculture Base District
APM	Applicant Proposed Measure
AQS	Air Quality System
ARM2	Ambient Ratio Method 2
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
bbl/year	barrels per year
bgs	below ground surface
BLM	Bureau of Land Management
BMP	best management practice
BOEM	Bureau of Ocean Energy Management
BP	before present
BUOW	burrowing owl
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CE	Candidate Endangered
CEC	California Energy Commission
CEMA	California Emergency Management Agency
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFP	California Fully Protected

CFR	Code of Federal Regulations
CH4	methane
cm	centimeter(s)
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO2	carbon dioxide
CO2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Rank
CT	Candidate Threatened
DOC	California Department of Conservation
DPF	diesel particulate filter
DPM	diesel particulate matter and diesel exhaust organic gases
DPS	distinct population segment
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act (federal)
ESRI	Environmental Systems Research Institute
FAA	Federal Aviation Administration
FAQs	Frequently Asked Questions
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FRA	Federal Railroad Administration
g/s	gram(s) per second
GHG	greenhouse gas
G.O.	General Order
HAP	hazardous air pollutant
HARP2	Hotspot and Reporting Program Version 2
HCP	Habitat Conservation Plan
HI	hazard index
HI	Heavy Industrial
HRA	health risk assessment
HROFDY	Hour of Day
ICLEI	Local Governments for Sustainability
IPaC	Information Planning and Consultation
IPCC	Intergovernmental Panel on Climate Change
ISR	in-stack ratio

IT	information technology
K	Kelvin
kcmil	thousands of circular mils
km	kilometer(s)
kW	kilowatt(s)
kV	kilovolt(s)
LAG	Lawler Associates Geoscience
lb	pound(s)
lb/hr	pound(s) per hour
LBP	lead-based paint
LECEF	Los Esteros Critical Energy Facility
LI	Light Industrial
LORS	laws, ordinances, regulations, and standards
LRA	Local Responsibility Area
m	meter(s)
m/s	meter(s) per second
Ma	million years before present
MEIR	Maximally Exposed Individual Resident
MEIW	Maximally Exposed Individual Worker
MESR	Maximally Exposed Sensitive Receptor
MRZ	Mineral Resource Zone
MSAT	mobile source air toxic
MTC	Metropolitan Transportation Commission
MW	megawatt(s)
MWh	megawatt-hour(s)
N2O	nitrous oxide
N/A	not applicable
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NOAA	National Oceanic and Atmospheric Administration
Fisheries Service	
NO	nitric oxide
NO2	nitrogen dioxide
NOx	nitrogen oxides
NRCS	Natural Resources Conservation Service
NSPS	New Source Performance Standards

NSR	new source review
OEHHA	California Office of Environmental Health Hazard Assessment
PAH	polycyclic aromatic hydrocarbon
PFYC	Potential Fossil Yield Classification
PG&E	Pacific Gas and Electric Company
PM10	particulate matter with aerodynamic diameter less than or equal to 10 microns
PM2.5	particulate matter with aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
ppt	parts per thousand
PRC	Public Resources Code
PRG	Preliminary Remedial Goal
PRIME	Plume Rise Model Enhancement
PRMP	paleontological resources monitoring plan
PSD	prevention of significant deterioration
PTE	potential to emit
PUE	Power Usage Effectiveness
REL	reference exposure level
RICE	reciprocating internal combustion engine
ROW	right-of-way
RPS	Renewables Portfolio Standard
RWF	Regional Wastewater Facility
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SB X1-2	Senate Bill 2 of the First Extraordinary Session
SCCALUC	Santa Clara County Airport Land Use Commission
SCS	Sustainable Communities Strategy
SCR	Selective Catalytic Reduction Systems
SCVHCP	Santa Clara Valley Habitat Conservation Plan
SEASHR	seasonal hour
SFBAAB	San Francisco Bay Area Air Basin
SIL	Significant Impact Level
SIP	State Implementation Plan
SJC02	San José Data Center
SJMWS	San Jose Municipal Water System
SLCP	Short-Lived Climate Pollutant
SO2	sulfur dioxide
SPPE	Small Power Plant Exemption

SRA	State Responsibility Area
SSC	Species of Special Concern
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
TAC	toxic air contaminant
TBACT	Best Available Control Technology for Toxics
TCR	The Climate Registry
TOG	total organic gases
TOH	Toe of the Hill
TPP	Tree Protection Plan
tpy	ton(s) per year
TPZ	Tree Protection Zone
UCMP	University of California Museum of Paleontology
UPS	uninterruptible power supply
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V	vertebrate
VMT	vehicle-mile(s) traveled
VOC	volatile organic compound
VRP	visibility-reducing particles
WEAP	Worker Environmental Awareness Training Program
WEAT	worker environmental awareness training
XPLE	cross-linked polyethylene

1 Project Description

Microsoft Corporation (Applicant) proposes to construct and operate the San José City Data Center (SJC02) located at 1657 Alviso-Milpitas Road in San José, California. The SJC02 will consist of two single-story data center buildings. The maximum electrical load of the project will be 99 megawatts (MW), although the estimated load is 92 MW, inclusive of information technology (IT) equipment, ancillary electrical/telecommunications equipment, and other electrical loads (administrative, heat rejection, and safety/security). For the purposes of the CEC and City of San José's environmental review process, this SPPE application also describes the removal of existing onsite buildings and contaminated soils from the site. To provide reliable operation of the Project in the event of loss of electrical service from the local electric utility provider, Pacific Gas & Electric Company (PG&E), the Project includes 40 3.0-MW standby diesel generators to provide electrical power to support the IT load during utility outages or certain onsite electrical equipment interruption or failure. These generators will be deployed in redundant configurations (that is, all 40 generators will never be operating at the same time at 100 percent) to provide uninterrupted power, up to the maximum of 99 MW (with an expected load of 92 MW). Electrical power from the SJC02 backup generators cannot and will not create electricity for offsite distribution and consumption, as the electrical interconnection to the PG&E system only supports supplying electricity to SJC02 and does not allow exporting electricity from the project back to PG&E (i.e., the distribution line only allows power to flow in one direction – from PG&E to SJC02). In addition to the 40 backup generators, SJC02 will include two administrative generators, rated at 1.25 MW and 0.5 MW, to support administrative functions during an interruption in the normal delivery of electrical power from the utility. The Applicant will stipulate in an agreement with the utility to a contractual limit in the amount of electricity available from PG&E's system to a maximum of 99 MW.

1.1 Project Overview

The SJC02 consists of two buildings with approximately 457,000 gross square feet of administrative and data center space. The northern building (designated SJC02) is a single-story structure of approximately 228,453 square feet with supporting amenities. The southern building (designated SJC03) is a single-story structure of approximately 228,150 square feet with supporting amenities. Both buildings include administrative areas, restrooms and shower facilities, storage areas, loading docks, backup generator yards, stormwater bio-swales, paved surface parking lots, and landscaping features. The project also includes an onsite 115-kilovolt (kV) substation with two 115 kV underground feeder lines from the Los Esteros 115 kV bus to the onsite substation. The approximately 64.5-acre project site is designated Light Industrial under the adopted Envision San José 2040 General Plan; is identified as Light Industrial in the applicable Alviso Master Plan; and is zoned LI- Light Industrial with an Assessor's Parcel Number of 015-31-054. Figure 1-1R (All figures provided at end of document) shows the regional location of the SJC02 site, and Figure 1-2R identifies the project site location. A site plan is provided as Figure 2-1.

The standby generation system for the project consists of 40 3.0-MW diesel-fired generators, each with a standby output capacity of 3.0 MW to support the need for the data center to provide an uninterruptible power supply. Each building's administrative functions will be supported during electrical outages by a standby generator (designated as Admin generators), with a 1.25-MW standby generator for the northern building and a 0.5-MW standby generator for the southern building. Additional project features include electrical switchgear and distribution lines between the substation and buildings, as well as from the backup generator yards and from each respective building. The backup generation system will be located in equipment yards along the sides of each building. Each building will include 21 standby generators (20 3-MW standby generators and an Admin standby generator). The Admin generator for each building will provide continuous power to the essential systems (fire monitoring and other emergency operations) for both buildings during electrical outages. At no time will the standby generators generate more than 99 MW[1] of electricity.

Each backup generator is a fully independent package system with dedicated fuel tanks located on a skid below the generator, located at ground level adjacent to the buildings. Each backup generation yard will be electrically interconnected to the building it serves through a combination of underground and aboveground conduit and cabling to a location within the building that houses electrical distribution equipment.

The project will include several offsite connections to potable and recycled water pipelines and to sanitary sewer and stormwater pipelines, and an access road from the northern project boundary to Zanker Road, referred to herein collectively as the "offsite infrastructure alignment areas," as shown on Figure 2-1. No natural gas will be used at the site.

1.1.1 Potable Water

For redundancy purposes, three potable water lines are proposed. Water Line Route #1 and Water Line Route #2 begin in the northwestern corner of the project. Both routes travel south to the proposed entrance road, Nortech Extension. From there, they both turn west to Zanker Road. At Zanker Road, Water Line Route #1 heads north briefly and then west, ultimately connecting to the Nortech valve. Water Line Route #1 is approximately 1.5 miles (7,900 feet) long. At Zanker Road, Water Line Route #2 turns south before turning west alongside Highway 237, and eventually turning south to go under Highway 237 to connect to the new Holger Valve. Water Line Route #2 is approximately 1.3 miles (7,100 feet) long. Water Line Route #3 begins at the southwestern corner of the project, and heads generally east to Zanker Road, where it will parallel Water Line Route #2 connecting to the new Holger valve. Water Line Route #3 is approximately 1.4 miles (7,500 feet long). The water will come from the San José Municipal Water System to the project.

1.1.2 Reclaimed Water

Reclaimed water will be used at the site for landscaping and cooling purposes. The reclaimed water line will start at the northwestern corner of the project site and proceed south to the proposed entrance road, Nortech Extension. From there, the line turns west and ends at an existing reclaimed water line that is oriented generally north to south. The reclaimed water line will be approximately 0.5 mile (2,900 feet) long).

1.1.3 Sanitary Sewer

A sanitary sewer line will begin at the northwestern corner of the project site, and head south to the proposed entrance road, where the line turns to the west. At Zanker Road, the line turns south and will connect to the existing sanitary sewer force main/pump station at the corner of Zanker Road and Thomas Foon Chew Way. The sewer line is approximately 0.6 mile (3,300 feet) long.

1.1.4 Stormwater

The stormwater line for the project will begin in the northwestern corner of the project site, paralleling the water line route, terminating at the Nortech Parkway extension off Zanker Road, where it will tie into the City of San José's stormwater system in the vicinity of Nortech Parkway. The stormwater line is approximately 0.55 miles (3,000 feet) long.

[1] Total power use assumes 40, 3-MW standby generators operating at 75 percent load, plus the admin generators ((40 * 3 MW * 0.75) + 1.25 MW + 0.5 MWs = 91.75 MWs).

1.1.5 Electrical Supply Line

The proposed onsite substation will be located in the northwestern corner of the project site and will interconnect to the existing PG&E substation via two, underground 115kV feeder lines The approximately 1,100-foot-long underground electrical supply lines will be located on the western fenceline of the project site, adjacent to the Los Esteros Critical Energy Facility (LECEF). Reconductored Transmission Line

1.1.6 Reconductored Transmission Line

At PG&E's request, the project includes an approximately 8.76 mile-long reconductoring of Pacific Gas & Electric's (PG&E) Newark-North Receiving Station #1 115kV transmission line. This existing transmission line runs adjacent to the northern boundary of the project site, and as shown in Figure 1-2R, generally trends northward to the City of Newark along the eastern edge of the San Francisco Bay.

1.1.7 Bike Trail Extension

The proposed project includes the extension of a Class I improved trail from Ranch Drive along the southern boundary of the site to the end of the existing bike trail (shown on Figure 3.16-2 of the Recreation section) in order to provide a trail connection to the Coyote Creek Trail.

1.1.8 Data Center Design

Buildings SJC02 and SJC03 will be constructed of steel structural components with metal-framed and insulated exterior walls with metal panel façade containing accent fields. The entries will include storefront glazing. Heating, ventilation, and air-conditioning equipment, including adiabatic chiller units, will be located adjacent to each building. Figures 2-2a to 2-2b provide the conceptual floor layout for the two buildings. Elevation drawings are presented on Figures 2-3a through 2-3f for Building SJC02 and 2-4a through 2-4g for Building SJC03. The exterior of the building will conform to applicable City of San José design standards. Figure 2-5 provides an oblique rendering of the project.

1.2 Electrical System Engineering

The standby generator system includes a 4-to-make-3 design topology, meaning that for every three standby generators that will support load in the event of a utility failure, there is one redundant generator. In the event of a utility service disruption, this means that all 40 standby generators (total for both buildings) begin operation at approximately 75 percent load, with both Admin generators operating at approximately 100 percent load. The total estimated electrical demand under this scenario is approximately 92 MW. Each building's standby generators will be supported by an uninterruptible power supply (UPS) system consisting of batteries, an inverter, and switches to facilitate the uninterrupted transfer of electrical power supply from the PG&E substation to the onsite standby generators in the event of an undefined number of potential events that could impact PG&E's service (resulting in a loss of power or degradation in power quality), which triggers the starting of the standby generators. The UPS system includes valve-regulated battery banks, with each bank capable of providing up to 10 minutes of backup at 100 percent load. The UPS system has a rectifier and inverter to condition electricity and is sized to deliver power to support 100 percent of the server bay demand for up to 60 seconds. However, when the electrical service is outside of pre-determined tolerances (+10 or -15 percent of alternating current nominal voltages or a frequency range of 60 Hertz plus or minus 5 percent), the UPS will transfer over to bypass to deliver generator produced power. The UPS transfer load from PG&E to UPS battery power, which triggers the start of the generators, occurs within 5 milliseconds. Load then transfers from the UPS battery system to the standby generators within 20 seconds of generator start. The UPS system provides 'clean' utility power for critical loads (IT equipment, fire/security and building management systems, and some small 120-volt circuits). The major mechanical systems, lighting, and general receptacles are not powered from the UPS sources.

Two separate 115-kV PG&E feeder lines from the Los Esteros 115 kV bus to the onsite substation are included in the project and will be located underground between the onsite project substation and PG&E's

Los Esteros substation. The conductor type and sizing is anticipated to be approximately 1,250 kcmil copper XLPE extruded dielectric cable, which is typical. This size can supply up to about 150 MVA. The ultimate cable type and size will be confirmed when the project is fully engineered. The interconnection to the PG&E System and One Line Diagram is provided as Figure 2-6R. At the time of the submittal of the SJC02 SPPE Application, the SJC02 distribution lines were assumed to include a 715 double-bundle Aluminum Conductor Composite Reinforced with a current carrying capacity of 310 Mega Volt-Amps. The receiving stations were to step voltage down to 60 kV for distribution along the Northwest Loop, which will then provide electricity to facilities interconnected to the loop from either end, making electrical service reliable. PG&E has indicated they had an outage frequency for the period of 2014 to 2018 of 99.8 and 99.9 percent on the two, 230-kV supply lines into the existing substation. Over this period, there were 11 outages, with the longest outage in 2018 lasting for 72 hours. Additional information for the Newark-North Receiving Station #1 115kV transmission line is pending and will be provided to the CEC upon receipt from PG&E.

A single electrical system consists of a 34.5-kV to 480-volt substation transformer feeding the 480-volt critical bus that feeds two parallel UPS modules. The critical bus is supported by its own standby generator, and each standby generator operates independent of one another. A utility main breaker and a generator main breaker are included in the critical bus 480-volt switchgear, which are controlled by an automatic transfer controller that transfers the electricity generated by the dedicated standby generator in the event of a power outage.

1.2.1 Reconductoring of Newark-North Receiving Station #1

A preliminary engineering study was conducted by PG&E in late 2019 that determined potential system impacts by the project. As the project is anticipated to require up to 90 MW (with an expected power factor of 0.95) of power during operations, it has been determined by PG&E to supply that need will require a reconductoring of the Newark-North Receiving Station #1 transmission line. Therefore, in response to this determination, the project applicant has incorporated the requested reconductoring as a project component as described further herein. This transmission line is shown in Figure 1-2R.

The Newark-North Receiving Station #1 line is a tower line approximately 8.76 miles in length. Approximately 4.5 miles of this existing transmission line runs through existing wetlands as well as industrial and residential areas; the remaining approximately 4.25 mile portion of the line are located over water. The anticipated scope of reconductoring work is described further below.

It is anticipated that the necessary reconductoring work will occur concurrently with onsite project construction.

1.2.1.1 Anticipated Power Line Reconductoring

Following is a description of the anticipated scope of reconductoring work, based on reasonably available information from PG&E and other sources and reflects a typical approach used for this type of reconductoring. Final details of the ultimate reconductoring plan will be coordinated and confirmed with PG&E as part of the final design process.

1.2.1.1.1 Pull and Tension Sites

According to the preliminary plan, there will be approximately 15 pull and tension sites. The specific pull and tension site locations are anticipated to be located within existing PG&E easements, immediately adjacent to poles, and will be finalized in coordination with PG&E prior to construction. A diagram of typical conductor stringing is provided in Figure 2.6-8. The average distance is approximately 4,000 feet between pull and tension sites. The area of each pull or tension site is approximately 40 feet wide by 100 feet long centered in the width of the relevant easement(s).

Transport vehicles (crew-cab truck and/or half-ton pickup) will be used to transport personnel to a pull or tension site. To haul the conductor to the site, reel trailers with reel stands will be mounted on a line truck.

On the line truck, pullers will be mounted to install the conductor. The conductor will be removed from the sites on a line truck.

1.2.1.1.2 Top Removal

If needed, a line truck will be used to access and remove pole tops. Each pole will be secured by the line truck, and a chainsaw will be used to remove the top portion of each pole. The sawdust from the chainsaw activities will be collected, removed from the site, and disposed of with each pole top.

1.2.1.1.3 Conductor Replacement

Conductor replacement will occur in sections when seasonal restrictions and crew scheduling permit. Some installation phases may occur concurrently on separate lines sections. Each conductor reel contains approximately 4,500 feet of conductor. Equipment will be staged at the pull and tension sites (approximately 4,000 feet between sites) for each section.

During conductor installation, the existing power line and any distribution lines that cross or are co-located on the line will be taken out of service (known as “taking a clearance”). Before conductor installation begins, any road crossings and other locations within the section of installation will be briefly closed or a rolling stop will be arranged. Given the nature of the work involved, any road closures that must occur on private and county roads are not expected to exceed 5 minutes in duration. For any highway crossings, the California Highway Patrol and Caltrans will be contacted to organize 5-minute rolling stops consistent with typical practice. Any necessary permits will be obtained from the affected agencies.

The conductor stringing operation begins with installation of rollers. The rollers attach to the lower end of the pole insulators. The rollers allow the individual conductors to be pulled through each structure until the conductors are ready to be pulled up to the final tension position.

A cable will be attached between the old conductor and new conductor on a reel attached to a line truck at a pull and tension site. From an adjacent pull and tension site, a line truck with a drum puller and an empty conductor reel will pull the old conductor onto the reel for salvage while pulling the new conductor in place. Tension will be maintained by the line truck with the new conductor reel to prevent the line from sagging to the ground.

After the conductors are pulled into place, wire or conductor sags will be adjusted to a pre-calculated level. The conductors will then be clamped to the end of each insulator as the sheaves are removed. The final step of the conductor installation will be to install vibration dampers and other accessories. Any temporarily closed road will be opened at this time. Packing crates, spare bolts, and construction debris will be picked up and hauled away for recycling or disposal during construction. A final survey will be conducted to ensure that cleanup activities have been successfully completed as required.

1.2.2 Electrical Generation Equipment

The standby generators will be a U.S. Environmental Protection Agency (EPA) Tier-4 diesel-fired generator equipped with diesel particulate filters (DPFs) and selective catalytic reduction systems (SCRs). The IT load generators will be Cummins Model QSK95-G5 NR2 with a standby generating capacity of 3.0 MW. The Admin generators will be Cummins Model QSK50-G5 NR2 and QSX15-G9, with a standby generating capacity of 1.25 and 0.5 MW, respectively.

Each standby generator includes an engine, alternator, and sound-attenuated enclosure. Each generator can be independently operated based on signals from the UPS system programmable logic controllers. The standby generators are optimized for rapid start, with redundant starters, redundant batteries, redundant battery chargers, and a best battery selector switch. Each 3-MW generator is approximately 13 feet wide, 56.5 feet long, and 25 feet tall to the top of the DPF/SCR. The 1.25-MW Admin generator will be approximately 13 feet wide, 41 feet long, and 16 feet tall to the top of the enclosure. The 0.5 MW Admin generator will be approximately 13 feet wide, 41 feet long, and 13 feet tall to the top of the enclosure. Each standby generator will include a separate exhaust stack approximately 30 feet above grade.

1.2.3 Fuel System

Each 3-MW standby generator includes a diesel fuel tank with polishing filtration system. The tank will be located underneath each standby generator and provides sufficient fuel storage to operate the generator for approximately 48 hours. The 3-MW standby generators will include a 9,100 gallon tank. The 1.25- and 0.5-MW generators include 4,800- and 2,000-gallon tanks, respectively.

Each of the 40, 3MW standby generators is proposed to operate approximately 42 hours per year for testing and maintenance purposes (actual testing and maintenance operation will likely be less than 13 hours per year consistent with SPPE Application Table 2-4). At the maximum engine operating rate, each engine consumes 202 gallons of diesel fuel per hour, resulting in approximately 8,500 gallons of diesel fuel use per year. Using the approach above for the administrative generators, their maximum fuel consumption rates are 90.5 and 34.4 gallons per year, resulting in up to 3,800 and 1,450 gallons per year of fuel use. For conservative planning purposes, this analysis assumes up to 2 fuel deliveries per year per engine (84 annual deliveries for the 42 standby generators).The Applicant will contract with multiple fuel suppliers to provide delivery within 48 hours of a request to confirm fuel availability.

1.2.4 Cooling System

Each generator will be self-contained within an enclosure, with its own radiator for cooling.

1.2.5 Water Supply and Use

Potable water will be provided by the City of San José (City). Recycled water is available and will be used onsite for process cooling and landscaping purposes. The standby generators will require water during the initial filling of the closed-loop radiator system and periodically during maintenance events. After the initial fill, no further consumption of water by the standby generators will be required.

Building cooling will be accomplished using adiabatic cooling technology. The adiabatic cooling technology uses a radiator-style cooling system with wetted pre-cooling pads installed upstream of the cooling tube bundle. During lower ambient conditions, the tower operates without using water on the wetted pads. However, during higher ambient temperatures (greater than 75 degrees Fahrenheit), the pre-cooling pads are wetted to reduce the incoming air temperature, resulting in greater heat rejection. The expected total water demand is approximately 29.1 acre-feet per year, which is primarily recycled water, with negligible quantities of potable water for sanitary purposes and other minor maintenance uses.

1.2.6 Waste Management

Construction- and demolition-related wastes, similar to construction and demolition for comparable projects, will be generated, managed, and disposed of consistent with applicable law, as described in Section 3.9. No significant waste materials will be generated during operation of SJC02.

1.2.7 Hazardous Materials Management

Each standby generator will include a double-walled fuel tank to minimize the potential of an accidental fuel release. As diesel fuel is not highly volatile, vapor controls are not required. The space between the walls of the fuel tank will be monitored for the presence of liquids. This monitoring system will be monitored by the onsite operations staff, who will receive automated alerts in the event of fuel leak or release. The diesel fuel and potentially the battery electrolyte (sulfuric acid) represent the only hazardous materials stored onsite in reportable quantities.

Fuel deliveries will occur as needed by fuel suppliers delivering diesel fuel via tanker trucks. These tanker trucks will park near each standby generator for refueling. Fueling will occur within a spill catch basin located under each generator fill connection. The drain to the spill catch basin will be closed prior to the start of fueling. Spill control equipment will be stored within the backup generation yard to allow immediate responses in the event of an accident.

As a safety measure, to the extent feasible, fueling operations will be scheduled at times when storm events are improbable to avoid potential impacts to water resources.

Warning signs will be installed at the fuel unloading areas to minimize the potential of refueling accidents occurring due to tanker trucks departing prior to disconnecting the transfer hose. Also, an emergency pump shut-off will be utilized if a pump hose breaks while fueling the tanks. Tanker truck loading and unloading procedures will be posted at the fuel unloading areas.

1.3 Existing Site Condition

The SJC02 will be located on an approximately 64.5-acre site. The site has been used historically for farming since the early 1920s, but it is not currently in agricultural use. There are 2 vacant residences and a storage shed/warehouse currently onsite, which will be demolished as part of the SJC02 project. To the north of the project site are the San José/Santa Clara Regional Wastewater Treatment Plant sludge drying beds, to the south is Highway 237, to the west is the LECEF, a PG&E substation (Los Esteros Substation), and to the east is the Coyote Creek riparian corridor. The project is anticipated to begin construction in the 4th quarter of 2021, with operations beginning in the 2nd quarter of 2023.

The nearest airport, the Norman Y. Mineta San José International Airport, is located approximately 3 miles to the south.

1.4 Project Construction

The Applicant will commence construction of the project after the existing structures have been demolished and any agriculture-related soil contamination is remediated consistent with requirements to be provided by the local lead agency. Possible remediation may include excavation for offsite disposal or capping in place.

1.4.1 Project Site

For onsite construction of the facility, no offsite staging or laydown areas are proposed, as construction staging will occur on the project site.

Demolition of the existing on-site structures and soil excavation and removal work is expected to take approximately 1 month. Once demolition and excavation work is complete, construction of the project is expected to take approximately 16 months. Construction and demolition are scheduled to commence in the 4th quarter of 2021 and completed in the 2nd quarter of 2023. Construction of the offsite linear features within the offsite infrastructure alignment areas is expected to be completed within the 17-month construction window.

Onsite construction is expected to require a maximum of 215 workers (craft and supervisory) per month and an average of 108 workers per month. Maximum and average offsite (excluding the existing transmission line reconductoring) construction workers are expected to be 72 and 48, respectively.

Tables 2-1a through 2-1d presents the construction/demolition workforce and equipment by month for onsite and offsite construction (i.e., all linears except the reconductored transmission line).

Table 2-1e presents the number of morning and evening vehicle trips to the site for onsite and offsite construction (i.e., all linears except the reconductored transmission line).

Based on the geotechnical investigation, soils in the upper 3 to 5 feet under the project site consist of granular soils of clayey sands, sands, and gravels with variable clay content, and some clays. Under this layer of soils is lean to fat clays to about 25 feet, with loose to medium dense gravels/sand and loose to medium dense sands with gravel, and low to medium plastic sandy lean clays to about 80 feet below grade. The geotechnical investigation determined that the potential exists for liquefaction-induced settlement, lateral spreading, shallow groundwater (7 to 12 feet below grade), and expansive soils that are common in this region.

The geotechnical investigation suggests the placement of 3 to 4 feet of imported fill on the site, with the use of spread footings for building foundations, and densification techniques to address the potential for liquefaction/lateral spreading and expansive soils. The densification technique involves the vertical and horizontal compaction of soils beneath the foundations to reduce the total settlement to acceptable levels. The geotechnical investigation indicates that densification techniques will disturb soils to approximately 40 feet below grade. Figure 2-7 identifies the expected excavation depths at the project site.

1.4.2 Reconductored Transmission Line and Other Offsite Improvements

The offsite reconductoring component of the project is anticipated to occur concurrently with on-site work. Laydown and staging areas for the off-site linear features excluding reconductoring will be located within the approximately 75-foot construction corridor for linear features (each side of the linear).

For the reconductoring work involving the approximately 8.76-mile-long reconductored transmission line, it is anticipated there will be approximately 5 combined helicopter landing/takeoff, laydown, staging, and parking areas, collectively referred to as “reconductoring laydown and staging areas,” as well as up to 15 pull sites. Figure 1-2R identifies the anticipated reconductoring laydown and staging areas. Pull sites will be located near tower locations that are publicly accessible. Specific locations will be finalized as part of the final design and in coordination with PG&E.

As much as feasible, the proposed reconductoring laydown and staging areas will be located within previously disturbed areas, and outside of any known areas with sensitive resources. It is not anticipated that these areas will require remedial grading or revegetation upon completion of the reconductoring work because these areas are actively in use as laydown and staging areas or are already covered with either gravel or asphalt. It is anticipated the reconductoring will occur simultaneously during the 17-month construction window for the project and will be approximately 12 months in length, with the majority of activities within any biologically sensitive areas (such as wetlands) occurring September through January to avoid any potentially significant impacts to any special-status species in this area.

During the reconductoring work, each construction crew is expected to have between two and five workers. Two crews will be working on most days. During the construction period, there will be two to five crews of approximately five people each, depending on specific activities being conducted. At the peak of construction, there may be as many as 10 crews during day clearances to install the conductor and to minimize the length and number of line clearances. Crews typically work four, 10-hour days per week. An average of 20 reconductoring workers per month and 53 maximum are anticipated during these activities.

Tables 2-2a and 2-2b present the expected construction equipment on a monthly basis for reconductoring activities.

Table 2-2c presents the estimated number of morning and evening vehicle trips to the site for reconductoring activities.

Table 2-1a. Onsite Construction Workforce by Month and Classification (Excluding Reconductoring)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Labor Classification																	
Carpenters	0	0	0	1	5	5	5	5	5	8	20	24	24	24	18	12	4
Laborers	12	12	12	12	25	25	25	25	25	25	25	25	25	25	16	12	4
Teamsters	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	0
Electricians	0	0	0	1	3	3	6	9	12	24	24	30	30	30	24	18	4
Iron Workers	0	0	0	0	12	12	12	12	12	12	9	9	9	9	9	0	0
Millwrights	0	0	0	0	0	0	0	0	0	0	0	0	4	4	6	6	0
Boilermakers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plumbers	0	0	0	0	6	6	6	6	6	12	12	12	18	18	18	12	4
Pipefitters	0	0	0	0	0	0	0	0	0	4	14	14	14	16	16	10	4
Insulation Workers	0	0	0	0	0	0	0	0	0	0	6	8	12	12	12	12	4
Operating Engineers	6	6	6	6	9	9	9	9	9	5	15	15	7	7	5	4	0
Oilers and Mechanics	1	1	1	1	2	2	2	2	2	4	6	6	8	8	6	6	0
Cement Finishers	0	0	0	0	6	6	6	6	6	6	6	3	3	1	1	0	0
Roofers	0	0	0	0	0	0	0	0	0	0	14	14	14	14	6	3	0
Sheetmetal Workers	0	0	0	0	0	0	0	0	0	2	8	8	12	12	8	8	0
Sprinkler Fitters	0	0	0	0	0	0	0	0	0	6	6	6	6	3	3	0	0
Painters	0	0	0	0	0	0	0	0	0	0	0	4	4	6	6	4	4
Total Craft Labor	**24**	**24**	**24**	**26**	**73**	**73**	**76**	**79**	**82**	**113**	**170**	**183**	**195**	**194**	**157**	**110**	**28**
Total Supervision	**1**	**1**	**1**	**2**	**8**	**12**	**12**	**12**	**20**	**20**	**20**	**20**	**20**	**20**	**12**	**12**	**12**
Total Staffing	**25**	**25**	**25**	**28**	**81**	**85**	**88**	**91**	**102**	**133**	**190**	**203**	**215**	**214**	**169**	**122**	**40**

Table 2-1b. Offsite Construction Workforce by Month and Classification (Excluding Reconductoring Activities)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Labor Classification																	
Laborers	20	20	20	20	20	20	20	20	20	20	20	20	20	20	10	10	4
Teamsters	5	5	5	5	5	5	5	5	5	5	5	5	5	5	3	3	0
Electricians	0	0	0	1	3	3	3	3	3	3	3	3	3	3	3	3	0
Operating Engineers	2	2	4	4	4	4	4	4	4	4	4	4	4	4	2	2	1
Plumbers	0	0	0	0	0	0	3	3	6	6	6	3	0	0	0	0	0
Pipefitters	0	0	0	0	0	0	0	0	0	4	14	14	14	16	16	10	4
Oilers and Mechanics	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1
Cement Finishers	0	0	0	0	0	0	0	0	2	2	2	2	3	3	2	0	0
Painters	0	0	0	0	0	0	0	0	0	0	0	4	4	6	6	4	4
Total Craft Labor	**28**	**28**	**30**	**31**	**34**	**34**	**37**	**37**	**42**	**46**	**56**	**57**	**55**	**59**	**44**	**34**	**14**
Total Supervision	**3**	**3**	**3**	**3**	**5**	**10**	**10**	**10**	**10**	**15**	**15**	**15**	**10**	**10**	**10**	**10**	**3**
Total Staffing	**31**	**31**	**33**	**34**	**39**	**44**	**47**	**47**	**52**	**61**	**71**	**72**	**65**	**69**	**54**	**44**	**17**

Table 2-1c. Onsite Construction Equipment by Month (Excluding Reconductoring)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Description																	
Excavators	4	4	4	4	2	2	2	2	2	0	0	0	0	0	0	0	0
Backhoe	0	0	0	1	2	2	1	1	1	1	1	0	0	0	0	0	0
10-wheel Dump Truck	25	25	25	25	3	2	2	2	2	2	0	0	0	0	0	0	0
Hydraulic Hammer	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Front End Loader	2	2	2	2	3	3	1	1	0	0	0	0	0	0	0	0	0
75-ton Hydraulic Crane	0	0	0	0	0	0	2	2	0	1	1	0	0	0	0	0	0
35-ton Hydraulic Crane	0	0	0	0	0	0	2	2	0	0	0	2	2	0	0	0	0
Fork Lift	0	0	0	1	2	2	2	2	3	3	3	3	3	2	2	1	1
Horizontal Directional Drill Equipment	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Grader	0	0	0	4	4	4	4	2	1	0	0	0	0	0	0	0	0
Compactor	0	0	0	4	4	2	2	2	2	2	2	0	0	0	0	0	0
Water Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
Pick-up Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Light Towers	0	0	0	1	1	1	2	2	2	1	1	1	1	0	0	0	0

Table 2-1d. Offsite Construction Equipment by Month (Excluding Reconductoring Activities)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Description																	
Excavators	4	4	4	4	2	2	2	2	2	0	0	0	0	0	0	0	0
Backhoe	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0
10-wheel Dump Truck	3	3	3	3	3	3	3	3	10	10	2	2	2	1	1	1	0
Concrete Trucks	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	0
Hydraulic Hammer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Front End Loader	2	2	2	2	3	3	1	1	1	1	1	1	1	1	1	0	0
75-ton Hydraulic Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35-ton Hydraulic Crane	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fork Lift	2	2	2	2	2	2	2	2	3	3	3	3	0	0	0	0	1
Horizontal Directional Drill Equipment	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
Grader	0	0	0	4	4	4	4	2	1	0	0	0	0	0	0	0	0
Compactor	0	0	0	4	4	2	2	2	2	2	2	0	0	0	0	0	0
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
Pick-up Truck	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2
Light Towers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 2-1e. Onsite/Offsite Construction Trip Generation (Excluding Reconductoring Activities)

	AM Peak Hour			PM Peak Hour		
Trip Type	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Delivery and Haul Trucks	30	30	60	30	30	60
Workers	215	0	215	0	215	215
Total Construction Traffic	245	30	275	30	245	275

Table 2-2a. T-Line Reconductoring Offsite Construction Workforce by Month and Classification

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Labor Classification																	
Laborers	0	0	4	12	12	18	23	18	12	12	12	12	6	4	0	0	0
Teamsters	0	0	1	1	1	2	2	2	1	1	1	1	1	1	0	0	0
Electricians	0	0	2	8	8	15	20	15	9	9	9	10	6	4	0	0	0
Operating Engineers	0	0	1	1	1	2	2	2	1	1	1	1	1	1	0	0	0
Surveyors	2	2	2	3	3	3	3	3	2	2	2	1	1	0	0	0	0
Total Craft Labor	**2**	**2**	**10**	**25**	**25**	**40**	**50**	**40**	**25**	**25**	**25**	**25**	**15**	**10**	**0**	**0**	**0**
Total Supervision	**1**	**1**	**2**	**3**	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**1**	**1**	**1**	**0**	**0**	**0**
Total Staffing	**3**	**3**	**12**	**28**	**28**	**43**	**53**	**43**	**27**	**27**	**27**	**26**	**16**	**11**	**0**	**0**	**0**

Table 2-2b. T-Line Reconductoring Offsite Construction Equipment by Month

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Description																	
Dump Truck	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Line Trucks (pull/tension, lifts, auger, derrick boom)	0	0	6	4	4	4	4	4	4	6	6	6	6	6	0	0	0
Pick-up Truck	1	1	5	10	10	15	15	15	10	10	10	10	8	5	0	0	0
Helicopter	0	0	0	2	2	2	2	2	2	0	0	0	0	0	0	0	0

Table 2-2c. Reconductoring Construction Trip Generation (approx.)[1]

Trip Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Equipment Trucks	20	20	40	20	20	40
Workers	50	0	50	0	50	50
Total Construction Traffic	70	20	90	20	70	90

[1] At peak reconductoring activities, crews will be split between separate staging areas along the length of the existing transmission line route. Therefore, the total of approximately 90 trips generated in the AM and PM peak hours will be split among 5 separate locations, with an average AM/PM peak hour total of approximately 18 per staging area.

1.5 Reconductoring of Newark-North Receiving Station #1

As discussed in Section 2.2.1, Reconductoring of the Newark-North Receiving Station #1, a preliminary engineering study was conducted by PG&E in late 2019 that determined potential system impacts by the project. As the project is anticipated to require up to 90 MW (with an expected power factor of 0.95) of power during operations, it has been determined by PG&E to supply that need will require a reconductoring of the Newark-North Receiving Station #1 transmission line. This transmission line is shown in Figure 1-2R. Therefore, in response to PG&E's request, the applicant has updated its project description to incorporate the requested reconductoring of the approximately 8.76 mile-long Newark-North Receiving Station #1 115kV transmission line. This transmission line starts in the City of San Jose, and then travels north before turning east near the northern boundary of the project site, and generally trends northward to the City of Newark along the eastern edge of the San Francisco Bay, and travels through the Cities of San Jose, Santa Clara and Fremont.

Reconductoring activities will not involve pole replacement, excavation, or ground disturbance and will be temporary in nature and occurring only the existing transmission tower structures. A discussion of potential impacts related to construction is provided below.

1.6 Potential Construction Impacts as a Result of Reconductoring

As a result of the reconductoring, it is anticipated during construction that there will be minor and temporary impacts that will be limited in nature; any potential impacts can be assured to be less than significant through the incorporation of project design features and the implementation of relevant mitigation measures previously discussed in the SJC02 SPPE Application.

1.6.1 Aesthetics

Project related reconductoring activities will be temporary in nature on existing features and consist only of reconductoring activities, as described more fully above. No poles will be removed as a result of these efforts. Ground disturbance activities are not anticipated as the reconductoring laydown and staging areas will be located on areas previously disturbed and the visual character/quality of the area will be unchanged. Reconductoring efforts will be conducted from the ground level where accessible and in some cases via helicopter.

Based on the location of the existing transmission line at issue, the reconductoring activities will not adversely affect a scenic vista, damage scenic resources, degrade the visual character or quality of public views of the site and surroundings, will not conflict with applicable zoning and other regulations governing scenic quality, and will not create substantial light or glare. Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.2 Agriculture and Forestry Resources

Project related reconductoring activities will be temporary in nature on pre-existing features and consist only of reconductoring activities with no ground disturbance, as described more fully above. No poles will be removed as a result of these efforts. Proposed reconductoring laydown and staging areas will be sited on previously disturbed locations. Neither the existing transmission line, nor the proposed reconductoring laydown and staging areas are located on "Important Farmland" for purposes of CEQA and are instead identified as either "Other Land" or "Urban and Built-up Land" (DOC 2016). Further, there are no Williamson Act Contracts for any parcel along the existing transmission line route. Therefore, neither "Important Farmland" or Williamson Act Contracts need to be addressed during these activities. As further described in the analysis submitted as part of the original SJC02 SPPE Application, the project, including the reconductoring component, will not result in any significant impacts to agricultural resources since it will not convert any Important Farmland or impact any Williamson Act Contracts.

As described in Section 2.7.7, Land Use, the reconductored transmission line crosses through the cities of Santa Clara, San Jose and Fremont. The existing transmission line is an existing allowable use and will remain in place and will not be modified except for the minor reconductoring activities performed at PG&E's request. Since only reconductoring activities will occur along the approximately 8.76-mile-long route, no new or expanded facilities will be built, and any construction-related impacts will be temporary. As further described in the analysis submitted as part of the original SJC02 SPPE Application, the project, including the reconductoring component, will not result in any significant impacts to agricultural resources with regard to consistency with applicable zoning requirements.

The proposed reconductoring laydown and staging areas will be located in the City of Fremont and San Jose. In Fremont Laydown A is zoned General Industrial. In San Jose Laydown B, is Planned Development (Agriculture Base District [A(PD)], Laydown C is Light Industrial (LI), Laydown D is Heavy Industrial (HI) and Laydown E is zoned Agriculture (A). All reconductoring laydown and staging areas will be located on previously disturbed areas, and any work conducted in these areas will be temporary in nature and will be consistent with existing zoning.

Finally, as further described in the analysis submitted as part of the original SJC02 SPPE Application, the project site and surrounding areas (including the off-site areas where the reconductoring work will occur) are not zoned for forest land, timberland, or timberland production. Therefore, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.3 Air Quality

A revised air quality technical analysis of the project, previously described within the SJC02 SPPE application, has been completed to reflect the proposed reconductoring activities and is provided as Attachment A. As documented more fully in Attachment A, with the addition of reconductoring, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.4 Biological Resources

A revised biological resources technical analysis of the project, previously described within the SJC02 SPPE application, has been completed to reflect the proposed reconductoring activities and is provided as Attachment B. As documented more fully in Attachment B, with the addition of reconductoring, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.5 Cultural and Tribal Resources

A complete discussion of the prehistoric, ethnographic, and historical setting may be found in SJC02 SPPE Application, Appendix 3.5-A, *Cultural Resource Investigation in Support of the San José Data Center (SJC02) Project*. The following includes a discussion of the reconductored transmission line and an addendum to Appendix 3.5A has been provided as Attachment C.

The analysis submitted in connection with the original SJC02 SPPE Application has been updated to incorporate an additional assessment to address potential cultural resources and tribal cultural resources associated with the reconductoring activities along the existing approximately 8.76-mile-long reconductored transmission line and five previously disturbed laydwoan and staging areas as shown in Figure 1-2R. As documented more fully in Attachment C, the approximately 4.5 mile-long portion of the existing transmission line alignment passes through bay marshlands adjacent to Coyote Creek that also include historic salt evaporators remaining from Alviso Salt Works, which was in operation from the 1920s to the 1950s. Portions of the proposed reconductoring activities on the existing transmission line will occur over water (approximately 4.25 miles) and will be conducted entirely via helicopter. As there is no potential for ground disturbance in these over water areas, these areas were not analyzed further. This updated analysis is focused on the remaining approximately 4.5-mile long portion of the existing transmission line that does not cross water.

Although project-related reconductoring activities will not include the construction of any structures, changes to any existing site features, or any ground disturbing activities, the existing line upon which the reconductoring work will occur spans the cities of Fremont and Santa Clara in addition to the City of San Jose. Therefore, a discussion of the relevant regulatory setting has been expanded to address the reconductoring activities for purposes of this updated cultural resources and tribal cultural resources analysis for the cities of Fremont and Santa Clara. A complete discussion of the City of San Jose's regulatory setting is located with the SJC02 SPPE Application submitted November 15, 2019.

1.6.5.1 Regulatory Setting

1.6.5.1.1 City of Fremont (Reconductored Transmission Line)

The City of Fremont Municipal Code considers historical resources that include historic-era built-environment resources as well as historic and prehistoric archaeological resources. Relevant provisions of Fremont's Municipal Code are noted below.

Section 18.175.120 of the City of Fremont Municipal Code provides criteria for evaluating resources for local designation and listing on the Fremont Register of Historic Resources. The criteria are as follows:

> A resource may be added to the Fremont register if the City Council, after considering the recommendation of the board, finds that:
>
> (1) It is listed or has been determined to be eligible for listing in the California Register or the National Register; or
>
> (2) It has been determined by the City Council to be significant on the national, state or local level under one or more of the following five criteria:
>
> (a) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or to the cultural heritage of California, the United States, or the City; or
>
> (b) It is associated with the lives of persons important to local, California, or national history; or
>
> (c) It embodies the distinctive characteristics of a style, type, period, or method of construction, or is a valuable example of the use of indigenous materials or craftsmanship; or it is representative of the notable work of a builder, designer, or architect; or

(d) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation; or

(e) Its unique location or singular physical characteristic(s) represents an established and familiar visual feature or landmark of a neighborhood, settlement or district, or the City. An historic resource of local significance need not qualify for listing on the California Register to be included on the Fremont register.

Furthermore, the City of Fremont Municipal Code outlines the need for the evaluation of buildings, structures, or objects 50 years old or older under Section 18.175.150:

> Historic resources in the city potentially eligible for listing on the California register or the Fremont register may not have been identified, evaluated or registered. In order to identify historic resources before their historic integrity is destroyed through demolition or relocation, no permit will be issued for these purposes for a building, structure or object that is 50 years old or older until it has been screened for historic significance pursuant to this chapter. (Ord. 27-2007 § 2, 10-23-07. 1990 Code § 8-219115.)

The need, application, and procedure for consideration of potential register resources not previously identified and/or evaluated is outlined in the City of Fremont Municipal Code Section 18.175.160.

Furthermore, Fremont Municipal Code Chapter 18.218 (Standard Development Requirements) contains standard rules related to construction activities and the protection of cultural resources, which will be followed to the extent triggered by the reconductoring activities. These rules include notification of relevant tribes and procedures for the accidental discovery of human remains or cultural artifacts.

> Accidental Discovery of Cultural Resources. The following requirements shall be met to address the potential for accidental discovery of cultural resources during ground disturbing excavation:
>
> (A) The project proponent shall include a note on any plans that require ground disturbing excavation that there is a potential for exposing buried cultural resources.
>
> (B The project proponent shall retain a professional archaeologist to provide a preconstruction briefing to supervisory personnel of any excavation contractor to alert them to the possibility of exposing buried cultural resources, including significant prehistoric archaeological resources. The briefing shall discuss any cultural resources, including archaeological objects, that could be exposed, the need to stop excavation at the discovery, and the procedures to follow regarding discovery protection and notification of the project proponent and archaeological team.
>
> (C) In the event that any human remains or historical, archaeological or paleontological resources are discovered during ground disturbing excavation, the provisions of CEQA Guidelines Sections 15064.5(e) and (f), and of subsection (c)(2)(D) of this section, requiring cessation of work, notification, and immediate evaluation shall be followed.
>
> (D) If resources are discovered during ground disturbing activities that may be classified as historical, unique archaeological, or tribal cultural resources, ground disturbing activities shall cease immediately, and the planning manager shall be notified. The resources will be evaluated by a qualified archaeologist and, in the planning manager's discretion, a tribal cultural monitor. If the resources are determined to be historical, unique archaeological, or tribal cultural resources, then a plan for avoiding the resources shall be prepared. If avoidance is infeasible, then all significant cultural materials recovered shall be, as necessary and at the discretion of the consulting archaeologist, subject to scientific analysis, professional museum curation, and documentation according to current professional standards. Any plan for avoidance or mitigation shall be subject to the approval of the planning manager.
>
> (E) As used herein, "historical resource" means a historical resource as defined by CEQA Guidelines Section 15064.5(a); "unique archaeological resource" means unique archaeological resource as defined by Cal. Pub. Res. Code § 21083.2(g); and "tribal cultural resource" means

tribal cultural resource as defined by Cal. Pub. Res. Code § 21074. Collectively, these terms describe “significant cultural materials.”

1.6.5.1.2 City of Santa Clara (Reconductored Transmission Line) – General Plan

The City of Santa Clara’s (City’s) current general plan (2010-2035) contains goals and policies relating to the development and preservation of cultural resources in the city. General plan policies relevant to the project are as follows:

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

Goal 5.6.3-G2. Appropriate mitigation in the event that human remains, archaeological resources, or paleontological resources are discovered during construction activities.

Policy 5.6.3-P1. Require that new development avoid or reduce potential impacts to archaeological, paleontological, and cultural resources.

Policy 5.6.3-P2. Encourage salvage and preservation of scientifically valuable paleontological or archaeological materials.

Policy 5.6.3-P3. Consult with California Native American tribes prior to considering amendments to the City’s General Plan.

Policy 5.6.3-P4. Require that a qualified paleontologist/archaeologist monitor all grading and/or excavation if there is a potential to affect archaeological or paleontological resources, including sites within 500 feet of natural watercourses and in the Old Quad neighborhood.

Policy 5.6.3-P5. In the event that archaeological/paleontological resources are discovered, require that work be suspended until the significance of the find and recommended actions are determined by a qualified archaeologist/paleontologist.

Policy 5.6.3-P6. In the event that human remains are discovered, work with the appropriate Native American representative and follow the procedures set forth in State law.

In addition to the General Plan policies listed above, Appendix 8.9 (Section 8.9.2) includes the Criteria for Local Significance which were adopted by the City Council on April 20, 2004. The appendix notes that application of the adopted criteria is required for all CEQA documents evaluating potential or listed historic resources and required for preparation of historic resource inventory forms (surveys).

Any building, site, or property in the city that is 50 years old or older and meets certain criteria of architectural, cultural, historical, geographical, or archaeological significance is potentially eligible.

1.6.5.1.2.1 Criteria for Historical or Cultural Significance.

To be historically or culturally significant, a property must meet at least one of the following criteria.

1) The site, building, or property has character, interest, integrity, and reflects the heritage and cultural development of the city, region, state, or nation.
2) The property is associated with a historical event.
3) The property is associated with an important individual or group who contributed in a significant way to the political, social, and/or cultural life of the community.
4) The property is associated with a significant industrial, institutional, commercial, agricultural, or transportation activity.

5) A building's direct association with broad patterns of local area history, including development and settlement patterns, early or important transaction routes or social, political, or economic trends and activities. Included is the recognition of urban street pattern and infrastructure.

6) A notable historical relationship between a site, building, or property's site and its immediate environment, including original native trees, topographical features, outbuildings, or agricultural setting.

1.6.5.1.2.2 Criterion for Architectural Significance

To be architecturally significant, a property must meet at least one of the following criterion:

1) The property characterizes an architectural style associated with a particular era and/or ethnic group.

2) The property is identified with a particular architect, master builder or craftsman.

3) The property is architecturally unique or innovative.

4) The property has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance.

5) The property has a visual symbolic meaning or appeal for the community.

6) A building's unique or uncommon building materials, or its historically early or innovative method of construction or assembly.

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

1.6.5.1.2.3 Criteria for Archaeological Significance.

For the purposes of CEQA, an "important archaeological resource" is one which:

1) Is associated with an event or person of
   a) Recognized significance in California or American history, or
   b) Recognized scientific importance in prehistory;

2) Can provide information, which is both of demonstrable public interest, and useful in addressing scientifically consequential and reasonable or archaeological research questions;

3) Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

4) Is at least 100 years old and possesses substantial stratigraphic integrity; or

5) Involves important research questions that historical research has shown can be answered only with archaeological methods.

1.6.5.1.3 Santa Clara City Code

Title 12, Chapter 12.25.170 of the City Code contains mitigation requirements for potentially significant archaeological impacts:

a) All permittees shall comply with the appropriate Planning and Inspection Department conditions for potentially significant archaeological impacts, as adopted by the City Council or as subsequently amended and approved by the Director of Planning and Inspection.

b) If it is determined by the City or discovered during site work that the site contains archaeological resources, the permittee shall be required to retain a qualified archaeologist to monitor all earth-moving activities. Monitoring shall include, but is not limited to, review and oversight of all subsurface work, allowing for the careful examination of vertical and horizontal soil relationships to define positive archaeological finds (prehistoric and/or historic). The archaeologist must be pre-approved by the Director of Planning and Inspection. The Planning Division must also be notified at least forty-eight (48) hours prior to any grading or other subsurface work on the site, and the archaeologist must provide a written protocol which stipulates the manner in which the permittee shall comply with the monitoring requirements. The archaeologist must maintain a field log of their time and observations, carefully noting soil conditions.

c) In the event that cultural resources are encountered, all work within fifty (50) feet of the find shall halt so that the archaeologist can examine the find and document the provenance and nature of the cultural resource (through drawings, photographs, written description, as necessary). The City shall be notified and the significance, if any, of the find shall be evaluated by the archaeologist.

d) Once a find has been made and deemed to be significant, the archaeologist will then submit a treatment plan to the City. A treatment plan may include, but is not limited to, any of the following:

   1) Planning construction to avoid archaeological sites.
   2) Deeding archaeological sites into permanent conservation easements.
   3) Capping or covering archaeological sites with a layer of soil before building on the sites.
   4) Planning parks, green space, or other open space to incorporate archaeological sites.
   5) Any other appropriate measures as required and approved by the City of Santa Clara.

e) If Native American remains are discovered, the County Coroner shall be notified immediately pursuant to the California Health and Safety Code. The permittee shall work with the most likely descendants, as identified by the Native American Historical Commission, to ensure that the descendants' preferences for the treatment of the remains are respected.

f) The permittee must obtain information from the City prior to beginning work as to whether the site is an archaeologically sensitive area. The City shall in no event pay any expenses related to archaeological resources investigation, mitigation or treatment plans. (Ord. 1842 § 3, 4-21-09).

1.6.5.2 Reconnaissance Survey

On September 27, 2020, a windshield survey was conducted inclusive of the existing transmission line facility route between the Northern Receiving Station at Bill Walsh Way on the south and the Newark Substation on Nobel Drive to the north, as shown in Figure 1-2R. Due to lack of accessibility and given the limited nature of the reconductoring work, a formal intensive-level survey was not determined to be necessary and therefore was not conducted. No prehistoric or ethnographic resources were identified during the windshield survey; however, bay coastal margins are generally sensitive for archaeological resources. The southernmost approximately 1.5 miles of the alignment is largely developed with office and commercial space leaving little native ground visible. The middle approximately 5.5 miles (of which approximately 4.25 miles are over water) passes over water and marshlands that are tied to the Alviso Slough, Guadalupe River, and Coyote Creeks entry into San Francisco Bay. Finally, the northernmost approximately 2 miles passes through a mix of new commercial development and former agricultural fields lying within the former ex-Mission San Jose boundaries. Sensitivity for prehistoric and historic archaeological materials is higher along these water courses that near the surface in lands that were once under the bay's past tidal zones.

1.6.5.3 Findings

1.6.5.3.1 Prehistoric, Ethnographic, and Historic Resources 45 Years or Older Within the Reconductored Transmission Line Study Area

An updated record search was conducted by Jacobs at the Northwest Information Center at Sonoma State University in September 2020 to examine additional areas that will be subject to reconductoring. This inventory effort included the transmission line alignment (existing transmission line immediate footprint) and a one-quarter mile radius around the alignment (identified as the Reconductored Transmission Line Study Area). A second updated record search completed in October 2020 expanded the radius to one mile total to include all proposed laydown and staging areas. The initial record search conducted in September 2020 indicated that 95 cultural resources studies were conducted within 0.25 miles of the reconductored transmission line and 50 of those studies include the reconductored transmission line. With the October 2020 updated 1-mile radius record search area, an additional 56 previously conducted studies were identified for a total of 151 studies.

No new previously identified prehistoric cultural resources were found in either the footprint of the reconductored transmission line or in and/or directly adjacent to the five laydown and staging areas. Ten prehistoric sites, two multicomponent sites, and six historical sites were previously identified within the 1 mile search radius (Table 2.6.5-1). CA-ALA-000338 (Shell Mound) is approximately 200 meters away from the transmission line alignment. P-01-010628 (Homestead Area Site) was determined ineligible for the National Register by consensus through an unrelated Section 106 process.

Table 2.6.5-1. Prehistoric, Ethnographic, and Historic Resources 45 Years or Older Within the Reconductored Transmission Line Study Area[a]

Primary Number/ Trinomial	Resource Name	Age	Type	Recording
P-01-002057/ CA-ALA-000338	*Shell Mound*	*Prehistoric*	*Site*	*1980 (D. Chavez, Dept of Parks & Recreation);* *2008 (Colin I. Busby, Christopher Canzonieri, Basin Research Associates);* *2013 (Jay Rehor, URS)*
P-01-010628	*Homestead Area Site*	*Historic*	*Site*	*2003 (Lou Ann Speulda, US Fish & Wildlife Service)*
P-43-004034	*Alviso Pond A18 Historic Debris*	*Historic*	*Site*	*2018 (Kathleen Ungvarsky, USACE)*
P-01-010954	*Flood Control System and Associated Structures along Laguna Creek*	*Historic*	*Structure Other*	*2008 (Christopher Canzonieri, Basin Research Associates, Inc.)*
P-01-002267/ CA-ALA-000620	Legacy Partners Project	Prehistoric	Site	2017 (Nicholas Radtkey, InContext)
P-01-010491	WP-1	Historic	Site	2002 (Jason Claiborne, Archeo-Tec)
P-01-011353/CA-ALA-000641	H&A-A4-1	Prehistoric	Site	2011 (Randy Wiberg, H&A)
P-01-011556/ CA-ALA-000684	Fremont Blvd South	Prehistoric	Site	2016 (Jack Meyer, FWARG)
P-43-000025/ CA-SCL-000005	Nelson Shellmound 339	Prehistoric	Site	2012 (Jack Meyer, Jennifer Thomas, FWARG)
P-43-000026/ CA-SCL-000006	Marcello's Enclosure	Prehistoric	Site	1980 (Morris, Johnson, Cabrillo College)
P-43-000277/ CA-SCL-000268/H	4-SCL-268	Prehistoric/ Historic	Site	1980 (Morris, Fenenga, Johnson, Cabrillo College)
P-43-000346 CA-SCL-000339H	Bayside Cannery Warehouse Ruins	Historic	Site, Element	2003 (Leigh Jordan, NWIC)

Table 2.6.5-1. Prehistoric, Ethnographic, and Historic Resources 45 Years or Older Within the Reconductored Transmission Line Study Area[a]

Primary Number/ Trinomial	Resource Name	Age	Type	Recording
			of District	
P-43-000448/ CA-SCL-000447/H	Site formerly known as CA-SCL-6E	Prehistoric/ Historic	Site	1980 (C. Desgrandchamp, D. Chavez,
P-43-000486/ CA-SCL-000485	Resource Name - [none]	Prehistoric	Site	1982 (Cartier, Archaeological Resource Management)
P-43-000554/ CA-SCL-000559	Orchard 1001-2	Prehistoric	Site	1984 (Patricia Ogrey, Basin Research Associates)
P-43-001015/ CA-SCL-000553	Orchard 1001-1	Prehistoric	Site	1984 (Patricia Ogrey, Michael Foley, Robert Harmon, John Lopez, Jeffrey Hall, Rebecca Loveland Anastasio, Basin Research Associates)
P-43-001110/ CA-SCL-000810H	Alviso Shipyard	Historic	Site	1998 (Sean Dexter | Brian Hatoff, Woodward-Clyde Intrnat.-Americas)
P-43-003145	EB6 Oyster Shell	Prehistoric	Site	2015 (N. Scher, Far Western Anthropological Research Group, Inc.)

[a] Reconductored Transmission Line Study Area includes the surrounding 1-mile buffer. Resources shown in italics are those from the September 2020, 0.25 mile record search radius.

1.6.5.4 Built Environment (Reconductored Transmission Line Alignment)

Following the receipt of the amended records search results, a Jacobs architectural historian (accompanied by an archaeologist) conducted a windshield survey of the proposed reconductoring alignment to assess the sensitivity for built-environment resources within the existing transmission line reconductor alignment and related reconductoring laydown and staging areas.

In total, seventeen built environment resources 45 years or older were previously identified within approximately 1- mile of the transmission line reconductor alignment[2]. Fourteen resources are located within the Reconductored Transmission Line Study Area and three within the footprint of the existing transmission line as shown in Tables 2.6.5-2 and 2.6.5-3. Of those, at least two are known to have been demolished and records apparently have not been updated by the Information Center to reflect this change. Thus, they are listed in Table 2.6.5-2 for informational purposes only. It should also be noted that two of the three resources within the transmission line alignment: P-01-011436 and P-43-002823 (Alviso Salt Works Historic Landscape) are the same resource spanning two counties. Thus, the historic landscape features one ID number for each county.

The existing transmission line that will be subject to reconductoring activities also appears to be over 45 years in age based on a visual inspection from maps and air photos. The transmission line was not

[2] As noted previously two record searches were performed in September 2020 for 0.25 mile from the reconductored transmission line alignment, and in October 2020 for 1-mile from the reconductored transmission line alignment as well as the proposed laydown and staging areas. Totals for the built environment resources are for the entire 1-mile radius.

formally evaluated for historical significance during this effort given the limited nature of the proposed reconductoring, which will not alter the underlying structures of the existing line. See also Attachment D, *Cultural Resource Investigation for the Reconductored Transmission Line in Support of the San José Data Center (SJC02) Project*.

Table 2.6.5-2. Built Environment Resources 45 Years or Older Within the Transmission Line Study Area[a]

Address	APN	Year Built	Eligibility
Port of Alviso Historic District (no address) *P-43-001468*	*N/A*	*c.1855-1905*	*Point of Historic Interest*
1391 State Street	*015-12-031*	*c. 1920*	*6Y (recommended not eligible)*
Summerset Estates (Horizon Circle)	*015-34-043*	*c. 1980*	*6Y (recommended not eligible)*
Southern Pacific Railroad (no address) P-01-001783 CA-ALA-000623H	N/A	c. 1877-1907	6Y (recommended not eligible)
Telsa Factory P-01-011456	519-850-107-4; 519-850-108	1962	6Y (recommended not eligible)
4423 Cheeney Street P-43-001475	104-10-024	c. 1880	6Y (recommended not eligible)
PG&E Northern Rec Station-Scott #2 P-43-002978	N/A	C. 1954	6Y (recommended not eligible)
1190-1200 Old Mountain View - Alviso Road P-43-003576	N/A	C. 1983	6Y (recommended not eligible)
1283 Old Mountain View - Alviso Road P-43-003577	N/A	C. 1983	6Y (recommended not eligible)
Oakcrest Estates 4271 North First Street, San Jose P-43-003593	N/A	C. 1975	6Y (recommended not eligible)
San Jose Industrial Park P-43-003599	N/A	C. 1984	6Y (recommended not eligible)
Sutter's Card Lounge P-43-003603	N/A	C. 1929	6Y (recommended not eligible) Demolished 1989
Alviso-Milpitas Road P-43-003606	N/A	C. 1920	6Y (recommended not eligible) Demolished 1984
San Jose-Santa Clara Regional Wastewater Facility Streamline-Moderne Industrial Historic District	N/A	1956	3D (Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.)

Table 2.6.5-2. Built Environment Resources 45 Years or Older Within the Transmission Line Study Area[a]

Address	APN	Year Built	Eligibility

[a] Transmission Line Study Area includes the entire surrounding 1.0-mile buffer. Resources shown in italics are those from the September 2020, 0.25 mile record search radius.

Notes:

c. = circa
N/A = not applicable

The below table lists previously recorded built-environment resources directly within the footprint of the proposed reconductor alignment.[3]

Table 2.6.5-3. Previously Identified Built Environment Resources 45 Years or Older Within the Transmission Line Footprint

Name/Address	APN	Year Built	Description
Alviso Salt Works Historic Landscape P-01-011436 / P-43-002823	N/A	c.1920s-1970s	Historic District/Landscape.3D (previously recommended eligible based on survey)
Union Pacific Railroad/Alviso – P43-001278	N/A	c. 1877	Railroad segment. Not evaluated.

c. = circa
N/A = not applicable

1.6.5.5 Native American Consultation and Ethnography

A summary of outreach and consultation to relevant California Native American tribes and an ethnographic context is provided in Tribal Cultural Resources, Section 3.18 of the SJC02 SPPE Application. and an evaluation of the potential impacts of the project on tribal cultural resources is contained therein. The foregoing analysis remains adequate for purposes of the project, including the reconductoring activities. Since there will be no land disturbance during reconductoring activities, no further consultation with the Native American tribes is anticipated. However, if any additional consultation as required under applicable laws and regulations it will be conducted by the CEC as the lead agency.

1.6.5.6 Environmental Impacts

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

For the reasons provided above, a formal survey of the reconductored transmission line route did not take place. As noted above, due to the limited nature of the proposed reconductoring work which will only upgrade the wires within the existing transmission line, the underlying structures that make up the transmission line alignment will not be altered and thus no significant impact in this regard will occur.

A portion of the existing transmission line upon which the proposed reconductor activities will occur passes through the Alviso Salt Works Historic Landscape. This is an expansive historical landscape of a salt evaporation business that extended across two counties. However, the transmission alignment existed at the time of the recommendation for eligibility of this district as an historic resource, and thus the mere replacement of wires within the existing tower infrastructure will not result in a significant impact to this vast landscape district. All reconductoring work will be conducted

[3] The transmission poles and line, though likely over 45 years old, were not formerly surveyed during the windshield survey for the reasons set forth above and thus do not appear in the table below.

via helicopters and will be temporary in nature, and therefore will not result in any significant impacts to this historic landscape.

There are no ground disturbing activities anticipated as part of the reconductoring effort, and thus, there is little to no potential to impact as-yet unknown, buried archaeological resources in those parts of this offsite work to encounter native, undisturbed sediments. All reconductoring work will be completed without the need to formally excavate native soils and a significant portion of the alignment is within areas that are perpetually submerged under water; therefore the likelihood of encountering intact archaeological resources as a result of the reconductoring work is considered low.

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

Please see response to question (a).

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

As discussed in question (a), because there will be no ground-disturbing activities as part of the project's reconductoring activities, there is little potential to impact buried cultural resources, including human remains. Nevertheless, the protocols included in the Worker Environmental Awareness Plan (WEAP) to be prepared for the SJC02 project will ensure that any impacts that happen in the unlikely event human remains be discovered during construction continue to remain less than significant through implementation of the WEAP recommendations and guidance. Impacts to unknown human remains are less than significant and are further reduced with the WEAP as a project design feature.

With the addition of reconductoring, impacts previously discussed in the SJC02 SPPE Application have not changed, and no additional impacts beyond those previously analyzed are expected as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.6 Energy

The impacts to energy associated with the reconductoring activities will be limited to transportation-related energy use such as the use of helicopters as well as typical reconductoring equipment (line trucks, pickup trucks, etc.) as identified in Table 2.2B. Construction equipment will use fossil fuels (oil, gasoline, and diesel) consistent with typical construction uses. However, construction will be temporary in nature and finite. It anticipated that these nonrenewable energy resources will be used efficiently during reconductoring activities and will not result in long-term depletion of the resources, and therefore the consumption of these resources will not be unnecessary, inefficient, or a wasteful use.

As described in the SJC02 SPPE Application, the applicant will use Best Management Practices during all project activities, including the reconductoring work, to ensure the reduction of GHG emissions to the extent feasible. As explained more fully in the analysis contained in the SJC02 SPPE Application, Best Management Practices will consist of limitations on vehicles idling when unnecessary, and equipment being properly maintained to reduce potential fuel waste.

In addition, reconductoring laydown and staging areas will be located at or near worksites to minimize, to the extent feasible, the need to move materials long distances. The project site and related offsite areas are located in a large, urban area and will utilize local PG&E work crews to minimize transportation-related energy use from commuting to work sites, to the extent feasible. Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.7 Geology and Soils

Project-related reconductoring activities will be temporary in nature and will not include excavation, construction of any structures, or construction of additional site features, as described above in detail. This anticipated additional offsite work consists only of reconductoring activities along the existing transmission line route. Geologic units along the reconductoring route are similar to the project site described in the SJC02 SPPE Application, with the exception of several salt evaporator areas being present, which are enclosed completely within levees and are underlain by Holocene bay mud (Qhbm). Near the existing transmission line, there is also a small area of Artificial Fill (Qha) which is a sanitary landfill, composed of gravel, sand, silt and clay with heterogenous mixture of man-made refuse and organic and inorganic materials. Since no ground disturbance is expected during reconductoring activities, no significant impacts with respect to stability, liquefaction, or ruptures of earthquake faults are anticipated. Further, areas to be used for reconductoring laydown and staging will be on previously disturbed sites, which will require no further stabilization to support construction activities.

Paleontological surveys on the reconductoring route were conducted at publicly accessible locations on August 7, 2020. Full details of the survey are provided in Attachment D, Paleontological Resources Assessment – Revised. Since no earth moving activities will occur as a result of the reconductoring activities, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.8 Greenhouse Gas Emissions

A revised GHG technical analysis of the project, previously described within the SJC02 SPPE application, has been completed to reflect the proposed reconductoring activities and is provided as Attachment E. As documented more fully in Attachment E, with the addition of reconductoring, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.9 Hazards and Hazardous Materials

As described more fully above, project-related reconductoring activities will be temporary in nature and will not include excavation or the construction of any structures or additional site features. This anticipated additional offsite work consists only of reconductoring activities along an existing transmission line route. No poles will be removed as a result of these efforts. Since no ground activities will be conducted during reconductoring activities, hazards related to disposal of reconductoring material are minimal and any upsets and accident conditions involving release of hazardous materials are not anticipated. Furthermore, much of the construction waste generated during reconductoring will be recycled (conductors and mounting hardware) in accordance with applicable laws and regulations and consistent with industry standards.

Three airports are in the vicinity of the existing transmission line route, including the Hayward Executive Airport (approximately 13 miles north), the San Francisco International Airport (approximately 22 miles west), and the Norman Y. Mineta San Jose International Airport (approximately 2 miles south) of the existing transmission line.

While the entire transmission line corridor is outside of the designated airport safety zones for all three airports, the portion of the existing transmission line south of Highway 237 is located within the Airport Influence Area, the 65 dB Aircraft Noise Contours, and the Federal Aviation Regulations (FAR) Part 77 Surfaces area of the Norman Y. Mineta San José International Airport (SCC ALUC 2016). As a result, as described in Section 2.7.12, Federal Aviation Administration (FAA) Form 7460-1s will be required to be completed for those portions of the existing transmission line that are located within the FAR Part 77 Surfaces. Activities north of Highway 237 will also be required to be cleared through the FAA due to helicopter operations and heights of the existing structures. No significant noise impacts are anticipated as the portions of the existing transmission line south of Highway 237 within the 65dB are located in urban areas with existing urban noise levels and reconductoring activities will be temporary in nature.

As described in Section 2.7.13, several portions of the existing transmission line are located outside all fire hazard severity zones with the nearest high fire severity zone approximately 3 miles to the east in the foothills of Fremont and Milpitas. As described further above, reconductoring activities will occur on previously disturbed areas including publicly accessible roads. Wildfire prevention and fire safety requirements will be in place and in use by construction crews as required by California Public Utilities Commission (CPUC) requirements and PG&E guidance and in accordance with all applicable laws and regulations.

Impacts previously discussed in the SJC02 SPPE Application have not changed, and no additional impacts beyond those previously analyzed are expected as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.10 Hydrology and Water Quality

Project-related reconductoring activities will be temporary in nature and will not include excavation or construction of any structures or additional site features. While no ground-disturbing construction activity is anticipated, as the total acreage of the reconductoring laydown and staging areas exceeds 1 acre, the project will be required to comply with the Construction General Permit, which includes filing a Notice of Intent with the San Francisco Bay Regional Water Quality Control Board (RWQCB), coordinating with the appropriate local jurisdictions, and preparing and implementing a Stormwater Pollution Prevention Plan (SWPPP), as appropriate. To minimize any potential impacts from stormwater runoff and erosion, the SWPPP will include the implementation of BMPs to address both construction and post-construction site conditions in accordance with all applicable laws and regulations.

In addition, the existing transmission line is located within five flood zones:

- Flood Zone X, which is defined as areas of reduced flood risk due to levees;
- Zone A: Areas subject to inundation by the 1-percent-annual-chance flood event;
- Flood Zone AE, which corresponds with annual chance I-percent annual floodplains;
- Zone AH: Areas subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between one and three feet; and
- Flood Zone AO, which is defined as areas of shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet.

While the existing transmission line is located within these flood zones, the reconductoring activities will not cause new or exacerbate existing flood hazards along the reconductoring route given the limited scope of the temporary work involved.

The existing transmission line is also located in areas mapped as vulnerable to sea level rise (CalAdapt 2019) but outside of tsunami risk (CEMA et al. 2009). However, reconductoring activities will not be affected by these issues as they are temporary and short term in nature and will not be affected by or cause sea level rise given the limited scope of the work involved.

The reconductoring activities will not significantly degrade surface or ground water quality, impact groundwater, or alter the existing drainage pattern. Moreover, while these will occur in several flood zones, release of pollutants are not anticipated due to the lack of ground disturbance needed for reconductoring activities. Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.11 Land Use and Planning

Although project-related reconductoring activities will not include the construction of any structures, changes to any existing site features, or any ground disturbing activities, the existing transmission line for which the reconductoring will occur spans the cities of Fremont and Santa Clara, in addition to the city of San Jose. Therefore, a discussion of the relevant regulatory setting as well as applicable land use designations and zoning have been expanded to include these additional jurisdictions to cover the reconductoring activities for informational purposes.

1.6.11.1 Regulatory Setting

1.6.11.1.1 California Public Utilities Commission (CPUC) General Order (G.O.) 95

CPUC G.O. 95 Rules for Overhead Line Construction provides general standards for the design and construction of overhead electric transmission lines.

CPUC has sole and exclusive state jurisdiction over the siting and design of the existing transmission line. Pursuant to CPUC G.O. 131-D, Section XIV.B, “Local jurisdictions acting pursuant to local authority are preempted from regulating electric power line projects, distribution lines, substations, or electric facilities constructed by public utilities subject to the CPUC’s jurisdiction. However, in locating such projects, the public utilities shall consult with local agencies regarding land use matters.” Consequently, public utilities are directed to consider local regulations and consult with local agencies, but the county’s and cities’ regulations are not applicable because they do not have jurisdiction over the reconductoring activities. Accordingly, the following discussion of local land use regulations is provided for informational purposes only.

1.6.11.1.2 Envision San José 2040 General Plan

The Newark-North Receiving Station #1 115-kV PG&E transmission line is located with the cities of Santa Clara, San José, and Fremont. A review of the applicable General Plans indicates that the only General Plan land use policy applicable to the reconductoring activities is from the *Envision San José 2040 General Plan*:

Policy CD-1.27: When approving new construction, require the undergrounding of distribution utility lines serving the development. Encourage programs for undergrounding existing overhead distribution lines. Overhead lines providing electrical power to light rail transit vehicles and high tension electrical transmission lines are exempt from this policy.

1.6.11.2 Existing Land Use and Zoning

The existing transmission line spans three separate cities, Santa Clara, San José, and Fremont. Land use and zoning designations are described below for each city.

1.6.11.3 City of Santa Clara

1.6.11.3.1 Land Use Designations

The land use designations within a 500-foot buffer around the transmission line pursuant to the City of Santa Clara 2010-2035 General Plan are shown in Figure 2.6-11a and identified below:

- **High Density Residential** – This classification is intended for residential development at densities ranging from 37 to 50 units per gross acre. This density range is typically located in areas adjacent to major transportation corridors, transit or mixed uses.
- **Low Density Residential** – This classification is intended for residential densities of 8 to 19 units per gross acre. Building types may include detached or attached dwelling units.

- **Low Density Residential** – This classification is intended for residential densities of up to ten units per gross acre. Development is typically single-family in scale and character, with a prevailing building type of single-family detached dwelling units.
- **Public/Quasi-Public** – This classification is intended for a variety of public and quasi-public uses, including government offices, fire and police facilities, transit stations, commercial adult care and child care centers, religious institutions, schools, cemeteries, hospitals and convalescent care facilities, places of assembly and other facilities that have a unique public character as their primary use.
- **Regional Commercial** – This classification is intended for retail and commercial uses that provide local and regional services. It is intended for commercial developments that serve both Santa Clara residents and the surrounding region.
- **Light Industrial** – This classification is intended to accommodate a range of light industrial uses, including general service, warehousing, storage, distribution and manufacturing.
- **Parks/Open Space** – This classification is intended for improved and unimproved park and open space facilities, managed natural resource areas, and outdoor recreation areas.

1.6.11.3.2 Zoning Designations

The zoning designations within a 500-foot buffer around the transmission line pursuant to the City of Santa Clara Zoning Ordinance are shown in Figure 2.6-11b and identified below:

- Public or Quasi-Public Zoning District
- Planned Development Combining Zoning District
- Planned Development – Master Community Zoning District
- Single-Family Zoning District
- Transit Neighborhood Zoning District

1.6.11.4 City of San José

1.6.11.4.1 Land Use Designations

The land use designations within a 500-foot buffer around the transmission line pursuant to the Envision San José 2040 General Plan are shown in Figure 2.6-11a and identified below:

- **Combined Industrial/Commercial** – This category allows a significant amount of flexibility for the development of a varied mixture of compatible commercial and industrial uses, including hospitals and private community gathering facilities.
- **Light Industrial** – This designation is intended for a wide variety of industrial uses and excludes uses with unmitigated hazardous or nuisance effects.
- **Mixed Use Neighborhood** – This designation is applied to areas intended for development primarily with either townhouse or small lot single-family residences and also to existing neighborhoods that were historically developed with a wide variety of housing types, including a mix of residential densities and forms.
- **Neighborhood/Community Commercial** – This designation supports a very broad range of commercial activity, including commercial uses that serve the communities in neighboring areas, such as neighborhood serving retail and services and commercial/professional office development.
- **Open Space, Parklands and Habitat** – These lands can be publicly- or privately-owned areas that are intended for low intensity uses. Lands in this designation are typically devoted to open space, parks, recreation areas, trails, habitat buffers, nature preserves and other permanent open space areas.
- **Public/Quasi-Public** – This category is used to designate public land uses, including schools, colleges, corporation yards, homeless shelters, libraries, fire stations, water treatment facilities, convention centers and auditoriums, museums, governmental offices and airports.

- **Residential Neighborhood** – This designation is applied broadly throughout the City to encompass most of the established, single-family residential neighborhoods, including both the suburban and traditional residential neighborhood areas which comprise the majority of its developed land.

1.6.11.4.2 Zoning Designations

The zoning designations within a 500-foot buffer around the transmission line pursuant to the City of San José Municipal Code are shown in Figure 2.6-11b and identified below:

- Agriculture
- Agriculture (Planned Development District)
- Combined Industrial/Commercial (Planned Development District)
- Commercial Neighborhood District
- Commercial Pedestrian District (Planned Development District)
- Heavy Industrial District
- Light Industrial District
- Open Space
- Residence District (8DU/Acre)
- Residence District (Multiple Unit/Lot) M
- Residence District (Mobile Home Parks and Travel Trailer Parks)
- Water

1.6.11.5 City of Fremont

1.6.11.5.1 Land Use Designations

The land use designations within a 500-foot buffer around the transmission line pursuant to the City of Fremont 2010-2035 General Plan are shown in Figure 2.6-11a and identified below:

- **Industrial Tech** – This designation primarily applies to areas used for research and development, "clean and green" tech, and semi-conductor, computer hardware, software and related technological, administrative, sales, and engineering facilities.
- **Open Space** – The Resource Conservation and Public Open Space category includes open spaces that are located below the Toe of the Hill (TOH) and owned by public or quasi-public agencies other than the City of Fremont. This designation also includes PG&E transmission line rights of way and Alameda County Flood Control and Water Conservation District easements and rights of way.
- **Public Facility** – The Public Facility designation generally applies to non-open space parcels owned by public agencies or utilities. The designation includes City facilities, public schools, water and sanitary district facilities, transit agency facilities, utilities, and other federal, state, county, and local government facilities.

1.6.11.6 Zoning Designations

The zoning designations within a 500-foot buffer around the transmission line pursuant to the City of Fremont Municipal Code are shown in Figure 2.6-11b and identified below:

- Planned District
- Interim Study

Given the location of the existing transmission line and associated right-of-way and continued access underneath the transmission line, and the fact that the reconductoring activities are of limited scope and not altering the location of the existing line, the proposed activities do not have the potential to divide an established community.

No local land use plans, policies, or regulations requiring discretionary approval will apply to the transmission line reconductoring because, pursuant to G.O. 131-D, the CPUC has sole and exclusive jurisdiction over the siting and design of such facilities. Consequently, the reconductoring activities will not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the activities. There will be no impact.

Although the reconductoring activities are exempt from local land use and zoning regulations and discretionary permitting, G.O. 131-D Section XIV.B requires that in locating a project, “the public utility shall consult with local agencies regarding land use matters.” The following land use consistency analysis is provided for informational purposes only.

The reconductored transmission line is located with the cities of Santa Clara, San José, and Fremont. A review of the applicable General Plans indicates that the only General Plan land use policy applicable to the reconductoring activities is from the Envision San José 2040 General Plan. Consistency with this policy is described below. As explained above, the reconductoring activities, which merely update existing transmission line uses, are consistent with the applicable general plan and zoning designations.

Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

Land Use Policy	Project Consistency
Policy CD-1.27: When approving new construction, require the undergrounding of distribution utility lines serving the development. Encourage programs for undergrounding existing overhead distribution lines. Overhead lines providing electrical power to light rail transit vehicles and high tension electrical transmission lines are exempt from this policy.	Consistent. Reconductoring of the Newark-North Receiving Station #1 115-kV PG&E transmission line is not new construction. Further, the transmission line is a high-voltage line and exempt from Policy CD-1.27.

1.6.12 Mineral Resources

Project-related reconductoring activities will not include the construction of any structures, changes to any existing site features, or any ground disturbing activities. Reconductoring laydown and staging areas will be located within existing and previously disturbed areas, as noted above.

A large portion of the existing transmission line is located within an area identified as Mineral Resource Zone 1 (MRZ-1) for aggregate materials by the State of California (DOC 1996). The MRZ-1 designation identifies the site as an area where geologic information indicates that no significant mineral resources are present. The project site and surrounding area, including the reconductoring laydown and staging areas, are not known to support significant mineral resources of any type. However, a small approximately one-mile segment of the existing transmission line located south of Auto Mall Parkway (immediately south of the substation) is identified as Mineral Resource Zone 2a (MRZ-2a). The MRZ-2a zone covers areas that are underlain by mineral deposits where geological data show that significant measures or indicated resources are present. As there will be no excavation or ground disturbance, and the reconductoring laydown and staging areas are located outside of the area identified as MRZ-2a, there will be no loss of availability of a known mineral resource for the proposed reconductoring activities.

Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.13 Noise

Although project-related reconductoring activities will not include the construction of any structures, changes to any existing site features, or any ground disturbing activities, the work will involve the use of helicopters, which will add temporary and limited noise increases in the vicinity of the reconductoring laydown and staging areas and along the existing transmission line. With the addition of the reconductored transmission line which spans two additional cities, the regulatory background has been expanded to include the reconductoring activities for informational purposes.

This includes:

FAA Regulations

The FAA regulates and is in the ultimate control of all aircraft movement through regulations established in the FAR; specifically, helicopter altitudes are regulated through FAR Part 91. No other agency has the jurisdiction or decision power to make the helicopter fly elsewhere or require them to use higher altitudes. The pilot has full authority in determining how low or high he/she wants to operate and for how long; helicopters may fly at any altitude above the ground when weather, safety and other air traffic permit. It is also the pilot's responsibility to remain separated from other aircraft as well as maintaining a safe distance from person or property. Noise limits for aircraft, including helicopters, are established by the FAA in 14 CFR 36.

City of Santa Clara Municipal Code

Chapter 9.10 of the City of Santa Clara Municipal Code regulates noise and vibration for activities taking place within the city (City of Santa Clara 2020). The noise ordinance is intended to protect the public welfare from unnecessary, excessive, and unreasonable noise and vibration from fixed sources in the community. Chapter 9.10.240 states that “Exempt from the regulations of this chapter are: …(c) Furnishing utility-type services including construction and maintenance of utilities.”

City of Fremont Municipal Code

The Municipal Code Chapter 18.50 notes that industrial districts are intended to provide locations for uses that generate employment, and may involve hazardous materials, noisy operations, heavy traffic, and odors that may present dangers or nuisances to nonindustrial uses. Specifically, Chapter 18.50.040 states “At all property lines, as measured consistent with subsection (c) of this section, the maximum noise level generated by any user shall not exceed the Ldn level of 70 dB(A) when adjacent users are industrial, commercial, business, professional or office. Excluded from these standards are occasional sounds generated by the movement of railroad equipment, temporary construction activities or warning devices.”

City of San Jose Municipal Code

The San José Municipal Code 20.100.450 states that if a development is within 500 feet of a residential unit, construction is limited to the hours of 7:00 AM through 7:00 PM, Monday through Friday, with no weekend construction allowed, unless expressly allowed in a Development Permit or other planning approval. Additionally, the General Plan identifies that “City considers significant construction noise impacts to occur if a project located within 500 feet of residential uses or 200 feet of commercial or office uses will: Involve substantial noise generating activities (such as building demolition, grading, excavation, pile driving, use of impact equipment, or building framing) continuing for more than 12 months” (City of San José 2011). The closest residence within the City of San Jose is approximately 150 feet away and demolition and construction of the project will comply with the City’s General Plan and Municipal Code noise requirements.

Use of helicopters for tower placement and installation will be required during reconductoring activities to support structure placement, hardware installation and wire-stringing operations. As shown in Figure 1-2R, reconductoring laydown and staging areas have been located in order to minimize disturbance to sensitive receptors to the extent feasible. For the approximately 8.76-mile-long reconductored transmission line it is anticipated that a maximum of five laydown and staging areas will be used for helicopter landing/takeoff areas. Specific pull sites that will require the use of helicopters will be finalized once construction details are determined by PG&E. Light-duty helicopters will be used during the stringing phase of construction, with a maximum of two in use at any one time and operations limited to daylight hours. The helicopter flight path generally will follow the proposed alignment and avoid flying directly over residences to the extent practicable. The helicopter activities will be temporary and limited in duration, occurring during daytime construction hours when reconductoring activities are occurring. As discussed in Section 2.6.4, Biological Resources, noise making activities within sensitive habitats will occur using appropriate calendar windows to avoid any significant impacts to special-status species.

As all reconductoring activities conducted by helicopters will be limited to travel between the reconductoring laydown and staging yards and the transmission line route and given the limited nature of the work generally, impacts related to ground borne vibration will not significant. There will be temporary noise impacts as work is conducted by helicopter along the transmission line route; however, the scheduling will be set such that any potential impacts to species inhabiting the wetlands, marshes, and salt ponds directly surrounding the existing transmission line will be appropriately limited.

Project-construction related to reconductoring activities may temporarily expose persons to noise above ambient levels; however, as explained above, construction and maintenance of utility facilities is exempt from noise and vibration regulations in the City of Santa Clara (City of Santa Clara, 2020); and City of Fremont Chapter 18.50 excludes temporary construction activities from noise restrictions (City of Fremont 2020). The City of San Jose does not, however, exempt construction activities (City of San José 2011), and limits hours of construction if the project is within 500 feet of a residential unit. The closest residence within the City of San Jose is approximately 150 feet away however in those areas, helicopters will not be in use due to accessibility by typical line truck crews. Further, reconductoring activities will occur between 7:00AM through 7:00PM Monday through Friday and will not continue for more than 12 months. Therefore, there will no significant impacts related to reconductoring activities.

The transmission line's southernmost point is approximately 2 miles south of the Norman Y. Mineta San Jose International Airport. The portion of the existing transmission line south of Highway 237 is located within the Norman Y. Mineta San Jose International Airport 65 dB Aircraft Noise Contours (SCCALUC 2016). Helicopter activities are anticipated to be outside this area, and no significant impacts are anticipated as a result.

While helicopters will be in use during reconductoring activities, any impacts will be temporary and limited duration and impacts will be less than significant.

1.6.14 Population and Housing

Project-related reconductoring activities will be temporary in nature and will not include excavation, construction of any structures, or additional site features. This work consists only of reconductoring activities along an existing transmission line route. No poles will be removed as a result of these efforts. Given the limited scope of work, these activities will not require nor demand an increase in utility or infrastructure capacity. Given the nature of the reconductoring work, the majority of construction workers for the reconductoring activities are expected to come from the local area or commute from neighboring counties and cities. As the local workforce is anticipated to be sufficient, it is not expected that the construction workforce will relocate to the area or otherwise induce any unplanned growth.

Therefore, reconductoring activities will not displace people or existing housing; no significant population or housing impacts will occur; and there will be no additional impacts associated with unplanned population growth. Impacts previously discussed in the SJC02 SPPE Application have not changed, and no additional impacts beyond those previously analyzed are expected as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.15 Public Services

Project-related reconductoring activities will be temporary in nature and will not include excavation, construction of any structures, or additional site features. This work consists only of reconductoring activities along the existing transmission line route. No poles will be removed as a result of these efforts.

Given the limited scope of work, the reconductoring activities will not result in a need for new or expanded facilities for fire protection, police protection, schools, parks, and other facilities. Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.16 Recreation

As explained above, the reconductoring activities will not involve additional housing or population increases and given their limited scope, these activities will not create a new or increased demand for existing public parks or recreational facilities. Additionally, anticipated reconductoring activities will not in any way impact existing recreational facilities or involve the construction or expansion of existing recreational facilities. Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.17 Transportation

As part of the reconductoring activities, additional vehicles will be added temporarily to the nearby roadways. As explained in more detail above, at the peak of this work, it is anticipated that there will be an estimated 50 transmission line construction workers traveling separately to one of five laydown and staging areas daily, for a total of 100 trips/day. It is assumed workers will carpool to the extent feasible. The additional vehicles will not congregate at one site but will be interspersed along the length of the approximately 8.76-mile long transmission line at one of five the proposed laydown and staging areas. At the proposed reconductoring laydown and staging areas, crews will split amongst the anticipated maximum of 20 vehicles during peak months and proceed to individual work locations.

Consistent with applicable CEQA requirements, a VMT analysis for this additional effort has not been completed as the additional vehicular traffic is construction-related and temporary in nature. In addition, vehicles will not congregate at one location during reconductoring efforts, resulting in limited impacts to local roadways.

Helicopters will be used during reconductoring efforts due to the inaccessible nature of the area (primarily protected wetlands and salt marsh) and in order to eliminate any ground disturbance. FAA Form 7460-1s will be required to be completed for tower locations where there are height restrictions and/or where helicopter support will be needed, and appropriate notifications made as required, in accordance with applicable laws and regulations.

Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.18 Tribal Cultural Resources

Please see section 2.6.5 Cultural Resources for discussion regarding tribal resources. As discussed in section 2.6.5, impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.19 Utilities and Service Systems

Given the limited scope of anticipated work and as further explained above, the reconductoring activities will not require or result in the permanent relocation or construction of new or expanded water, wastewater treatment or storm water drainage, or telecommunications facilities. The reconductoring activities will, however, upgrade an existing approximately 8.76 mile long transmission line in response to PG&E's request, which will ensure there are no significant system impacts as a result of the proposed project. Reconductoring activities will not involve pole replacement, excavation, or ground disturbance and will be temporary in nature on existing transmission tower structures. The reconductoring will require an outage of the reconductored circuit to ensure worker safety, which will be coordinated with PG&E to ensure electrical service impacts are minimized to the extent feasible. The total amount of electricity that will be used annually will not change for the information provided as part of the SJC02 SPPE Application, and demand during project operations will not increase beyond what was provided in the SJC02 SPPE Application as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

Reconductoring activities will generate limited construction debris which will not exceed the capacity of local infrastructure. Construction debris will be taken on a line truck with a trailer to the appropriately licensed waste facility as needed for recycling or disposal. Given the limited nature of this work, the amount of solid waste derived during reconductoring activities is anticipated to minimal, and the disposal of solid waste will be handled in accordance with all applicable laws and regulations.

Impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.6.20 Wildfire

Although the reconductoring activities will not involve any ground disturbing activities, as shown in Figure 2.6-20, it is noted that the existing transmission line is not located within any fire hazard severity zone, with the nearest high fire hazard zone located approximately 3 miles to the east in the foothills of the City of Fremont and Milpitas. .

Topography in the area of the reconductoring activities is relatively flat, and open spaces consist of marshes, salt ponds, and some wetlands along portions of the route. While these areas are located outside of a fire hazard severity zones, the construction crews will have specific and required wildfire prevention and fire safety programs in place as required by the CPUC and PG&E guidance and in accordance with all applicable laws and regulations. Reconductoring activities will be conducted along publicly accessible routes, and proposed reconductoring laydown and staging areas will be located within areas that have been previously disturbed and are not anticipated to require any vegetation management.

Consistent with the discussion within the SJC02 SPPE Application, the addition of reconductoring activities will not impair any adopted response plan or evacuation plan. Reconductoring activities will not constitute a potential ignition source, nor will they block access to any road or result in traffic congestion. For these reasons, reconductoring activities will not exacerbate fire risk or result in temporary or ongoing impacts to the environment and impacts previously discussed in the SJC02 SPPE Application have not changed as a result of the inclusion of the off-site reconductoring work into the project, and there are no additional significant impacts beyond those previously analyzed nor any increase in the severity of previously identified significant impacts.

1.7 Project Design Features

The applicant has incorporated numerous features and best management practices in the project design that are intended to avoid and/or reduce potential impacts from the project and are described in detail in the SJC02 SPPE Application. With the addition of the reconductored transmission line, a complete list of these design features that will be incorporated into the final design to conform with required Habitat Conservation Plans (HCP) are detailed in Attachment B. These will augment the compiled list of proposed design features for the proposed project (excluding the reconductoring activities) that was provided in the SJC02 SPPE Application for each technical discipline.

1.8 Facility Operation

The standby generators will be run primarily for testing and maintenance purposes, and otherwise will not operate unless there is an interruption of the electrical supply. The California Air Resources Board's Airborne Toxic Control Measures limits each engine to no more than 50 hours of operation annually for reliability purposes (i.e., testing and maintenance). Table 2-3 presents the expected testing and maintenance operations for each engine on a monthly, quarterly, and annual basis.

Table 2-3. Standby Generator Expected Testing and Maintenance Events (per Standby Generator)

Maintenance Event	Duration		Load Factor	Annual Operations
	Frequency	Hours		Hours/Year
Monthly Generation[a]	8	0.42	100%	3.4
Quarterly Generation[b]	3	0.42	100%	1.3
Annual Generation	1	2	100%	2
3-Year Medium Voltage Breaker/Transformer Testing	1	4	100%	4
Contingency Testing[c]	-	1.6	100%	1.6

[a] Quarterly and annual testing is counted as monthly testing.

[b] Annual testing counts as quarterly testing.

[c] The contingency testing was included to provide standby generator operations to support unscheduled maintenance/testing requirements.

Note:
- = not applicable

1.9 Alternate Standby Generation Technologies Considered but Rejected

The purpose of the standby generators is to provide a high degree of electrical reliability, which requires installation of redundant systems (i.e., twice as much generating capability as necessary to operate the facility). Diesel-fired electrical generators have a long and successful history of satisfying the needs of emergency electrical needs of critical infrastructure. Even though there will be no significant, unmitigated impacts from the project due to the features incorporated into the project design and the incorporation of identified feasible mitigation measures (as described throughout this Initial Study, where appropriate), the Applicant considered alternate standby generation technologies as potential options. The technologies considered included alternative-fueled generators (propane, gasoline, and natural gas), fuel cells, renewable generation, and storage. However, none of the alternatives can meet the basic project objectives in a feasible, cost-effective manner, nor are they necessary to lessen any of the impacts from the project.

1.9.1 Alternative Fuel Sources

The use of alternative-fueled generators included consideration of the use of propane-, gasoline-, and natural gas- fired standby generators. Each proposed diesel-fired standby generator includes a diesel storage tank. Storage of diesel fuel does not require vapor control systems to protect public health and safety and can be stored for indefinite periods of time. Diesel fuel is widely used in automobiles, emergency generators supporting other critical infrastructure (such as hospitals, police stations, or communication systems), and construction equipment. Diesel fuel accounted for 21 percent of the fuels consumed in the United States transportation sector.[4] Diesel fuel has a lower vapor pressure as compared to other fuels (gasoline, propane, and natural gas), making it inherently safer to use and store as compared to alternative fuel sources. In contrast, natural gas- and propane gas-fired generators are available in 3.0-MW units; however, designing and installing an onsite natural gas storage system will not be cost effective and will require a significantly larger project site to accommodate the equipment required to pressurize and store the fuel. Natural gas-fueled units will also be susceptible to outages from the natural gas supplier in the event of extraordinary natural gas system events (such as line ruptures or supply shortage due to extreme weather events). Propane-fired generators require fuel storage tanks. The amount of propane required to support the expected load of 92 MW of standby generation for 48-hours (consistent with the reliability provided by proposed diesel standby generators) will require multiple storage tanks, increasing the risk to public health from accidental releases from transportation and onsite storage.

1.9.2 Alternative Technologies

The Applicant considered whether alternative technologies could provide the same level of reliability and consistency as the standby generators. Fuel cells convert chemical energy, in the form of hydrogen or natural gas, to electricity with water, heat, and carbon dioxide as the possible by-products. Standby fuel cells are configured in ‘stacks’ of units, allowing the fuel cell output to be scalable up to utility scales.[5] The use of fuel cells will either require the installation of a natural gas pipeline, increasing the project’s impacts, or the storage of hydrogen sufficient to generate the expected load of 92 MW. The SJC02 standby generators do not require the installation of a new, significant natural gas pipeline to support the project. Assuming the use of natural gas fuel cell, and a pipeline of sufficient size and capacity where available, the expected load of 92 MW of fuel cells will require a substantially greater area than is required for the standby diesel generators. Given that the standby diesel generators are expected to operate for relatively few hours per year for testing and maintenance purposes, the environmental impacts associated with installing a natural gas pipeline of sufficient size for fuel cells in an urban area like San José will have a greater impact than the use of the proposed standby generators. Hydrogen is a highly flammable material stored under significant pressure, and storage is a challenge for stationary and portable applications.[6] Hydrogen is not considered feasible in similar project applications.

Due to the intermittent nature, the use of renewable generation sources (wind, hydroelectric, or solar) on their own will not satisfy the project’s need for reliable standby generation. The space and resource requirements for the expected load of 92 MW of renewable power and their intermittent nature make such applications infeasible for this project and site. Renewable generation resources, such as solar or wind coupled with a battery installation, will require significantly more space than that currently operated by the standby generators; will not fit on the current project site; and will not avoid or minimize any potentially significant impacts.

1.9.3 References

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[4] https://www.eia.gov/energyexplained/index.php?page=diesel_use

[5] https://www.energy.gov/sites/prod/files/2014/10/f19/ftco_early_mkts_fc_backup_power_fact_sheet.pdf

[6] https://www.energy.gov/eere/fuelcells/hydrogen-storage

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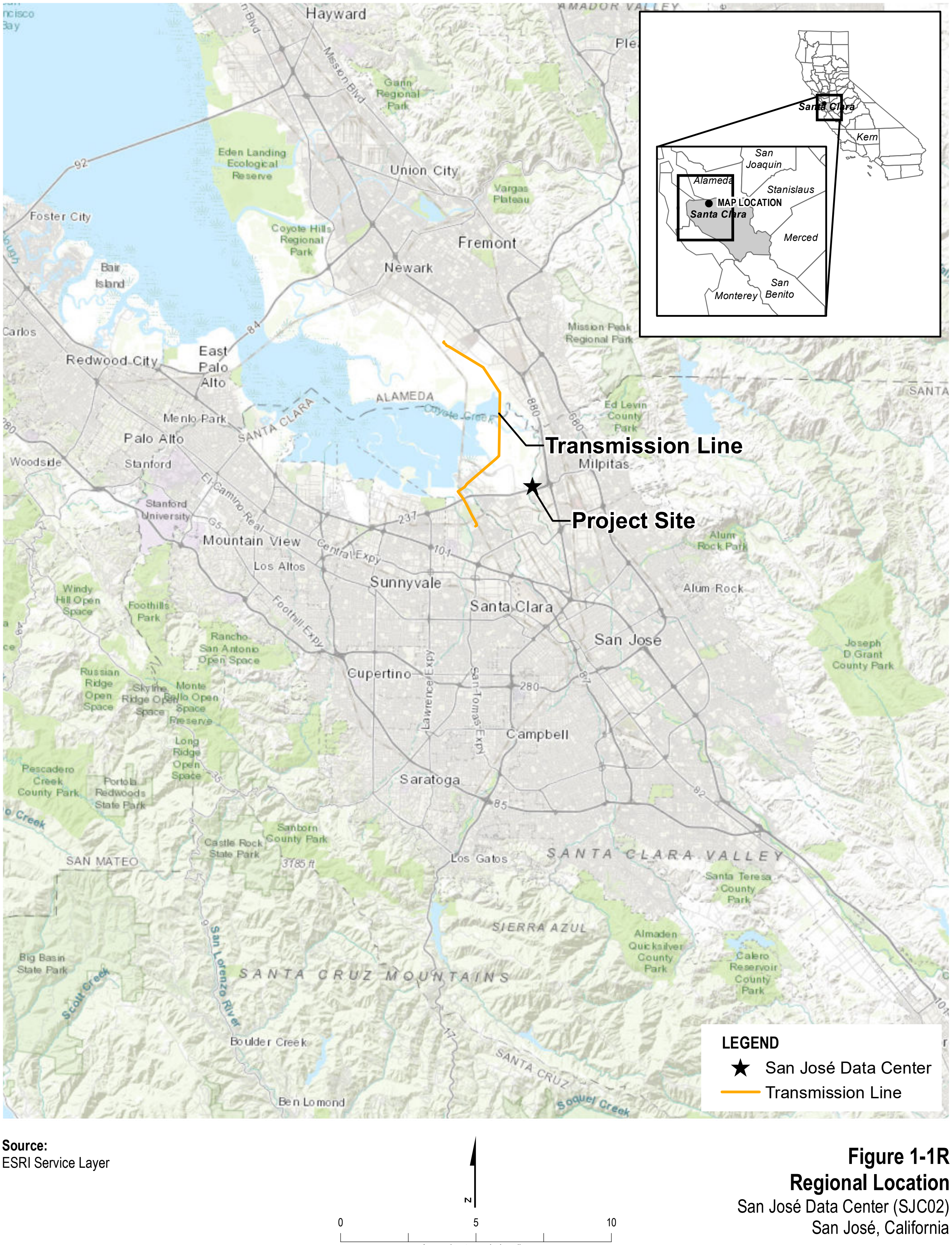
Figures

Figures unchanged from original SJCO2 SPPE Application, Section 2 Project Description, filed on November 15, 2019



Source:
ESRI Service Layer

Figure 1-1R
Regional Location
San José Data Center (SJC02)
San José, California

JACOBS

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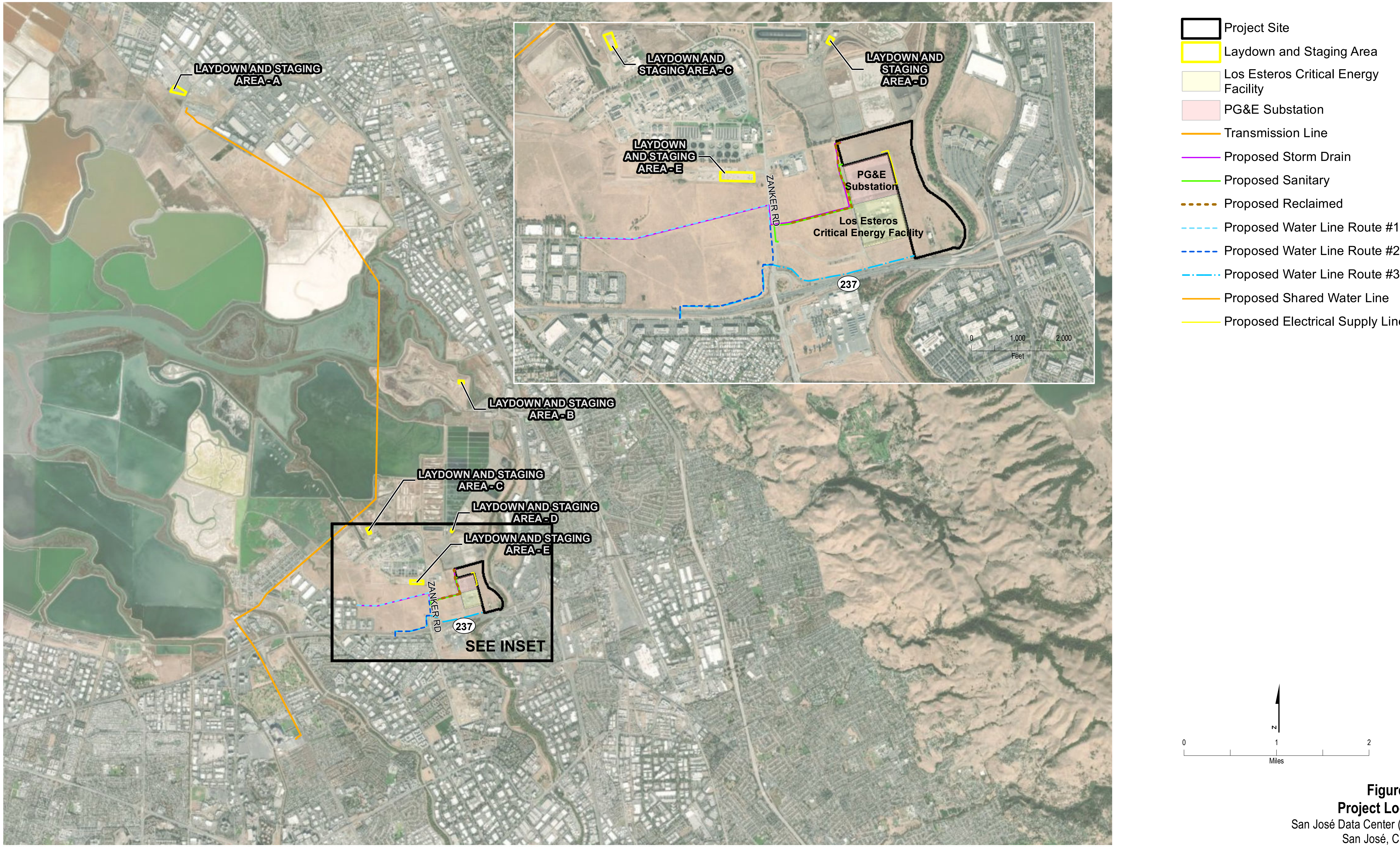

Figure 1-2R
Project Location
San José Data Center (SJC02)
San José, California

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\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG1_2R_LOCATIONMAP.MXD 9/28/2020 2:00:48 PM

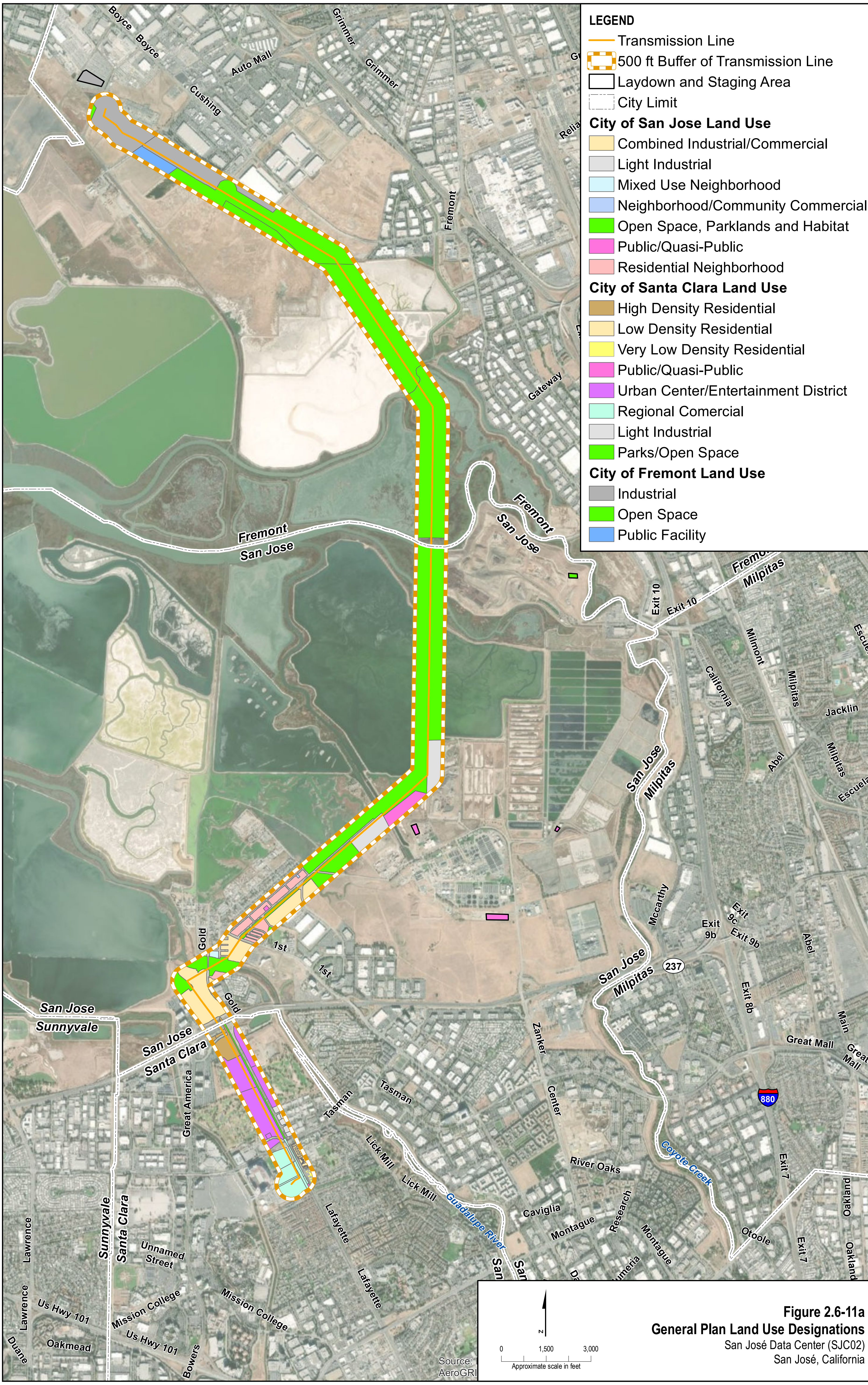

Figure 2.6-11a
General Plan Land Use Designations
San José Data Center (SJC02)
San José, California

Source: City of Fremont, City of Santa Clara, City of San Jose, State of California

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_6-11A_LANDUSE_500FT.MXD 9/28/2020 2:01:44 PM

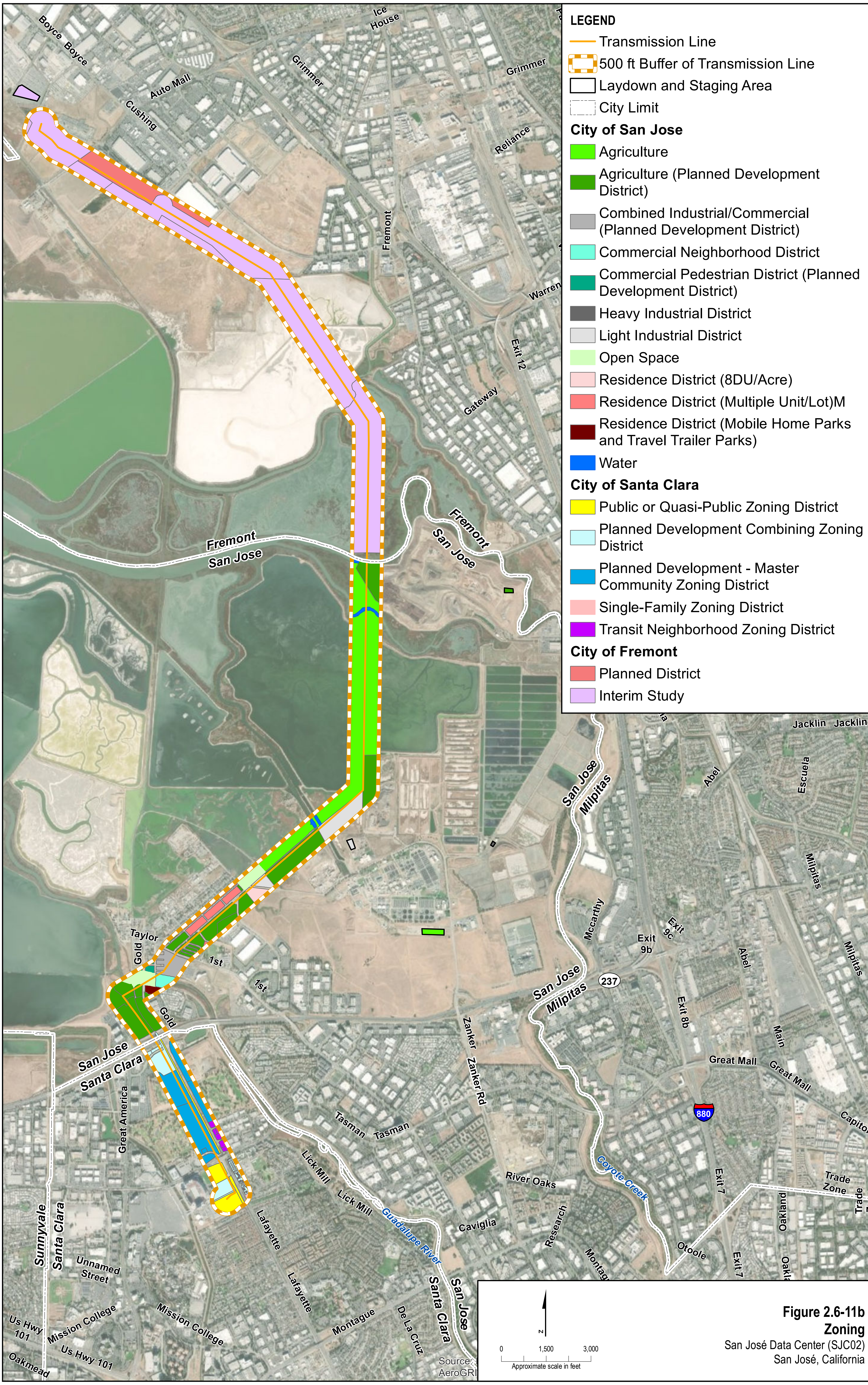

Figure 2.6-11b
Zoning
San José Data Center (SJC02)
San José, California

Source: City of Fremont, City of Santa Clara, City of San Jose, State of California

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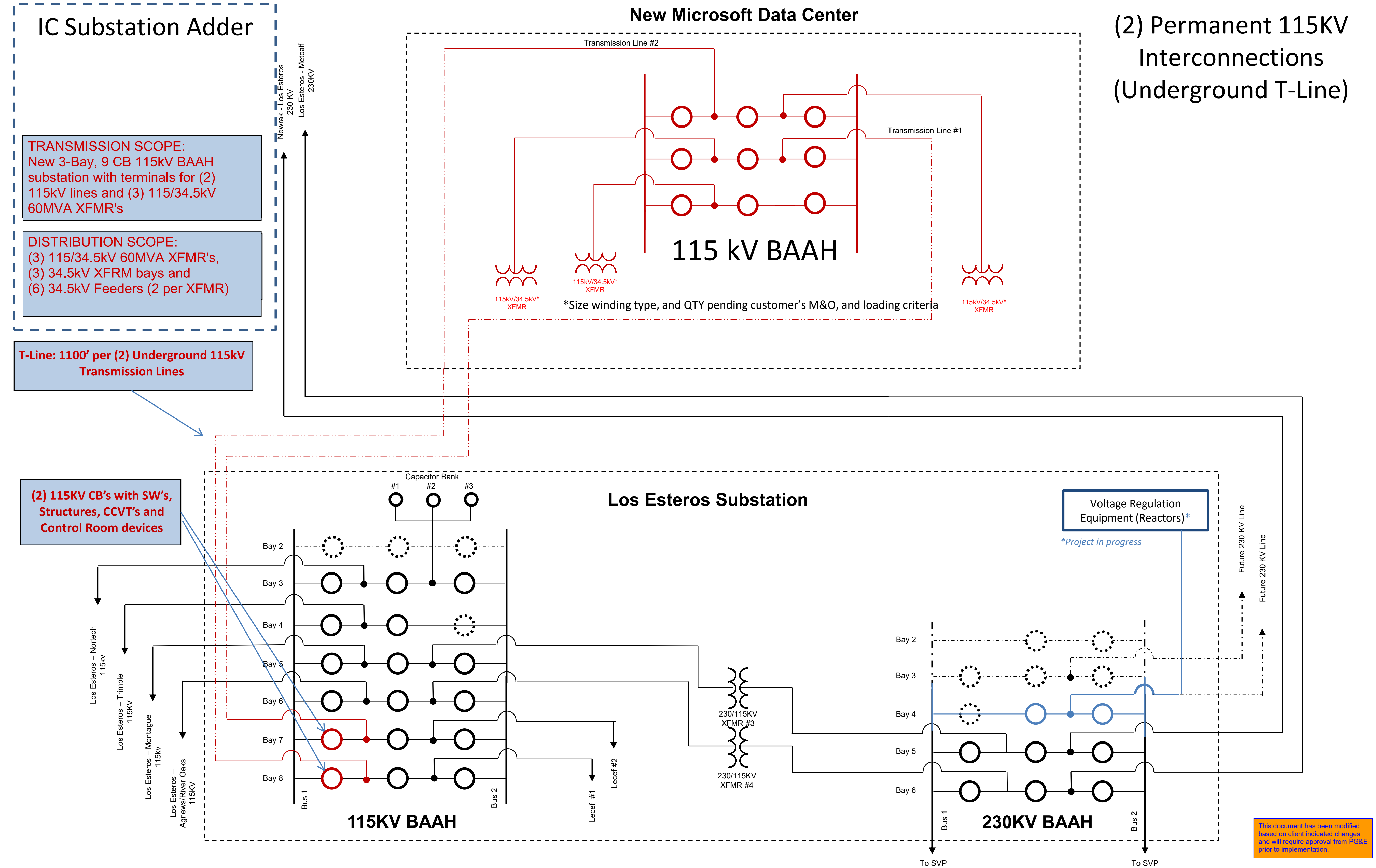
Figure 2.6-20
Fire Zones
San José Data Center (SJC02)
San José, California

Source: CalFire 2008, 2019

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_6-20_FIREHAZARD.MXD 9/28/2020 2:03:36 PM



This document has been modified based on client indicated changes and will require approval from PG&E prior to implementation.

Figure 2-6R
Interconnection to PG&E System and One Line Diagram
San José Data Center (SJC02)
San José, California

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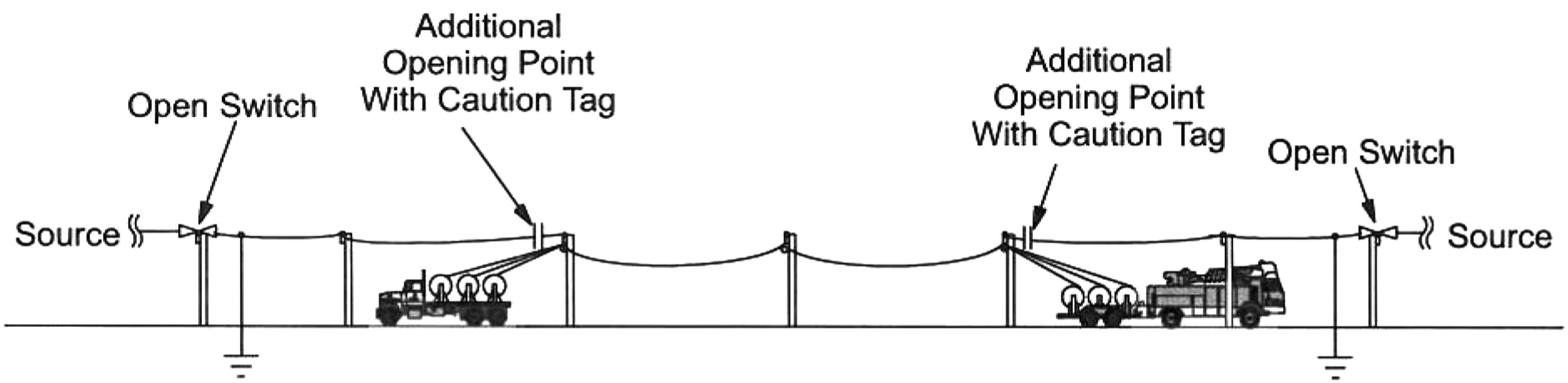

FIGURE 2-8
Typical Conductor Stringing
San Jose Data Center (SJC02)
San Jose, California

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Attachment A
Section 3.3 Air Quality - Revised

3.3 Air Quality - Revised[7]

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. In its discretion, the California Energy Commission (CEC) has determined that utilizing the relevant air quality management district significance criteria for purposes of this Initial Study is appropriate. Accordingly, this analysis of the project's potential air quality impacts, and the associated findings presented in this section, are based on comparisons to thresholds of significance established by the Bay Area Air Quality Management District (BAAQMD) for California Environmental Quality Act (CEQA) analysis (BAAQMD 2017c).

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

Environmental checklist established in Appendix G of the *2019 CEQA Statute & Guidelines* (AEP 2019).

3.3.1 Setting

The San José Data Center (SJC02) will be located within the City of San José on an approximately 64.5-acre site and will consist of two data center buildings totaling over approximately 479,000 square feet of space. The project will include 40 3.0-megawatt (MW) standby diesel generators (20 per building) to provide electrical power to support the IT load during utility outages or certain onsite electrical equipment interruptions or failures, as well as the installation of 20 3-MW emergency diesel generators at each building. In addition to the 40 backup generators, the project will include two administrative generators, rated at 1.25 MW and 0.5 MW, to support administrative functions during an interruption in the normal delivery of electrical power from the utility. The facility design will not require more than approximately 99 MW of electrical power, which will be used only for backup power for onsite data center operations in the event of an electrical outage by Pacific Gas & Electric (PG&E), although the estimated load is 92 MW. In response to PG&E's request to accommodate the power demands of the SJC02, the project also includes the reconductoring of an existing approximately 8.76-mile-long PG&E Newark-North Receiving Station #1 115 kilovolt (kV) transmission line. These reconductoring activities are expected to occur concurrently with onsite project construction.

The project site has been used historically for farming since the early 1920s but is not currently in agricultural use. There are two vacant residences, a mobile home, and a storage shed/warehouse currently onsite, which will be demolished as part of the SJC02 project. To the north of the project site are the San José/Santa Clara Regional Wastewater Treatment Plant sludge drying beds, to the south is Highway 237, to the west is the Los Esteros Critical Energy Facility, a PG&E substation, and to the east is Coyote Creek. The project is anticipated to begin construction in the 4th quarter of 2021, with operations beginning in the 2nd quarter of 2023.

[7] Section 3.3 Air Quality has been revised from the SJC02 SPPE Application filed November 5, 2019. The proposed 8.76 mile-long reconductored transmission line is now included as part of the project.

Air quality in the San Francisco Bay Area Air Basin (SFBAAB) is better than air quality in most other populated areas in California, such as the South Coast, San Joaquin Valley, and Sacramento regions. This is attributed to a more favorable climate, cooler temperatures, and better atmospheric mixing as a result of coastal winds.

Proximity to the Pacific Ocean and the San Francisco Bay has a moderating influence on the climate in the project vicinity. The portion of the Santa Clara Valley where the project site and related offsite areas where project activities will occur are located 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 Santa Clara Valley, resulting in a prevailing wind that flows along the valley's northwest-southeast axis.

Over time, air quality improvements have occurred in the SFBAAB, but violations and exceedances of the state ozone and particulate matter standards continue to persist, posing challenges to state and local air pollution control agencies (CARB 2013). 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 or harm vegetation, animals, and property.

This section details the project's anticipated air pollutant emissions and their potential to contribute to air quality and public health impacts. Details on the project's greenhouse gas (GHG) emissions and their potential to contribute to climate change impacts can be found in Section 3.8.

3.3.1.1 Overview of Existing Air Quality

Air quality in California is evaluated based on an area's compliance with ambient air quality standards established by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB). EPA and CARB have established concentration-based ambient air quality standards to protect public health and welfare. Compliance is based on the results of ambient air quality monitoring, typically conducted by federal, state, and local regulatory agencies, with measurements taken using a variety of established techniques.

Air Quality Standards

The EPA has established National Ambient Air Quality Standards (NAAQS) for the following seven pollutants, termed criteria pollutants: ozone, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and airborne lead. Similarly, CARB has established California Ambient Air Quality Standards (CAAQS) for the seven pollutants listed herein and for visibility-reducing particles (VRP), sulfates, hydrogen sulfide, and vinyl chloride. In general, the CAAQS are more stringent than the corresponding NAAQS, with varying averaging times and statistics used to compare measured or modeled concentrations to ambient standards. The standards currently in effect in California are shown in Table 3.3-1a.

Table 3.3-1a. 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

Table 3.3-1a. National and California Ambient Air Quality Standards

Pollutant	Averaging Time	CAAQS[a]	NAAQS[b]	
			Primary[c]	Secondary[d]
SO_2	1 hour 3 hours 24 hours Annual Arithmetic Mean	0.25 ppm -- 0.04 ppm --	0.075 ppm[f] -- 0.14 ppm[g] 0.030 ppm[g]	-- 0.5 ppm -- --
PM_{10}	24 hours Annual Arithmetic Mean	50 µg/m³ 20 µg/m³	150 µg/m3 --	150 µg/m³ --
$PM_{2.5}$	24 hours Annual Arithmetic Mean	-- 12 µg/ m³	35 µg/m3 12 µg/m3	35 µg/m³ 15 µg/m³
Lead	30-Day Average Calendar Quarter Rolling 3-Month Average	1.5 µg/ m³ -- --	-- 1.5 µg/m3 0.15 µg/m3	-- 1.5 µg/m³ 0.15 µg/m³
VRP	8 hours	[h]	--	--
Sulfates	24 hours	25 µg/ m³	--	--
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/m³ is equal to or less than 1 on average over 3 years. For $PM_{2.5}$, 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] The existing 24-hour and annual primary standards were revoked. The 1971 SO_2 national standards (24-hour and annual arithmetic mean) remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards. In these areas, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[h] 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/m³ = microgram(s) per cubic meter
ppm = part(s) per million

Attainment Status. The EPA and CARB classify areas as being in attainment or nonattainment with the NAAQS or CAAQS for each criteria pollutant. A region that meets the NAAQS or CAAQS for a pollutant is designated as being in “attainment” for that pollutant. If the region does not meet the NAAQS or CAAQS for a pollutant, it is designated as being in “nonattainment” for that pollutant. An area that was previously designated as a nonattainment area but has recently met the standard and has been reclassified by EPA as “attainment with a maintenance plan” is a “maintenance” area. If monitoring data are insufficient, an area may be deemed “unclassified” for a pollutant standard, but this designation is typically considered the same as attainment for regulatory purposes.

The San José Data Center (SJC02 or project) will be located in the City of San José, under the jurisdiction of the BAAQMD. Table 3.3-1b summarizes attainment status for the criteria pollutants in the SFBAAB with regard to both the federal and state standards.

Table 3.3-1b. Attainment Status for the San Francisco Bay Area Air Basin

Pollutant	Averaging Time	Federal Designation	State Designation
Ozone	1 hour 8 hours	-- Marginal Nonattainment	Nonattainment Nonattainment
CO	1 hour 8 hours	Maintenance[a] 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 --	Nonattainment Nonattainment
$PM_{2.5}$	24 hours Annual Arithmetic Mean	Nonattainment[b] Attainment	-- Nonattainment
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] The CO maintenance period expired on June 1, 2018. The area is still listed as maintenance in the EPA Greenbook.

[b] On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ 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 will continue to be designated as “nonattainment” for the national 24-hour $PM_{2.5}$ standard until such time as the BAAQMD submits a “redesignation request” and a “maintenance plan” to EPA, and EPA approves the proposed redesignation.

Note:

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

Given its nature as a data center, the project will not emit measurable quantities of lead, VRP, sulfates, hydrogen sulfide, or vinyl chloride. Therefore, these pollutants are not addressed in further detail in this section.

Existing Conditions

Table 3.3-1c provides background concentrations of criteria pollutants for the previous 3 years as measured in ambient air at certified monitoring stations near the project site. To evaluate potential air quality impacts as a result of the project, modeled air concentrations attributable to the project are combined with appropriate background concentrations and compared to the applicable NAAQS and CAAQS. If the background concentrations alone exceed the applicable NAAQS and CAAQS, modeled air concentrations attributable to the project are instead compared directly to Significant Impact Levels (SILs).

Table 3.3-1c. Summary of Background Concentrations Measured in Ambient Air[a]

Pollutant	Averaging Time	Units	2016	2017	2018
Ozone	1 hour	ppm	0.087	0.121	0.078
	8 hours	ppm	0.066	0.098	0.061
CO	1 hour	ppm	1.9	2.1	2.5
	8 hours	ppm	1.4	1.8	2.1
NO_2	1 hour (maximum)	ppb	51	68	86
	1 hour (98th percentile)	ppb	42	50	59
	Annual Arithmetic Mean	ppb	11.26	12.24	12.04
SO_2	1 hour (maximum)	ppb	1.8	3.6	6.9
	1 hour (99th percentile)	ppb	2.0	3.0	3.0
	3 hours[b]	ppb	1.8	3.6	6.9
	24 hours	ppb	0.8	1.1	1.1
	Annual Arithmetic Mean	ppb	0.19	0.20	0.21
PM_{10}	24 hours	µg/m^3	40	69	115
	Annual Arithmetic Mean[c]	µg/m^3	18.3	21.3	23.1
$PM_{2.5}$	24 hours (98th percentile)	µg/m^3	20	41	73
	Annual Arithmetic Mean	µg/m^3	8.4	10.1	12.9

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 on the Monitor Values Report Website (https://www.epa.gov/outdoor-air-quality-data/monitor-values-report).

[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 158B Jackson Street in San Jose, California, as reported by CARB in the iADAM Database (https://www.arb.ca.gov/adam/).

Note:

ppb = part(s) per billion

In addition to the criteria pollutants, EPA and CARB also regulate emissions of hazardous air pollutants (HAPs) and toxic air contaminants (TACs). The term TAC is more commonly used in California. TAC emissions are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Relevant criteria pollutants and TACs are described in the following subsections, including their potential health effects.

Ozone

Ozone is a photochemical oxidant that is formed when volatile organic compounds (VOCs) and nitrogen oxides (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 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.

Toxic Air Contaminants

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

3.3.1.2 Regulatory Background

Federal, state, and regional agencies regulate air quality in the SFBAAB, where the project site and related offsite areas where project activities will occur are located.

Federal

Federal air quality policies are regulated through the Federal Clean Air Act (CAA). The U.S. Congress adopted the CAA in 1970 and passed amendments to the CAA in 1977 and 1990. In 1990, the CAA was amended to strengthen regulation of both stationary and mobile emission sources. As required by the federal CAA, NAAQS have been established for the criteria pollutants, as described previously.

The 1977 CAA amendments require each state to develop and maintain a State Implementation Plan (SIP) for each nonattainment criteria pollutant. The SIP serves as a tool to help avoid and minimize emissions of nonattainment criteria pollutants and their precursor pollutants, and to achieve compliance with the NAAQS. More details on the applicable local air quality plans and SIP are provided in the following state regulatory discussion.

EPA has promulgated federal regulations for permitting the construction and operation of emission sources that qualify as “major” sources of emissions, as defined in the applicable rules. In most states, EPA has delegated authority to states and local permitting authorities to write regulations and operate federally enforceable permitting programs. Federal regulations for pre-construction review and permitting of new and modified major sources include nonattainment new source review (NSR) requirements, applicable to major sources of nonattainment pollutants and/or their precursors in nonattainment areas, and prevention of significant deterioration (PSD) requirements, applicable to any major sources of attainment pollutants or their precursors. Title V of the federal CAA requires the EPA to establish a national operating permit program for major sources of emissions. In states with delegated authority (like California), these permits are referred to as Part 70 or Title V permits.

In addition to the criteria pollutants, EPA also regulates emissions of HAPs. HAPs or air toxic emissions are pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Controlling air toxic emissions became a national priority with the passage of the CAA amendments in 1990, when the U.S. Congress mandated that the EPA regulate 188 air toxics. National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulate HAPs at major emission sources, aiming to protect the public health with an ample margin of safety and to prevent any significant and adverse environmental effects.

For mobile sources, the EPA has assessed the list of the 188 HAPs in its rule titled Control of Hazardous Air Pollutants from Mobile Sources (*Federal Register*, Vol. 72, No. 37, page 8430, February 26, 2007), and identified the high-priority mobile source air toxics (MSATs). MSATs are pollutants with significant emission contributions from mobile sources, which are among the national and regional-scale cancer risk drivers in the 1999 National Air Toxics Assessment. In this rule, the high-priority MSATs identified by EPA are acrolein, benzene, 1,3-butadiene, diesel particulate matter and diesel exhaust organic gases (collectively referred to as DPM), formaldehyde, naphthalene, and polycyclic organic matter. The control of HAPs from mobile sources requires controls to dramatically decrease MSAT emissions (for example, by using cleaner fuels and cleaner engines).

EPA regulations applicable to the project’s proposed diesel-fueled emergency engines include the NESHAP for reciprocating internal combustion engines (RICE), presented in 40 Code of Federal Regulations (CFR) 63, Subpart ZZZZ, and the New Source Performance Standards (NSPS) for combustion ignition engines fueled by diesel, presented in 40 CFR 60, Subpart IIII. Per 40 CFR 63.6590(c)(1), the RICE NESHAP requirements are met by meeting the NSPS requirements of 40 CFR 60, Subpart IIII. These NSPS requirements include, but are not limited to, the following:

- Engines must be certified to meet appropriate emissions standards.
- Engines must be installed and operated according to manufacturer’s specifications.

- For a combined total of 100 hours per year, emergency engines can be used for the following purposes:
  - Maintenance and testing
  - Emergency demand response for Emergency Alert Level 2 situations[8]
  - Responding to situations when there is at least a 5 percent or more change in voltage
  - Operating for up to 50 hours to head off potential voltage collapse, or line overloads, that could result in local or regional power disruption

In an emergency, such as hurricane or ice storm, any engine of any size can operate without meeting control requirements or emission limits (EPA 2013).

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 CAA. The California CAA, which was approved in 1988, requires each local air district, where ambient concentrations violate the CAAQS, to prepare an air quality management plan to achieve compliance with the CAAQS as a part of the SIP. CARB has ultimate responsibility for the SIP for nonattainment pollutants but relies on each local air district to adopt mandatory statewide programs and provide tailored additional strategies for sources under their jurisdiction. The SIPs are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, and permitting), district rules, state regulations, and federal controls. Local air districts and other agencies prepare SIP elements and submit them to CARB for approval. CARB forwards SIP revisions to EPA for approval and publication in the Federal Register. CARB also established the CAAQS, which are typically considered more stringent than the NAAQS.

California regulates TACs through its Air Toxics Program, which is mandated in Chapter 3.5 of the Health and Safety Code – Toxic Air Contaminants, and Part 6 – Air Toxics Hot Spots Information and Assessment (California Health and Safety Code Sections 39660 et seq. and 44300 et seq., respectively). TACs consist of a variety of compounds, including metals, minerals, soot, and hydrocarbon-based chemicals. There are hundreds of different air toxics, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome-plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust.

TACs are primarily regulated through state and local risk management programs, which 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 (OEHHA) (BAAQMD 2017c). For example, OEHHA completed a comprehensive health assessment of diesel exhaust in 1998. The assessment formed the basis for a CARB decision to formally identify particulate matter in diesel exhaust (DPM) as a TAC that may pose a threat to human health. In response, CARB has adopted the Diesel Risk Reduction Plan (CARB 2016) and a series of airborne toxic control measures for mobile and stationary sources, which are intended to reduce overall DPM emissions in California. The recommended measures can be grouped as measures that address on-road vehicles, off-road equipment and vehicles, and stationary and portable engines. Many rules provide for older, more emissive equipment to be replaced with cleaner equipment and fleets over time. As another example, CARB’s Regulation for In-Use Off-Road Diesel-Fueled Fleets, presented in 13 California Code of Regulations (CCR) 2449, requires construction equipment operators to restrict all nonessential idling of construction equipment to 5 minutes or less.

Assembly Bill (AB) 2588, also known as the Air Toxics “Hot Spots” Information and Assessment Act of 19879, requires facilities to prepare detailed TAC emissions inventories. Results of these emissions

[8] In 2015, the Delaware Department of Natural Resources and Environmental Control challenged the emergency demand response regulations in the U.S. Court of Appeals for the District of Columbia Circuit. As a result of these legal proceedings, the court remanded this portion of the NESHAP, while leaving other provisions intact. Additional details can be found at https://www.leagle.com/decision/infco20150501329.

[9] California Health and Safety Code Sections 44360 – 44366.

inventories are used to prioritize facilities for health risk assessment (HRA), which must be conducted using CARB/OEHHA guidelines. As part of its jurisdiction under AB 2588[10], OEHHA derives cancer potencies and reference exposure levels (RELs) for individual air contaminants, based on the current scientific knowledge that includes consideration of possible differential effects on the health of infants, children, and other sensitive subpopulations, and in accordance with the mandate of the Children's Environmental Health Protection Act[11]. These cancer potencies and RELs are used in health risk assessments to evaluate potential health risks associated with human exposures to estimated TAC emissions. Estimated risks are compared to levels of carcinogenic, chronic, and acute health risks deemed acceptable by the regulatory agencies. Sections of the California Public Resources Code require an assessment of impacts to public health for new or modified sources, including power plants that emit one or more TACs[12].

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. 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" (EPA 2003).

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 (BAAQMD 2017c). Some of the BAAQMD's key air plans and regulations are described in the following subsections.

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

1) Ground-level ozone and the key ozone precursor pollutants (VOCs and NO_X)
2) Particulate matter (PM_{10} and $PM_{2.5}$), as well as the precursors to secondary $PM_{2.5}$
3) TACs
4) GHGs

The 2017 Clean Air Plan includes 85 distinct control measures to decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of GHGs and other pollutants. The measures most likely to affect the project are expected to be implemented through future, more stringent regulation of air pollutants, including TACs, by BAAQMD. For example, BAAQMD is expected to adopt more stringent limits and methods for evaluating toxic risks and new regulations to reduce fuel consumption on a source-type by source-type basis.

BAAQMD Calculating Potential to Emit for Emergency Backup Power

The BAAQMD recently released a new policy, *Calculating Potential to Emit for Emergency Backup Power Generators*, which was developed to include a new requirement and methodology for determination of potential to emit (PTE) for emergency backup power generators (BAAQMD 2019). Although the policy has been signed, it has not been subject to formal rulemaking and is not an adopted BAAQMD regulation.

[10] California Health and Safety Code Section 44360(b)(2).

[11] Senate Bill 25, Escutia, Chapter 731, Statutes of 1999; California Health and Safety Code Sections 39669.5 et seq.

[12] 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), CCR; California CAA; California Health and Safety Code Section 39650, et seq.

All facilities with one or more generators proposed for emergency backup power purposes would be subject to this policy, if it is formally adopted.

Under the policy, impact analyses for subject facilities must assume 100 hours per year of emergency operations, in addition to the requested number of annual hours for maintenance and testing, when calculating the source's PTE and determining the applicability of requirements under BAAQMD's NSR (Regulation 2, Rule 2) and Title V Major Facility Review (Regulation 2, Rule 6) regulations. The policy states that emission reduction credits required for a project are based solely on the permitted hours/emissions associated with maintenance and testing activities, not the assumed 100 hours of emergency operations used in the PTE calculations. Similarly, the policy notes that emissions from emergency operations are exempt from BAAQMD's regulation for NSR of TACs (Regulation 2, Rule 5).

When implementing this policy, the BAAQMD will not approve permit conditions for backup generators that limit emergency operations to less than the assumed 100 hours per year in order to lower a source's PTE. The BAAQMD set the assumed 100 hours per year for emergency operations in the policy as a reasonable worst-case assumption for the amount of time a facility may operate for emergency purposes within a given year. The policy does not in any way limit emergency operation of backup power generators, because BAAQMD recognizes that facilities need to maintain flexibility to respond to emergency situations.

BAAQMD Regulation 2, Rule 1: Permits – General Requirements

This rule requires the Applicant to secure written authorization from the BAAQMD Air Pollution Control Officer (APCO), in the form of an Authority to Construct permit, prior to the time a project "puts in place, builds, erects, installs, modifies, modernizes, alters or replaces any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants". Furthermore, Rule 1 provides that "The APCO shall deny an authority to construct or a permit to operate if the APCO finds that the subject of the application would not or does not comply with any emission limitations or other regulations of the District (including but not limited to the BACT and offsets requirements in Regulations 2-2-301 through 2-2-303), or with applicable permit conditions or federal or California laws or regulations, or if any required fees have not been paid". The Applicant will submit an air permit application to the BAAQMD, which will provide the necessary evidence to document that the SJC02 project, including, without limitation, the standby and administrative generators, will fully comply with applicable BAAQMD regulations.

BAAQMD Regulation 2, Rule 2: Permits – New Source Review

This rule applies to all new or modified sources requiring a Permit to Operate and requires Best Available Control Technology (BACT) for any new source with a PTE of 10.0 or more pounds per day of any single pollutant. Offsets are required at a 1.15:1 ratio if the project will have a PTE of more than 35 tons per year (tpy) of NO_X or precursor organic compounds, and at a 1:1 ratio if the project will have a PTE of more than 100 tpy of $PM_{2.5}$, PM_{10}, or SO_2.

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 exposures and health risks. Under this rule, a project will be denied an Authority to Construct if it exceeds any of the specified risk limits, which are consistent with BAAQMD's CEQA significance thresholds. Best Available Control Technology for Toxics (TBACT) will also be required for any new or modified source of TACs where the source has an estimated excess lifetime cancer risk greater than 1.0 in 1 million or a chronic hazard index (HI) greater than 0.20. The specific toxicity values for each particular TAC, as identified by BAAQMD and OEHHA, are listed in Table 2-5-1 of Regulation 2, Rule 5 for use in HRAs (BAAQMD 2017c). Table 2-5-1 also provides the emission threshold level for each TAC, "below which the resulting health risks are not expected to cause, or contribute significantly to, adverse health effects".

BAAQMD Regulation 2, Rule 6: Permits – Major Facility Review

This rule is intended to implement the Title V operating permit requirements and applies to major facilities. A major facility is defined as either (1) a facility that has a PTE of 100 tpy or more of any criteria air pollutant or (2) has a PTE of 10 tpy or more of a single HAP or 25 tpy or more of a combination of HAPs.

3.3.2 Significance Criteria

BAAQMD has developed air emission, dispersion modeling, and health risk thresholds of significance for CEQA analysis, as shown in Table 3.3-2. Air quality impacts resulting from demolition, excavation, construction, reconductoring activities, and operation of the project will be deemed significant if daily or annual emission estimates, modeled concentrations, or HRA results will exceed the BAAQMD's applicable significance thresholds. This analysis of the project is based on the general methodologies in the most recent BAAQMD CEQA Guidelines (last updated in May 2017[13] [BAAQMD 2017c]) and the numerical significance thresholds listed in Table 3.3-2.

HRAs evaluate potential human health risks associated with exposure of sensitive receptors to pollutant concentrations: in this case, project-related emissions of TACs. The risk categories evaluated in HRAs include individual excess lifetime cancer risk, non-cancer health effects from chronic (long-term) exposure, and non-cancer health effects from acute (short-term) exposure. There are two kinds of significance thresholds for the results of HRAs. Cancer risk is expressed as a numerical excess lifetime cancer risk per 1 million exposed individuals. The results of evaluation of non-cancer health effects associated with acute and chronic exposures are expressed as HI, which is the ratio of expected exposure levels to acceptable RELs (BAAQMD 2017c).

The significance thresholds for TACs and $PM_{2.5}$ applied to the siting of a new source are listed in Table 3.3-2 and summarized as follows (BAAQMD 2017c):

- 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 modeled 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 listed in Table 3.3-2 and also summarized in the following bullet points. A project will 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 (BAAQMD 2017c):

- An excess lifetime cancer risk level of more than 100 in 1 million
- A non-cancer chronic HI greater than 10.0
- An incremental increase in the modeled 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 project 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 (BAAQMD 2017c).

[13] BAAQMD has initiated an update to its current CEQA Guidelines and thresholds of significance to reflect new or revised requirements in the State CEQA Guidelines, recent court decisions, improved analytical methodologies, and new mitigation strategies. However, until new guidance is approved, the thresholds of significance from the 2017 CEQA Guidelines are still considered appropriate for determining a project's significance, and thus those thresholds are utilized in this analysis..

Table 3.3-2. Bay Area Air Quality Management District Thresholds of Significance

Pollutant	Construction: Average Daily Emissions (pounds per day)	Operation: Average Daily Emissions (pounds per day)	Operation: Maximum Annual Emissions (tpy)
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 (chronic, from all local sources) 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

Notes:

> = greater than
BMP = best management practice

3.3.3 Emissions Estimation Methodology

3.3.3.1 Demolition, Excavation, Construction Activities Including Those Associated with Reconductoring Work

Short-term demolition, excavation, construction (including reconductoring activities) emissions of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were estimated for the project. The only TAC evaluated for demolition, excavation, construction (including reconductoring activities) was DPM, which was assumed equal to estimated onsite and offsite, off-road exhaust PM_{10} emissions, excluding helicopter emissions from reconductoring as helicopters are not diesel-fueled. Detailed demolition, excavation, construction (including reconductoring activities) emission calculations are presented in Appendix 3.3A. A qualified demolition contractor will be required to inspect the existing on-site structures prior to demolition to determine the presence of asbestos-containing materials (ACM) or lead-based paint (LBP). If ACM or LBP are present, the contractor will be required to abate ACM or LBP, or both, consistent with the applicable BAAQMD and state requirements. Any soil contamination will also be remediated in accordance with applicable laws and regulations including, without limitation, the requirements of the Santa Clara County Department of Environmental Health.

Demolition, excavation, construction (including reconductoring activities) emissions will include exhaust from fuel combustion and fugitive dust. They will result from use of construction equipment, helicopters, demolition activities, soil disturbance, material movement, paving activities, and on- and offsite vehicle trips, such as material haul trucks, dump trucks, worker commutes, pick-up trucks for crew transport, and delivery vehicles. Emissions from the approximately 17-month construction period, of which the first month includes demolition and excavation activities, were estimated using construction equipment emission factors, horsepower, and load factors from the California Emissions Estimator Model (CalEEMod) *CalEEMod User's Guide* (BREEZE 2017), assuming a mix of equipment meeting Tier 3 and Tier 4 NO_X and PM_{10} emission standards; paving emission factors from the *CalEEMod User's Guide* (BREEZE 2017); helicopter take-off and landing emission factors from a study prepared by the U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM 2014); and on-and offsite vehicle exhaust and idling emission factors from EMFAC2017. Fugitive dust emission factors for demolition; truck dumping and loading; and excavation and grading activities were derived using methodology from the *CalEEMod User's Guide* (BREEZE 2017); fugitive dust emission factors for vehicle travel on paved and unpaved roads were derived using methodology from *AP-42* (EPA 2011 and 2006, respectively). Fugitive dust is not expected to be generated during helicopter take-offs and landings as the landing pads are expected to utilize land that is already graveled or paved. Construction of the project will not require soil piles to be placed onsite or in any offsite work areas, and best management practices (BMPs) for fugitive dust control will be required to be implemented, as described in the Project Description section and later in this section. Estimated criteria pollutant demolition, excavation, construction (including reconductoring activities) emissions for the project, and for which a BAAQMD significance threshold exists, are summarized in Table 3.3-3, and conservatively assume that all demolition, excavation, construction (including reconductoring) activities will occur concurrently.

The CalEEMod program was selected from the list of analytical tools recommended by the BAAQMD[14] for evaluating air quality and GHG impacts pursuant to CEQA. On this list of tools, the CalEEMod program is specifically identified as appropriate for estimating criteria pollutant and GHG emissions. Furthermore, use of this BAAQMD-recommended analytical tool confirms consistency among projects before the CEC. In addition, the City of San José used the CalEEMod program in preparing the 237 Industrial Center Environmental Impact Report (2017 EIR) air quality evaluation for the previously approved data center project that was proposed on the project site.

Table 3.3-3. Criteria Pollutant Emissions from Project Demolition, Excavation, Construction, (Including Reconductoring Activities)

	VOCs	NOx	PM_{10}[a]	$PM_{2.5}$[a]
Average Daily Emissions (pounds per day)[b]	20.8	53.5	51.2	10.9
Maximum Emissions (tons per project)	3.88	10.0	9.58	2.04

[a] These estimates conservatively include fugitive dust emissions, even though the BAAQMD's thresholds are specific to exhaust emissions only.

[b] The BAAQMD's thresholds are for average daily emissions, so the reported results are the total project emissions averaged over the entire demolition, excavation, construction, and reconductoring duration.

The BAAQMD's CEQA Guidelines (BAAQMD 2017c) consider fugitive dust impacts to be less than significant, provided that specified BMPs are implemented. As stated previously, to minimize fugitive dust impacts, the BAAQMD's recommended BMPs will be incorporated as project design features, as follows:

- All exposed surfaces (for example, parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material offsite will be covered.
- All visible mud or dirt track-out onto adjacent public roads will 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 will be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved will be completed as soon as possible. Building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- Idling times will 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

[14] See http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools.

Diesel-Fueled Commercial Motor Vehicle Idling [13 CCR 2485]). Clear signage will be provided for construction workers at all access points.

- All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will be checked by a certified visible emissions evaluator.
- A publicly visible sign will be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. BAAQMD's phone number will also be visible to provide compliance with applicable regulations.

3.3.3.2 Operations

The operational emissions from all project components of CO, VOCs, NO_X, SO_2, PM_{10}, and $PM_{2.5}$ were evaluated, unless otherwise noted, as were TAC emissions from diesel fuel combustion in the standby and administrative generators and urea usage in the generators' selective catalytic reduction (SCR) systems. Operational emissions result from diesel fuel and urea use in the generators and emission control systems; refueling of diesel storage tanks; operation of cooling units; offsite vehicle trips for worker commutes and material deliveries; and facility upkeep, such as architectural coatings, consumer product use, landscaping, water use, waste generation, and electricity use. Each of these emission sources are described in more detail in the following paragraphs.[15] Detailed operation emission calculations are presented in Appendix 3.3B.

Stationary Sources

Diesel fuel combustion in the project's 40 standby generators and two administrative generators will result in stationary source emissions. Of the generators proposed for installation, 40 would be Cummins-certified Tier 4 engines, with an engine output of 4,307 horsepower (3 MW) at full load. There will also be two additional Cummins-certified Tier 4 engine generators, with ratings of 1,818 and 731 horsepower (1.25 and 0.5 MW, respectively), to serve the administrative buildings. Each generator will be equipped with a two-stage Miratech SCR System. The first stage will control particulate matter by at least 85 percent via a diesel oxidation catalyst and diesel particulate filter; the second stage will control NO_X, CO, VOCs, particulate matter, and HAPs to Tier 4 emissions standards via SCR. All generators will be tested routinely to verify that they will function during an emergency.

During routine maintenance and readiness testing, criteria pollutants and TACs will be emitted directly from the generators. When considering emissions from these routine events, the emission calculations conservatively apply Tier 2 emission factors to CO and NO_X, and Tier 4 emission factors for PM_{10} and $PM_{2.5}$. This approach reflects the likelihood of each generator's SCR not achieving full functionality during the short-duration maintenance and testing events. SO_2 emissions were based on the maximum sulfur content allowed in California diesel (15 ppm by weight per 13 CCR 2281), and conservatively assumed 100 percent conversion of fuel sulfur to SO_2. DPM emissions resulting from diesel stationary combustion were assumed equal to PM_{10} emissions, with speciated TAC emissions estimated using emission factors from *AP-42* (EPA 1996).

Ammonia will also be emitted during generator operation, but only as a result of urea usage in the SCR. Although the SCR will not likely be fully functional during routine maintenance and testing events, ammonia emissions were conservatively included in the TAC emission estimates for routine operation. These emissions were estimated based on an assumed ammonia slip concentration of 5 ppm.[16]

[15] Emissions associated with operation and maintenance of the 8.76-miles of reconductored transmission lines were not estimated as those activities would be conducted by PG&E as part of the operation and maintenance of its existing transmission system

[16] See https://www.empire-cat.com/uploadedFiles/Empire_Cat/Power_Systems/Emissions_Solutions/Stationary_Portable_Power/SCR%20Frequently%20Asked%20Questions.pdf.

Annual emissions were estimated assuming that maintenance and testing will occur for no more than 42 hours per year per generator[17], which is less than the 50 hour per year limit for maintenance and testing allowed in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (17 CCR 93115). Consistent with BAAQMD permitting methods, no load factor was applied. Daily emissions were estimated assuming that each generator will be operated for maintenance and testing for 42 hours per year, and then averaged over 12 months per year and 30 days per month to get a daily average emissions estimate.[18] Daily and annual criteria pollutant emission estimates from routine maintenance and testing of the generators are included in Table 3.3-7, along with other routine facility operation emissions described later within this section. Total TAC emissions from maintenance and testing are included in Table 3.3-6, with TAC-specific emission details included in Appendix 3.3B.

Potential criteria pollutant and TAC emissions from emergency operation of the generators were also estimated, as specified in BAAQMD's recently released policy, *Calculating Potential to Emit for Emergency Backup Power Generators* (BAAQMD 2019). These emissions were estimated based on the project's maximum emergency operations demand of 91.75 MW, which is less than the CEC's threshold for qualifying for an SPPE of 99 MW. To stay within the 91.75 MW of generation capacity, the emission calculations assume 30 of the 40 standby generators (3-MW) and the two administrative generators (1.25- and 0.5-MW) operate at 100 percent load.[19] In accordance with the BAAQMD's policy, the total PTE estimates also assume that all 42 generators will operate for 42 hours per year at 100 percent load for maintenance and testing. Table 3.3-4 describes the assumptions used to estimate the total PTE from emergency operation and maintenance and testing of the proposed standby and administrative generators.

Table 3.3-4. Emergency Operation and Maintenance and Testing Assumptions for Standby and Administrative Generators

Parameter	Units	Value	Comments
Total Number of Standby Generators	Units	40	Total number of 3-MW standby generators to be permitted, including both primary and backup standby generators
Number of Primary Standby Generators	Units	30	Assumes these generators are operated for both emergency operations and maintenance and testing purposes; the number of primary standby generators was determined based on the limitation of a maximum 91.75-MW energy output by the facility
Number of Backup Standby Generators	Units	10	Assumes these backup standby generators are operated for maintenance and testing purposes, but will only be operated for emergency purposes if one of the primary standby generators was taken offline
Total Number of Administrative Generators	Units	2	One 1.25-MW generator and one 0.5-MW generator to be permitted for emergency operations and maintenance and testing purposes
Annual Hours of Operation per Unit Assumed for Emergency Purposes	Hours per year	100	Required by the BAAQMD's policy, *Calculating Potential to Emit for Emergency Backup Power Generators* (BAAQMD 2019)
Annual Hours of Operation per Unit Assumed for Maintenance and Testing Purposes	Hours per year	42	Maximum maintenance and testing hours proposed for each generator

[17] SPPE Section 2.0, Table 2-4 shows the expected standby generator engine operation of less than 13 hours per year for maintenance and testing.

[18] Daily emission rates were averaged over the period of a year since the standby and administrative generators could potentially be tested at any time of day or day of the year.

[19] The operation of all 40 standby generators at approximately 75 percent load results in the same PTE as assuming 30 generators operate at 100 percent load for 100 hours per year.

Table 3.3-5 presents the maximum annual PTE from the standby and administrative generators, including both emergency and routine maintenance and testing operations.

Table 3.3-5. Criteria Pollutant Emissions from Emergency Generator Operation and Routine Maintenance and Testing

Annual Operation	Annual Emissions (tpy)					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Standby Generators - Maximum PTE[a]	4.97	11.6	97.3	0.10	0.49	0.49
Administrative Generators - Maximum PTE[b]	0.05	0.43	1.67	0.002	0.01	0.01
Total Generators – Maximum PTE	5.02	12.0	99.0	0.10	0.50	0.50

[a] Maximum PTE emission assume operation of all 40 standby diesel generators at 100 percent load. To comply with BAAQMD's policy, *Calculating Potential to Emit for Emergency Backup Power Generators* (BAAQMD 2019), it is assumed that only 30 of the 40 standby generators will operate 142 hours per year, while the remaining 10 backup standby generators will operate only 42 hours per year.

[b] Maximum PTE emissions assume operation of both administrative diesel generators at 100 percent load. To comply with BAAQMD's policy, *Calculating Potential to Emit for Emergency Backup Power Generators* (BAAQMD 2019), it is assumed that both of the administrative generators would operate 142 hours per year.

Table 3.3-6 provides total annual TAC emission estimates, considering the sum of all TACs and HAPs, from both emergency and routine maintenance and testing generator operation.

Table 3.3-6. TAC Emissions from Emergency Generator Operation and Routine Maintenance and Testing

Pollutant	Annual Emissions (tpy)[a]		
	3-MW Generators (40)	1.25-MW Generator	0.5-MW Generator
Total TACs and HAPs from Maintenance and Testing Operation[b]	0.45	0.005	0.002
Total TACs and HAPs from Emergency Operation[c]	1.07	0.012	0.005
Total TACs and HAPs from All Possible Operation Scenarios	1.52	0.017	0.007

[a] All TACs and HAPs, including DPM and speciated diesel exhaust pollutants, were conservatively summed to report annual emissions. Actual total TAC or HAP emissions, as defined by the CARB and EPA, respectively, are expected to be less than what is reported here.

[b] Assumes 42 hours of operation per generator per year at 100 percent load.

[c] Assumes 100 hours of operation per generator per year at 100 percent load.

1.9.3.1.1 *Storage Tank Refueling*

In addition to the stationary source emissions described above, each generator will emit VOCs during refueling of the diesel storage tanks feeding each generator. Each project standby generator (40 in total) and administrative generator (2 in total) is expected to operate less than 15 hours per year. However, assuming each generator is operated for 42 hours per year with a conservative fuel usage rate of

202.0 gallons per hour[20], each generator will consume 8,484 gallons of diesel annually. This assumes that each generator is operated at full load, which is not expected, absent prolonged outage of the electric grid. Under the unlikely case that each generator is operated 42 hours per year at full load, each generator storage tank could be refueled up to four times per year. The project generators' diesel storage tanks are not required to include vapor control devices according to CARB's Vapor Recovery Program - Frequently Asked Questions (FAQs) For Aboveground Storage Tanks, which specifically states, "Note that ASTs storing diesel or jet fuel are not required to have vapor recovery systems".[21] The South Coast Air Quality Management District's *Supplemental Instructions for Liquid Organic Storage Tanks Annual Emissions Reporting Program* (February 2017)[22] provides a diesel fuel storage tank emission factor of 0.028 pounds of VOC per 1,000 gallons for loading, storing, dispensing, and spills or leaks. This emission factor, together with the estimated annual fuel use of 8,484 gallons per year, were used to estimate storage tank refueling emissions from each generator storage tank. These emissions are included in Table 3.3-7, with calculation details included in Appendix 3.3B.

1.9.3.1.2 Cooling Units

The project's cooling-related emissions will result from use of refrigerants in operation of five 18-ton Daikin variable refrigerant flow cooling units, two 4.5-ton variable refrigerant flow cooling units, and one 14-ton cooling unit. Based upon manufacturer data, these units will contain R-410A coolant, which has been identified by the International Panel on Climate Change to have a global warming potential. Therefore, emissions associated with industry standard leak rates of R-410A were used to estimate potential GHG emissions and impacts in Section 3.8.

In total, 68 closed circuit cooling units will be installed to support the remainder of the facility operations. The closed circuit cooling units are supplemented with wet cooling when the outdoor ambient air temperature is above 75 degrees Fahrenheit (approximately 590 hours per year according to the manufacturer). For equipment longevity, each of the cooling units is equipped with a re-condensing system to remove moisture from the cooling air prior to discharge. As a result of the re-condensing operation, negligible particulate matter emissions will result from the air discharge.

1.9.3.1.3 Mobile Sources

Once operational, approximately 100 employees will be employed at the project site on a daily basis, split between three shifts, with approximately 30 daily vendor trips. Total vehicle trips, including vendor and employee trips, will be approximately 130 per day, which will result in mobile source criteria pollutant emissions. Emissions for mobile sources were estimated using vehicle exhaust and idling emission factors from EMFAC2017 and are included in Table 3.3-7.

1.9.3.1.4 Area and Energy Sources

The project will result in area and energy source criteria pollutant emissions associated with facility upkeep (that is, building operation and maintenance). Area sources include landscaping activities, consumer product use, and periodic painting emissions. Energy sources include only electrical use, as natural gas will not be used for comfort heating.[23] Facility upkeep emissions were estimated using CalEEMod, based on the square footage of the buildings to be constructed and paved areas, and are included in Table 3.3-7. The CalEEMod output is included in Appendix 3.3B.

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[20] Both administrative generators would have an hourly fuel usage rate less than 202.0 gallons per hour, so actual annual gallons of diesel consumed would be less than what is estimated herein.

[21] See https://www.arb.ca.gov/vapor/faq.htm.

[22] See http://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/supplemental-instructions-for-liquid-organic-storage-tanks.pdf.

[23] 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 are not included in this analysis. Similarly, criteria pollutant emissions associated with waste generation and water use would be tied to electricity consumption and are not included in this analysis.

Total Emissions from Facility Operations

Total daily and annual criteria pollutant emissions resulting from routine facility operations, including maintenance and testing of standby and administrative generators, storage tank refueling, operation of cooling units, vehicle trips, and facility upkeep, are presented in Table 3.3-7.

Table 3.3-7. Criteria Pollutant Emissions from Routine Facility Operation

	Average Daily Emissions (pounds per day)					
Daily Operation	**VOC**	**CO**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Generators[a]	10.0	23.8	197	0.20	0.99	0.99
Tank Refueling	0.03	--	--	--	--	--
Cooling Units[b]	--	--	--	--	--	--
Mobile Sources	0.17	4.66	3.31	0.02	0.38	0.18
Facility Upkeep	15.2	0.02	0.00	0.00	0.00	0.00
Unmitigated Project Emissions	25.3	28.5	200	0.23	1.37	1.17
	Maximum Annual Emissions (tpy)					
Annual Operation	**VOC**	**CO**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Generators[a]	1.80	4.29	35.4	0.04	0.18	0.18
Tank Refueling	0.00	--	--	--	--	--
Cooling Units[b]	--	--	--	--	--	--
Mobile Sources	0.03	0.85	0.60	0.00	0.07	0.03
Facility Upkeep	2.77	0.00	0.00	0.00	0.00	0.00
Unmitigated Project Emissions	4.60	5.15	36.0	0.04	0.25	0.21

[a] Emissions assume concurrent operation of all 40 standby and 2 administrative generators at 100 percent load for 42 hours per year, even though only 30 standby and 2 administrative generators are expected to operate at any single time.

[b] Per above discussion, cooling units will result in negligible particulate matter emissions.

Note:

-- = No or negligible emissions expected from this source

3.3.4 Air Quality Impact Analysis

An ambient air quality impact analysis, including dispersion modeling, was conducted as follows:

- To estimate reasonable worst-case ground-level concentrations that will result from the project under 50, 75, and 100 percent generator load scenarios
- To combine modeled, project-related estimates with monitored background concentrations
- To compare predicted results with applicable state and federal ambient air quality standards and BAAQMD significance criteria

The analysis was conducted in accordance with the air quality impact analysis guidelines presented in 40 CFR 51, Appendix W, *Guideline on Air Quality Models* (EPA 2017).

The analysis includes an evaluation of the potential effects of simple, intermediate, and complex terrain, and aerodynamic effects due to nearby buildings and structures (downwash) 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, and no chemical reactions).

Subsections 3.3.4.1 and 3.3.4.2 present the following information:

- Dispersion modeling methodology for evaluating impacts on ambient air quality
- Source parameters and data used in dispersion modeling

Dispersion modeling results compared to the CAAQS, NAAQS, and applicable SILs are presented in Section 3.3.6.

3.3.4.1 Dispersion Modeling Methodology

Model Selection and Model Options

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) (Version 19191) was used with regulatory default options, as recommended in EPA's *Guideline on Air Quality Models* (EPA 2017). Supporting pre-processing programs for AERMOD were also used, including the following:

- BPIP-PRIME (Version 04274)
- AERMAP (Version 11103)

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
- Hour of day factor
- Urban population
- Actual receptor elevations and hill height scales obtained from AERMAP

The modeled facility layout is presented in Appendix 3.3C, Figure 1.

Meteorological Data

The analysis was performed with 5 years of data provided by the BAAQMD. The data were collected at the Moffett Field surface station (WBAN 23244) for calendar years 2013 through 2017. The Moffett Field surface station is located approximately 6.5 miles west of the project site and best represents the topography at the project site. The concurrent daily upper air sounding data from the Oakland International Airport station (WBAN 23230) were also included. The data were pre-processed with AERMET (Version 18081) by the BAAQMD for direct use in AERMOD.

Table 3.3-8 presents a summary of the percent completeness of wind speed and wind direction data. A cumulative wind rose for 2013 to 2017 data from the AERMET-processed surface files for the Moffett Field surface station is shown in Appendix 3.3C, Figure 3. The 5-year mean wind speed is 2.74 meters per second (m/s).

Table 3.3-8. Meteorological Data Completeness

Parameter	2013	2014	2015	2016	2017
Valid Wind Direction and Speed Observations	8,751	8,752	8,720	8,727	8,725
Possible Observations	8,760	8,760	8,760	8,784	8,760
Percent Complete (%)	99.90	99.91	99.54	99.35	99.60

Building Downwash

Building influences on stacks are calculated by incorporating the updated EPA Building Profile Input Program for use with the PRIME algorithm. Appendix 3.3C, Figure 1 shows the facility layout. The stack heights used in the dispersion modeling were the actual stack heights, because the proposed stack heights will be less than good engineering practice stack height.

Receptor Grid

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

- 25-meter (m) spacing along the fence line
- 50-m spacing from the fence line to 500 m from the grid origin
- 100-m spacing from beyond 500 m to 1 km from the fence line
- 500-m spacing from beyond 1 km to 5 km from the fence line
- 1,000-m spacing from beyond 5 km to 10 km from the fence line

AERMAP (Version 11103) was used to process terrain elevation data to obtain the elevation for all receptors using National Elevation Dataset (1 arc-second, or approximately 30 m, resolution) files prepared by the U.S. Geological Survey. AERMAP first determined the base elevation at each receptor. Then 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 3.3C, Figure 2.

Sensitive Receptors. Sensitive receptors (such as infants, the aged, and people with specific illnesses or diseases) are the subpopulations who are more sensitive to the effects of toxic substance exposure. Examples of receptor locations include residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences could include houses, apartments, and senior living complexes. Medical facilities could include hospitals, convalescent homes, and health clinics. Playgrounds could be play areas associated with parks or community centers (BAAQMD 2017c). The potential sensitive receptor locations evaluated in the HRA for the project include the following, consistent with BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD 2012):

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

A sensitive receptor search was conservatively conducted within the 2-km zone of influence of the project site, which is a much greater distance than the 1,000-foot zone of influence recommended by the BAAQMD. It was determined that the sensitive receptor locations near the project site include primarily schools, preschool through elementary-level; daycares; health centers; and a senior care center. The area directly east and south of the project site consists of various businesses. The nearest residential neighborhood is located approximately 0.3 mile south of the project site.

Reconductoring activities will occur at various locations along the Newark-North Receiving Station #1 transmission line, which is approximately 8.76 miles in length and where portions of which run through existing wetlands as well as industrial, and residential areas. The nearest residences are within 150 feet of the transmission line, and two schools are located within 1,200 feet of the transmission line. Despite the proximity of these residences and schools to this existing transmission line, reconductoring activities, which will necessarily be limited in scope, at any single location along the length of the transmission line are expected to be short in duration and not significantly contribute to localized impacts of health risk. Furthermore, the helicopter landing pads are expected to be located in non-urbanized areas that are already paved or graveled, thereby minimizing potential fugitive dust emissions during helicopter take-off and landing activities with no significant effect on sensitive receptors.

Given the limited nature of the offsite reconductoring activities, this analysis focuses on the sensitive receptors near the project site as discrete receptor locations in the model for purposes of conducting the HRA, as described in Section 3.3.5.

Hour of Day Factor

An Hour of Day (HROFDY) factor modeling refinement was used in AERMOD to characterize daily operating hours for maintenance and testing from 7 a.m. until 7 p.m. Each generator was assumed to operate a maximum of 4 hours per day only during the 7 a.m. to 7 p.m. time frame. The HROFDY factor was utilized for the 24-hour averaging period and was not included for the annual averaging period.

Urban Factor

The project site and related offsite areas for project activities are located in the Milpitas region of California and is considered an urban area, because the land use surrounding the project site is predominately classified as urban. Therefore, the model used a single urban area in AERMOD. The population estimate of Santa Clara County in 2018 was 1,937,570 people (U.S. Census Bureau 2018). This population was included in the model to help define the differential heating effect that develops at night due to the urban population.

Refined Analysis for 1-hour NO

For comparison to the NAAQS and CAAQS, NO_2 modeling followed a Tier 2 approach described in Section 4.2.3.4 of EPA's *Guideline on Air Quality Models* (EPA 2017). The Tier 2 analysis assumes an ambient equilibrium between NO and NO_2 using the Ambient Ratio Method 2 (ARM2) approach, in which the conversion of NO to NO_2 is predicted using hourly ambient NO_X monitoring data. For this modeling, the ARM2 option was used with an in-stack ratio (ISR) of NO_2/NO_X of 0.1 and a maximum out-of-stack NO_2/NO_X ratio of 0.9. The NO_2 ISR Database (EPA 2016), developed using EPA-verified testing, indicates that diesel internal combustion engines typically have an ISR of 0.03. The model conservatively used 0.1 as an ISR for use in ARM2.

The model also included seasonal hour (SEASHR) background data for NO_2. The 1-hour NO_2 background profiles used in this analysis were calculated as a SEASHR profile that provides a single background value for each hour of the day for each of the four seasons. Data for these background profiles were obtained from EPA's Air Quality System (AQS) Website[24], as measured at AQS Monitor Site ID 060850005 located at 158B Jackson Street in San Jose, California for years 2016, 2017, and 2018. For each hour of the day for each season, the average concentration of the three most recent and complete years is calculated. For purposes of CAAQS modeling, the background profile uses the high-1st-high hourly values averaged across the three most recent and complete years of data. For purposes of NAAQS modeling, the background profile conservatively uses the high-2nd-high hourly values, averaged across the three most recent and complete years of data, to represent the 98th percentile. The

[24] Accessible at https://aqs.epa.gov/api.

high-2nd-high values are determined to be the 98th percentile based upon any single season having no more than 92 possible data points for any given hour.

3.3.4.2 Source Parameters and Data Used in Dispersion Modeling

All 40 standby generators and both administrative generators were modeled as point sources, based on the operating assumptions listed in Table 3.3-9.

Table 3.3-9. Generator Operating Assumptions

Averaging Period	Operating Assumption
1-hour	Assumes a single generator could operate at 100 percent load at a time for maintenance and testing purposes
3-hour	Assumes all generators will operate at the maximum 1-hour rate during a 3-hour period for maintenance and testing purposes
8-hour and 24-hour	Assumes all generators could each operate at 100 percent load for a maximum of 4 hours per day for maintenance and testing purposes
Annual	Assumes all generators could each operate at 100 percent load for a maximum of 42 hours per year for maintenance and testing purposes

Source parameters used for modeling the standby and administrative generators were determined from manufacturer and performance data and are included in Table 3.3-10. The base elevation for each source was estimated based on a central elevation within the facility fence line. Consistent with the project design, the modeling assumed that the entire surface within the property boundary will be graded to this elevation; therefore, all buildings and sources will have this same elevation. A table showing individual source parameters for all 42 generators is included in Appendix 3.3C.

Table 3.3-10. Generator Source Parameters for Dispersion Modeling

Load Scenario	Source	Base Elevation (m)	Stack Height (m)	Exhaust Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
50% Load	3-MW Generator (40)	5	9.14	627.59	16.58	0.76
	1.25-MW Generator (1)	5	6.10	691.48	16.86	0.51
	0.5-MW Generator (1)	5	6.10	715.37	10.67	0.36
75% Load	3-MW Generator (40)	5	9.14	652.04	20.38	0.76
	1.25-MW Generator (1)	5	6.10	705.37	21.54	0.51
	0.5-MW Generator (1)	5	6.10	728.71	13.17	0.36
100% Load	3-MW Generator (40)	5	9.14	716.48	24.18	0.76
	1.25-MW Generator (1)	5	6.10	727.59	24.26	0.51
	0.5-MW Generator (1)	5	6.10	752.04	16.36	0.36

Note:

K = degrees Kelvin

Criteria pollutant emission rates used for modeling were developed as described in Section 3.3.3.2. The estimated 1-hour emission rates represent the maximum amount of each pollutant that will be released in any given hour. The estimated 3-hour emission rates were conservatively assumed equal to the 1-hour emission rate, based on the understanding that each generator could operate at the maximum 1-hour emission rate for 3 consecutive hours. Emission rates used for modeling 8-hour and 24-hour averaging periods were calculated assuming each generator will only operate for 4 hours in a given 24-hour period, consistent with the possibility of uninterrupted power supply testing occurring on any day of the year. Annual emission rates used for modeling assume each generator could operate a maximum of 42 hours per year. Table 3.3-11 includes the emission rates used for modeling for each criteria pollutant from a single generator. Emission rates for all 42 generators are presented in Appendix 3.3C.

Table 3.3-11. Criteria Pollutant Emission Rates for Dispersion Modeling[a]

Pollutant	Averaging Period	3-MW Generator Emission Rate (lb/hr)			1.25-MW Generator Emission Rate (lb/hr)			0.5-MW Generator Emission Rate (lb/hr)		
		100% Load	75% Load	50% Load	100% Load	75% Load	50% Load	100% Load	75% Load	50% Load
NO_X	1-hour[b]	41.6	31.4	21.3	16.2	12.3	8.40	7.40	5.61	3.83
	Annual[c]	0.20	0.15	0.10	0.08	0.06	0.04	0.04	0.03	0.02
CO	1-hour[b]	4.96	3.75	2.54	5.38	4.09	2.80	0.72	0.55	0.37
	8-hour[d]	2.48	1.87	1.27	2.69	2.04	1.40	0.36	0.27	0.19
$PM_{2.5}$	24-hour[d]	0.035	0.026	0.018	0.015	0.011	0.008	0.006	0.004	0.003
	Annual[c]	0.001	0.0008	0.0005	0.0004	0.0003	0.0002	0.0002	0.0001	0.0001
PM_{10}	24-hour[d]	0.035	0.026	0.018	0.015	0.011	0.008	0.006	0.004	0.003
	Annual[c]	0.001	0.0008	0.0005	0.0004	0.0003	0.0002	0.0002	0.0001	0.0001
SO_2	1-hour[b]	0.043	0.033	0.024	0.019	0.015	0.011	0.007	0.005	0.004
	3-hour[e]	0.043	0.033	0.024	0.019	0.015	0.011	0.007	0.005	0.004
	24-hour[d]	0.007	0.006	0.004	0.003	0.003	0.002	0.001	0.0009	0.0007
	Annual[c]	0.0002	0.0002	0.0001	0.00009	0.00007	0.00005	0.00003	0.00003	0.00002

[a] Emission rates used for dispersion modeling were based on Tier 2 emission factors for NO_X and CO, assuming the SCR is not yet operational, and Tier 4 emission factors for PM_{10} and $PM_{2.5}$, assuming control via a diesel particulate filter.

[b] Maximum emission rate in any given hour.

[c] Calculated as the total annual emissions, based on 42 hours of operation per year, averaged over 8,760 hours.

[d] Calculated assuming that each generator will only operate a maximum of 4 hours within a 24-hour period.

[e] Equal to the 1-hour emission rate, based on the understanding that each generator could operate at the maximum 1-hour emission rate for 3 consecutive hours.

Note:

lb/hr = pound(s) per hour

3.3.5 Health Risk Assessment

An HRA requires dispersion modeling of TAC emissions estimated for the project, as described in Section 3.3.4, and characterization of the resultant risk from estimated TAC concentrations using an approved risk assessment methodology. This study follows 2015 guidance from the OEHHA for preparation of HRAs (OEHHA 2015). The Hotspot and Reporting Program Version 2 (HARP2; CARB 2015) and OEHHA methodology were used to calculate risk. This section describes the use of HARP2 and the OEHHA methodology to characterize risks that will potentially result from demolition/excavation/construction (including reconductoring activities) and operation of the project. The risk assessment results are reported and compared to the relevant BAAQMD thresholds in Section 3.3.6.

TACs considered in evaluating the health impacts of the project are those included in BAAQMD Regulation 2, Rule 5. The only TAC evaluated in the demolition/excavation/construction/reconductoring HRA was DPM. The TACs evaluated in the operational HRA were DPM, ammonia, and the speciated total organic gases (TOG) in diesel exhaust. The TACs from speciated TOG include the following:

- Acetaldehyde
- Acrolein
- Benzene
- Formaldehyde
- Naphthalene
- Propylene
- Toluene
- Total polycyclic aromatic hydrocarbons (PAHs)[25]
- Xylene

The cancer risk, chronic HI, and acute HI predicted by the HRA for demolition/excavation/construction (including reconductoring activities) and operation of the project were based on TAC emissions from the project. These emission estimates were developed as described in Section 3.3.3, compared to BAAQMD thresholds, and used as inputs to the HRA.

The HRA process requires four general steps to estimate health impacts:

1) Identify and quantify project-generated emissions.
2) Model pollutant dispersion to estimate ground-level TAC concentrations at each receptor location
3) Assess potential for human exposure.
4) Use a risk characterization model to estimate the potential health risk at each receptor location.

The methods used in the demolition/excavation/construction (including reconductoring activities) and operational HRAs are described in more detail in the following subsections, as related to these four general steps.

3.3.5.1 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 (OEHHA 2015).

The HRA included potential health impacts from TAC exposure on receptors through the following pathways:

- Inhalation
- Dermal absorption
- Soil ingestion
- Mother's milk
- Homegrown produce

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* (OEHHA & CARB 2018). Although not required by the 2015 OEHHA Guidance for a Tier 1 assessment, residential exposure through the consumption of homegrown produce (including pork, chicken, and eggs) was conservatively included in the assessment.

[25] Total PAHs include benz(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

The following pathways were deemed not applicable to the project, per regulatory guidance, and thus were not included in the assessment:

- Surface drinking water
- Still-water fishing
- Subsistence farming

Cancer

Cancer risk was evaluated based on estimated long-term ground-level concentrations of TACs, as calculated from AERMOD, and the 2015 OEHHA assumptions for inhalation cancer potency, oral slope factor, frequency, and breathing rate of exposed persons. Cancer risk results are expressed on a number-per-million basis. The cancer risks estimated for the Maximally Exposed Individual Resident (MEIR), Maximally Exposed Individual Worker (MEIW), and Maximally Exposed Sensitive Receptor (MESR) were compared to the BAAQMD threshold for acceptable carcinogenic risks. These results are presented in Section 3.3.6.

Two HRAs were conducted: one based on the project's demolition, excavation, construction (including, reconductoring) emissions, and the other based on the project's routine operational emissions.[26] Both HRAs calculated residential, worker, and sensitive receptor cancer risk due to exposure to project emissions. As required by the 2015 OEHHA Guidance, sensitive receptor (including residential) cancer risks were estimated assuming exposure beginning in the third trimester of pregnancy; worker cancer risk was estimated assuming an 8-hour-per-day, 250 day-per-year exposure, beginning at the age of 16 (OEHHA 2015). The demolition/excavation/construction (including reconductoring activities) HRA assumed a 2-year rolling exposure duration, intended to conservatively mirror the 17-month construction duration, of which the first month includes demolition/excavation activities. Reconductoring activities will occur concurrently with the 17-month construction period. The operational HRA assumed a conservative 30-year continuous exposure duration for residential and sensitive receptors and a 25-year exposure duration for workers (OEHHA 2015).

Non-cancer Chronic Exposure

Chronic toxicity is defined as adverse health effects from prolonged (long-term) chemical exposure to toxicants or other stressors. To assess chronic non-cancer exposures to emissions from project demolition, excavation, construction, reconductoring, and operation, long-term TAC ground-level concentrations were evaluated based on the RELs developed by OEHHA for each TAC. 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 (or HI), which is the calculated exposure concentration 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 risks estimated for the MEIR, MEIW, and MESR were compared to the BAAQMD non-cancer chronic threshold. These results are presented in Section 3.3.6.

Non-cancer Acute Exposure

Acute toxicity is defined as adverse health effects caused by a single chemical exposure of no more than 24 hours. To assess acute non-cancer risks from project operation, the 1-hour TAC ground-level concentrations estimated for each contaminant were divided by the contaminant's acute REL to obtain an acute HI. Hazard quotients for pollutants affecting the same target organ were summed with the resulting totals expressed as HIs for each organ system. The non-cancer acute risks estimated for the MEIR, MEIW, and MESR were compared to the BAAQMD non-cancer acute threshold. These results are presented in Section 3.3.6.

[26] Emissions associated with operation and maintenance of the approximately 8.76 miles of reconductored transmission line were neither estimated nor included in this operational HRA as those activities would be conducted by PG&E as part of the operation and maintenance of its existing transmission system.

3.3.5.2 Demolition, Excavation, Construction, and Reconductoring HRA

A screening HRA was conducted to evaluate the potential health risks associated with pollutant exposure during demolition, excavation, and construction (including reconductoring activities) of the project. DPM was the only TAC evaluated consistent with the BAAQMD's CEQA guidance, and emissions of DPM were assumed to be equal to the exhaust PM_{10} emissions estimated for onsite and offsite construction equipment and off-road vehicles, excluding helicopters (involved in the reconductoring) as they will not be diesel-fueled. The emissions and screening HRA methodology are described in the following paragraphs.

Emissions. DPM emissions result from diesel fuel combustion in onsite and offsite construction equipment and off-road vehicles, excluding helicopters. DPM emissions resulting from the demolition, excavation, construction (including reconductoring) activities were derived from the emission estimates presented in Appendix 3.3A, as follows:

- DPM was assumed to be best represented by PM_{10} emitted as a result of fuel combustion. Therefore, fugitive dust emissions were excluded, as they are not expected to include DPM.
- Offsite, on-road contributions of PM_{10} resulting from material haul truck trips, dump trucks, worker commute trips, crew transport trips, and vendor delivery trips were excluded, as they are not expected to significantly contribute to localized impacts of DPM.
- Onsite and offsite contributions of PM_{10} resulting from off-road, gasoline-fueled light-duty trucks were conservatively included, although they are not expected to emit DPM.
- PM_{10} emissions resulting from diesel-fueled construction equipment exhaust were estimated assuming a mix of equipment meeting Tier 3 and Tier 4 PM_{10} emission standards.
- Offsite contributions of PM_{10} resulting from jet-fueled helicopter take-offs and landings were excluded as they are not expected to emit DPM.

For modeling, these emissions were averaged over the construction period (approximately 17 months) and spatially distributed within the demolition, excavation, and construction area.[27] Although some of the demolition, excavation, and construction activities will occur offsite in proximity to the project and all reconductoring activities will occur offsite, all emissions were modeled as being released from the project site due to the temporary nature of the offsite emissions. The emission rates used for modeling are presented in Table 3.3-12, with detailed calculations presented in Appendix 3.3D.

Table 3.3-12. Diesel Particulate Matter Emission Rates for Project Demolition, Excavation, Construction, and Reconductoring Used in HRA Modeling

Emissions Category	DPM Exhaust Emissions[c]		
	Total (lb/project)	Annualized (lb/year)[a]	Modeled Rate (g/s)
Total Demolition, Excavation, Construction, and Reconductoring Emissions	529	374	0.005
Demolition, Excavation, Construction (including Reconductoring) Emissions per Modeled Source[b]	1.21	0.85	0.00001

[a] Annualized emissions were calculated by averaging the total project emissions over a 17-month construction period.

[b] A total of 437 sources were modeled.

[c] These estimates include emissions resulting from reconductoring activities as well as refinements to the mix of Tier 3 and Tier 4-compliant construction equipment used for demolition, excavation, construction (including reconductoring activities).

Notes:

g/s = gram(s) per second

lb/project = pound(s) per project

lb/year = pound(s) per year

[27] As previously stated, reconductoring activities at any single location along the length of the transmission line are expected to be short in duration and not significantly contribute to localized impacts of health risk. Therefore, reconductoring emissions were not spatially distributed along the transmission line but rather conservatively added to those being modeled as being released from the project site.

Methodology

The atmospheric dispersion of emitted DPM was modeled using AERMOD (Version 19191). The modeled output (maximum ground-level concentrations), along with equations from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), were used to estimate the cancer and chronic (non-cancer) health risks for residential and worker exposure to DPM emissions. Acute (non-cancer) health risks were not estimated, because there is no acute inhalation REL for DPM, thus indicating that DPM is not known to result in acute health hazards (OEHHA 2015; OEHHA & CARB 2018). Details regarding the model selection, model options, meteorological data, and receptor grid spacing used to conduct this screening HRA are consistent with those described in Section 3.3.4. The construction source parameters used for modeling and health risk estimation, specific to the screening HRA, are described in more detail in the following paragraphs.

Source Parameters

The exhaust emissions resulting from construction equipment and vehicles were modeled as a set of point sources spaced approximately 25 m apart over the onsite demolition, excavation, and construction area with a horizontal stack release.[28] The horizontal release type is an AERMOD beta option (that is, nonregulatory default option), which negates mechanical plume rise. This conservative approach was used because it is unknown whether all construction equipment will have vertically oriented exhaust stacks. Stack release parameters consisted of a stack release temperature of 533 degrees Kelvin (K; 500 degrees Fahrenheit), a stack diameter of 0.127 m (5 inches), and a release height of 4.6 m (15 feet) based on data for typical construction equipment. Modeling was also restricted to the hours of 7 a.m. to 7 p.m., which was assumed to coincide with the expected daily construction schedule allowed by local noise ordinances. A detailed summary of the modeling inputs is presented in Appendix 3.3D.

Health Risk Estimates. The screening HRA estimated the 2-year rolling cancer risks, aligned with the expected construction duration, at the MEIR, MEIW, and MESR. Exposure was assumed to start during the third trimester for residents and sensitive receptors and at age 16 for workers. The excess lifetime cancer risks were estimated using the following:

- Equations 3.4.1.1 and 8.2.4A from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) for residential exposure
- Equations 5.4.1.2A, 5.4.1.2B, and 8.2.4B from the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015) for worker exposure
- Maximum annual ground-level concentrations used to estimate risk were determined through dispersion modeling with AERMOD
- Demolition, excavation, construction (including reconductoring) emission estimates used for AERMOD modeling are presented in Table 3.3-12

Chronic risks were also estimated for the MEIR, MEIW, and MESR, based on the emission rates and ground-level concentrations described above. To calculate chronic risk, as characterized by an HI, the maximum annual ground-level concentration determined through dispersion modeling with AERMOD was divided by the DPM REL of 5 µg/m^3 (OEHHA & CARB 2018).

3.3.5.3 Operational HRA

A complete HRA was conducted to evaluate the potential health risks associated with exposure to airborne emissions from routine operation of the facility. The emissions, HRA methodology, and risk characterization are described in the following paragraphs.

Emissions

TAC emissions associated with routine facility operation consist of combustion byproducts produced by 42 generators, all of which are fired exclusively on diesel fuel. Chemicals to be evaluated were DPM,

[28] Point sources were not specifically assigned to areas where reconductoring activities will occur, as all of those locations are offsite.

ammonia, and speciated TOG in diesel exhaust. When considering diesel exhaust, DPM was the only TAC modeled in HARP2 with annual emission rates, based on DPM being a surrogate for the whole diesel exhaust per Appendix D of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015). Additionally, ammonia will be emitted only during SCR operation. Although the emission estimates for NO_X assume the SCR will not yet be fully operational during maintenance and testing events, ammonia was conservatively included in the annual and short-term analyses. Since DPM does not have an associated acute REL, the diesel exhaust is speciated for the short-term period. Emissions were calculated using the methodology described in Section 3.3.3.2. These estimates conservatively assume that all 42 generators will operate at 100 percent load for 42 hours per year. Consistent with Appendix D of the *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), cancer and non-cancer chronic risks were estimated based on modeling of annual ammonia and DPM emissions; non-cancer acute risks were estimated based on modeling of hourly emissions of ammonia, acetaldehyde, acrolein, benzene, DPM, formaldehyde, naphthalene, propylene, toluene, total PAHs, and xylenes. Detailed emission calculations are provided in Appendix 3.3B.

Table 3.3-13 provides the hourly and annual TAC emission rates used for modeling each individual generator. These pollutants were identified as TACs per BAAQMD Regulation 2, Rule 5, Table 2-5-1. The speciated PAHs were modeled as total PAH in HARP2, with naphthalene separately included for the short-term acute health risk calculations. DPM was the only diesel exhaust 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* (OEHHA 2015).

Table 3.3-13. Toxic Air Contaminant Emission Rates (at 100% Load) Used in HRA Modeling

Pollutant	3-MW Generator		1.25-MW Generator		0.5-MW Generator	
	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)	Hourly Emissions (lb/hr)	Annual Emissions (lb/yr)
Acetaldehyde	0.0007	N/A	0.003	N/A	0.0001	N/A
Acrolein	0.0002	N/A	0.0001	N/A	0.00004	N/A
Ammonia[a]	0.20	8.42	0.090	3.77	0.034	1.43
Benzene	0.22	N/A	0.0097	N/A	0.0037	N/A
DPM[b]	0.21	8.77	0.088	3.70	0.036	1.49
Formaldehyde	0.0022	N/A	0.0010	N/A	0.0004	N/A
Naphthalene	0.0036	N/A	0.0016	N/A	0.0006	N/A
Propylene	0.078	N/A	0.035	N/A	0.013	N/A
Toluene	0.0078	N/A	0.0035	N/A	0.0013	N/A
Total PAH	0.0059	N/A	0.0026	N/A	0.0010	N/A
Xylenes	0.0054	N/A	0.0024	N/A	0.0009	N/A

[a] Ammonia emissions have been conservatively included in the health risk modeling, even though this TAC is only expected to be emitted during emergency operations when the SCR system is functional.

[b] DPM emission rates were assumed equal to exhaust PM_{10} emission rates.

Note:

N/A = Not applicable because only DPM and ammonia were modeled for the annual scenario.

Methodology

The operational 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 Health Risk Assessment (HRA) Guidelines* (BAAQMD 2016)
- *Guideline on Air Quality Models* (EPA 2017)

The operational HRA modeling was conducted using CARB's HARP2 Air Dispersion Modeling and Risk Assessment Tool (ADMRT). To facilitate calculation of long-term TAC ground-level concentrations at each modeled receptor, the AERMOD air dispersion modeling output plot files were imported into HARP2.

Risk Characterization

The results of the dispersion modeling analysis represent an intermediate product in the HRA process as the AERMOD output plot files were imported into HARP2, and HARP2 was subsequently used to determine cancer, chronic, and acute health risks. AERMOD (Version 19191) was used to predict ground-level concentrations of TAC emissions associated with project operation. The model selection, model options, source parameters, meteorological data, and receptor grid spacing are consistent with those described in Section 3.3.4 and are not repeated here. A unit emission rate (1 g/s) was used to model each source, as outlined in the HARP2 ADMRT manual.[29] Cancer risks and chronic and acute non-cancer exposures were assessed as previously described.

3.3.6 Environmental Impacts

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

Less Than Significant Impact. The project site is located within the BAAQMD's jurisdiction, which is the agency primarily responsible for assuring that federal and state ambient air quality standards are met and maintained in the SFBAAB. The BAAQMD has permitting authority over stationary sources, acts as the primary reviewing/responsible agency for environmental documents with respect to air quality and GHG emissions, and develops and implements rules and regulations that must be consistent with or more stringent than federal and state air quality laws and regulations. The project's consistency with the *2017 Bay Area Clean Air Plan* and other applicable BAAQMD regulations is discussed in the following paragraphs.

According to the 2017 BAAQMD CEQA Guidelines, a project would be considered consistent with the *2017 Bay Area Clean Air Plan* if the project will not result in significant and unavoidable air quality impacts after the application of all feasible mitigation (BAAQMD 2017c). For construction, the CEQA Guidelines state that "if daily average emissions of construction-related criteria air pollutants or precursors would exceed any applicable threshold of significance…, the project would result in a significant cumulative impact," and additional analysis will be required (BAAQMD 2017c). As shown in Table 3.3-14, the project's daily average demolition, excavation, construction (including reconductoring) emissions do not exceed the BAAQMD's significance thresholds for VOCs, NO_X, PM_{10}, or $PM_{2.5}$. Therefore, the project's demolition, excavation, construction (including reconductoring) activities will not result in a significant cumulative impact. It is anticipated that implementation of the project design features described in Section 3.3.3.1 will control potential fugitive dust emissions, thus further ensuring less-than-significant fugitive dust impacts. For these reasons, further analysis (such as dispersion modeling to determine ground-level concentrations) is not warranted for demolition, excavation, construction (including reconductoring activities).

[29] Note that the HARP2 ADMRT manual is made available within the "Help" module of the HARP2 program itself or the *User Manual For the Hotspots Analysis And Reporting Program Air Dispersion Modeling and Risk Assessment Tool Version 2* (CARB 2015)

Table 3.3-14. Criteria Pollutant Emissions from Project Demolition, Excavation, Construction (including Reconductoring) Compared to the BAAQMD Significance Thresholds

	VOCs	NO_X	PM_{10}[a]	$PM_{2.5}$[a]
Average Daily Emissions (lb/day)[b]	20.8	53.5	51.2	10.9
BAAQMD Average Daily Thresholds (lb/day)	54	54	82	54
Exceeds Threshold (Y/N)?	No	No	No	No

[a] These estimates conservatively include fugitive dust emissions, even though the BAAQMD's thresholds are specific to exhaust emissions only.

[b] The BAAQMD's thresholds are for average daily emissions, so the reported results are the total project emissions averaged over the entire construction duration.

As shown in Table 3.3-15, the project will not result in routine facility operational emissions in excess of the BAAQMD significance thresholds, although the analysis does conclude that NO_X emitted by generators during maintenance and testing events is approximately 97 percent of the estimated routine operational emissions. For the reasons set forth herein, this analysis is conservative; thus, the expected emissions may be less. Moreover, in any event, these NO_X emissions will be fully offset through implementation of various requirements imposed as part of the permitting process in accordance with BAAQMD's Regulation 2, Rule 2, as discussed herein, for which compliance is appropriately assumed for purposes of this analysis. Therefore, the project will not conflict with or obstruct implementation of the *2017 Bay Area Clean Air Plan*.

Table 3.3-15. Criteria Pollutant Emissions from Routine Facility Operation Compared to the BAAQMD Significance Thresholds

	Average Daily Emissions (lb/day)					
Annual Operation	**VOC**	**CO**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Unmitigated Project Total[a]	25.3	28.5	200	0.23	1.37	1.17
Mitigation[b]	--	--	226	--	--	--
Mitigated Project Total	25.3	28.5	-26.2	0.23	1.37	1.17
BAAQMD Average Daily Thresholds[c]	54	--	54	--	82	54
Exceeds Threshold (Y/N)?	N	N	N	N	N	N
	Annual Emissions (tpy)					
Annual Operation	**VOC**	**CO**	**NO_X**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Unmitigated Project Total[a]	4.60	5.15	36.0	0.04	0.25	0.21
Mitigation[b]	--	--	40.7	--	--	--
Mitigated Project Total	4.60	5.15	-4.71	0.04	0.25	0.21
BAAQMD Annual Thresholds[c]	10	--	10	--	15	10
Exceeds Threshold (Y/N)?	N	N	N	N	N	N

[a] For CEQA comparison purposes, the project total includes emissions from all components of the project, including, without limitation, all known and expected activities, such as generator maintenance and testing, storage tank refueling, operation of cooling units, vehicle trips, and ongoing facility upkeep.

[b] Emissions presented as mitigation are subtracted from the unmitigated project emissions to determine total, mitigated project emissions. These emissions reductions will be achieved through the complete offset of NO_X emissions from routine operation of the standby and administrative generators, as presented in Table 3.3-7, and were calculated based on the offset ratio of 1.15:1.

[c] BAAQMD thresholds of significance taken from Table 2-1 of the *2017 CEQA Air Quality Guidelines* (BAAQMD 2017c).

Note:

-- = No mitigated emissions or BAAQMD threshold

Per BAAQMD's Regulation 2, Rule 2, new sources with a PTE of 10.0 lb/day or more of any single pollutant must be equipped with BACT. As shown in Table 3.3-7, daily CO and NO_X emissions from routine operation of the generators exceed the BAAQMD's 10.0 lb/day limit. Accordingly, these sources will be equipped with an SCR System, which is considered BACT. BAAQMD's Regulation 2, Rule 2 also requires new sources that emit more than 35 tpy of NO_X to fully offset routine emissions at a 1.15:1 ratio. As shown in Table 3.3-15, annual NO_X emissions from routine operation of the generators will total 35.4 tpy. Accordingly, the NO_X emissions associated with generator maintenance and testing will be fully offset through the air permitting process to a less-than-significant impact. The project's annual PM_{10} emissions are far less than the BAAQMD's Regulation 2, Rule 2 limit of 100 tpy.

Per BAAQMD's policy, *Calculating Potential to Emit for Emergency Backup Power Generators* (BAAQMD 2019), maximum PTE from emergency and routine operation of the project's 42 generators was calculated as described in Section 3.3.3.2. Under Regulation 2, Rule 6, BAAQMD issues Title V operating permits for new facilities when the estimated PTE of any pollutant is greater than the Title V threshold, typically 100 tpy. The PSD pre-construction permit threshold is a PTE of 250 tpy of any attainment criteria pollutant (except lead) for specific source types not listed in 40 CFR 52.21(b)(1)(i); for listed source types, the threshold is a PTE of 100 tpy. As shown in Table 3.3-16, the maximum PTE from emergency and routine generator operation for all criteria pollutants are less than the major source thresholds. Therefore, the project's impacts will be less than significant and will not trigger PSD or Title V operating permit requirements.

Table 3.3-16. Criteria Pollutant Emissions from Emergency and Routine Generator Operation

Annual Operation	Annual Emissions (tpy)					
	VOC	CO	NO_X	SO_2	PM_{10}	$PM_{2.5}$
Generators - Maximum PTE[a]	5.02	12.0	99.0	0.10	0.50	0.50
Title V Thresholds[b]	100	100	100	100	100	100
PSD Thresholds[c]	250	250	250	250	250	250
Exceeds Title V Thresholds (Y/N)?	N	N	N	N	N	N
Exceeds PSD Thresholds (Y/N)?	N	N	N	N	N	N

[a] For permitting comparison purposes, consistent with BAAQMD's new policy (BAAQMD 2019), only the maximum PTE emissions for generators were used to determine PSD applicability.

[b] Title V applicability criteria taken from BAAQMD's Title V Applicability Criteria - Major Facility Website (http://www.baaqmd.gov/permits/major-facility-review-title-v/title-v-applicability-criteria). This criteria is consistent with BAAQMD Regulation 2-2-217, Major Facility.

[c] EPA's PSD Thresholds taken from BAAQMD Regulation 2-2-224, PSD Project.

BAAQMD's Regulation 2, Rule 6 considers sources with a PTE of more than 10 tpy of any single HAP or more than 25 tpy of a combination of HAPs to be major sources, triggering Title V operating permit requirements. As shown in Table 3.3-17, the annual emissions of any single HAP or combination of HAPs, based on both emergency and routine generator operation, will be less than the major source thresholds and thus less than significant, and therefore a Title V operating permit will not be required on the basis of TAC emissions.

Table 3.3-17. TAC Emissions from Emergency and Routine Generator Operation

Pollutant	Annual Emissions (tpy)		
	3-MW Generator	1.25-MW Generator	0.5-MW Generator
Maximum Single TAC or HAP (All Generators)	0.59	0.006	0.003
Total TACs and HAPs (All Generators)	1.52	0.017	0.007
Single HAP Title V Threshold	10	10	10
Combined HAP Title V Threshold	25	25	25
Exceeds Title V Thresholds (Y/N)?	N	N	n

The characterization of TAC emissions used to conduct the operational HRA are described in Section 3.3.5.3. The results are presented in the following section for purposes of demonstrating compliance with BAAQMD's Regulation 2, Rule 5.

b) **Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard?**

Less Than Significant Impact. 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.[30] As part of this analysis, cumulative impacts are assessed in terms of conformance with the BAAQMD's air quality attainment or maintenance plans.

Two significance criteria were used to evaluate this project. First, all project emissions of nonattainment criteria pollutants and their precursors (NO_X, VOCs, PM_{10}, $PM_{2.5}$, and SO_2) 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 project emissions is considered to be significant and must be mitigated. For demolition, excavation, construction (including reconductoring) emissions, available mitigation is limited to controlling both construction equipment tailpipe emissions and fugitive dust emissions to the maximum extent feasible. For operational emissions, available mitigation includes both feasible emission controls (such as BACT) or use of emission offsets.

Additionally, pollutants for which the region is designated as attainment, maintenance, or unclassified were evaluated by comparing the modeled concentration for each pollutant and averaging period, with the incorporation of background, to the applicable NAAQS or CAAQS. If the result is less than the applicable NAAQS or CAAQS, the project will be considered to have a less-than-significant impact for pollutants for which the region is in attainment.

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 project with the local general plan and of the general plan with the most current Clean Air Plan (BAAQMD 2017c). As stated previously, the project will not result in demolition, excavation, construction (including reconductoring) or operational emissions in excess of the BAAQMD significance thresholds identified in Table 3.3-2, with incorporation of all feasible mitigation

[30] California Public Resources Code Section 21083 and 14 CCR 15064(h), 15065(c), 15130, and 15355.

measures. Thus, the project will not be expected to conflict with the *2017 Bay Area Clean Air Plan*, and therefore no significant cumulative impacts will occur.

Furthermore, an air quality impact analysis was conducted as described in Section 3.3.4. The results of this analysis are presented herein and demonstrate that routine operation of the project will not cause or contribute to an existing exceedance of the ambient air quality standards. Thus, the project will not be expected to result in a cumulatively considerable net increase of nonattainment criteria pollutants, and the impact will be less than significant.

Results from the dispersion modeling analysis are compared to the NAAQS, CAAQS, and SILs[31] in Tables 3.3-18, 3.3-19, and 3.3-20, respectively. As summarized in Table 3.3-18, the total predicted concentrations for PM_{10} (24-hour), $PM_{2.5}$ (annual), CO (1-hour and 8-hour), SO_2 (1-hour, 3-hour, 24-hour, and annual), and NO_2 (1-hour[32] and annual) are less than the respective NAAQS under all three generator load scenarios. Because the $PM_{2.5}$ (24-hour) background concentrations are already greater than the NAAQS, the project's modeled $PM_{2.5}$ (24-hour) concentrations were compared to the SILs to show that the project will not exceed any SILs, or cause or contribute to an exceedance of ambient standards. The predicted modeling results with comparison to the SILs are presented in Table 3.3-20.

Table 3.3-18. Comparison of Modeled Results with Background to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)	Background Concentration (µg/m^3)[a]	Total Predicted Concentration (µg/m^3)	NAAQS (µg/m^3)
100% Load Scenario					
PM_{10}	24-hour[b]	1.16	115	116	150
$PM_{2.5}$	Annual[c]	0.01	10.5	10.5	12
CO	1-hour[d]	208	2,863	3,071	40,000
	8-hour[d]	80.5	2,405	2,485	10,000
SO_2	1-hour[e]	1.72	6.98	8.70	196
	3-hour[f]	1.75	18.1	19.8	1,300
	24-hour[f]	0.25	2.88	3.13	365
	Annual[f]	0.00	0.55	0.55	80
NO_2	Annual[f]	1.93	23.0	25.0	100
	1-hour[g]	162	N/A	162	188
75% Load Scenario					
PM_{10}	24-hour[b]	0.99	115	116	150
$PM_{2.5}$	Annual[c]	0.01	10.5	10.5	12
CO	1-hour[d]	177	2,863	3,040	40,000
	8-hour[d]	68.6	2,405	2,474	10,000

[31] The SIL determines whether potential ambient impacts of the emitted pollutant would cause or significantly contribute to an exceedance of a standard (that is, impacts below the SIL indicate the project would not cause or significantly contribute to an exceedance).

[32] The EPA does not require low-use emergency generators to demonstrate compliance with the 1-hour NO_2 NAAQS; therefore, comparison to this standard is provided for informational purposes only.

Table 3.3-18. Comparison of Modeled Results with Background to the National Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)[a]	Total Predicted Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	1-hour[e]	1.51	6.98	8.49	196
	3-hour[f]	1.52	18.1	19.6	1,300
	24-hour[f]	0.23	2.88	3.10	365
	Annual[f]	0.00	0.55	0.55	80
NO_2	Annual[f]	1.68	23.0	24.7	100
	1-hour[g]	153	N/A	153	188
50% Load Scenario					
PM_{10}	24-hour[b]	0.75	115	116	150
$PM_{2.5}$	Annual[c]	0.01	10.5	10.5	12
CO	1-hour[d]	138	2,863	3,001	40,000
	8-hour[d]	52.4	2,405	2,457	10,000
SO_2	1-hour[e]	1.22	6.98	8.20	196
	3-hour[f]	1.21	18.1	19.3	1,300
	24-hour[f]	0.18	2.88	3.06	365
	Annual[f]	0.00	0.55	0.55	80
NO_2	Annual[f]	1.31	23.0	24.3	100
	1-hour[g]	153	N/A	153	188

[a] Background concentrations from Table 3.3-1c were used to estimate the total predicted concentrations.

[b] The total predicted concentration for the 24-hour PM_{10} standard is the 6th-highest value over the five modeled years (2013-2017) combined with the maximum background concentration.

[c] The total predicted concentration for the annual $PM_{2.5}$ standard is the maximum 5-year average modeled concentration combined with the maximum background concentration.

[d] The total predicted concentrations for the 1-hour and 8-hour CO standards are the high-2nd-high modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[e] The total predicted concentration for the 1-hour SO_2 standard is the high-4th-high modeled concentration averaged over 5 years combined with the 3-year average background concentration.

[f] The total predicted concentrations for the annual SO_2, 3-hour SO_2, 24-hour SO_2, and annual NO_2 standards are the highest modeled concentrations of the 5 individual years modeled (2013-2017) combined with the maximum background concentrations.

[g] The 1-hour NO_2 maximum modeled concentration accounts for an SEASHR background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time.

Note:

N/A = Not applicable because the background is included in the model

As summarized in Table 3.3-19, total predicted concentrations for CO (1-hour and 8-hour), SO_2 (1-hour and 24-hour), and NO_2 (1-hour and annual) were also less than the CAAQS under all three load scenarios. Because the PM_{10} and $PM_{2.5}$ background concentrations are already greater than the CAAQS, the project's modeled PM_{10} (annual and 24-hour) and $PM_{2.5}$ (annual) concentrations were compared to the SILs to show that the project will not exceed any SILs, or cause or contribute to an exceedance of ambient standards. The predicted modeling results with comparison to the SILs are presented in Table 3.3-20.

Table 3.3-19. Comparison of Modeled Results with Background to the California Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m^3)[a]	Background Concentration (µg/m^3)[b]	Total Predicted Concentration (µg/m^3)	CAAQS (µg/m^3)
100% Load Scenario					
CO	1-hour	209	2,863	3,072	23,000
	8-hour	81.2	2,405	2,486	10,000
SO_2	1-hour	1.79	18.1	19.9	655
	24-hour	0.25	2.88	3.13	105
NO_2[c]	Annual	1.93	23.0	25.0	57
	1-hour	263	N/A	263	339
75% Load Scenario					
CO	1-hour	189	2,863	3,052	23,000
	8-hour	69.6	2,405	2,474	10,000
SO_2	1-hour	1.66	18.1	19.7	655
	24-hour	0.23	2.88	3.10	105
NO_2[c]	Annual	1.68	23.0	24.7	57
	1-hour	262	N/A	262	339
50% Load Scenario					
CO	1-hour	151	2,863	3,014	23,000
	8-hour	53.5	2,405	2,458	10,000
SO_2	1-hour	1.40	18.1	19.5	655
	24-hour	0.18	2.88	3.06	105
NO_2[c]	Annual	1.31	23.0	24.3	57
	1-hour	323	N/A	323	339

[a] The maximum modeled concentration for each pollutant and averaging period are the high-1st-high concentrations for comparison to the CAAQS.

[b] Background concentrations from Table 3.3-1c were used to estimate the total predicted concentrations.

[c] The 1-hour NO_2 maximum modeled concentration accounts for an SEASHR background and ARM2 chemistry of an ISR of 0.1 and an out-of-stack ratio of 0.9, which were included within the model. This concentration is also the worst-case single generator concentration because only a single generator will operate at a given time for maintenance and testing purposes.

Note:

N/A = Not applicable because the background is included in the model

Table 3.3-20. Comparison of Modeled PM_{10} and $PM_{2.5}$ Results to the Significant Impact Levels

Pollutant	Averaging Time	Maximum Modeled Concentration (µg/m³)	SIL (µg/m³)
100% Load Scenario			
$PM_{2.5}$[a]	24-hour	1.15	1.2
	Annual	0.01	0.3
PM_{10}[b]	24-hour	1.24	5
	Annual	0.01	1
75% Load Scenario			
$PM_{2.5}$[a]	24-hour	0.99	1.2
	Annual	0.01	0.3
PM_{10}[b]	24-hour	1.07	5
	Annual	0.01	1
50% Load Scenario			
$PM_{2.5}$[a]	24-hour	0.76	1.2
	Annual	0.01	0.3
PM_{10}[b]	24-hour	0.82	5
	Annual	0.01	1

[a] Modeled concentration is the maximum high-1st-high value averaged over the 5 modeled years (2013-2017).

[b] Modeled concentration is the maximum high-1st-high value of the 5 individual modeled years (2013-2017).

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

Less Than Significant Impact. The location of the project is a major factor in determining whether it will 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 receptor locations decreases. Impacts on sensitive receptors are of particular concern, because sensitive receptors include 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 receptor locations.

As previously noted, the BAAQMD's CEQA Guidelines establish numerical criteria for determining when a health risk increase is deemed cumulatively considerable, thus triggering the need for a quantitative cumulative impacts' assessment. If a project does not exceed the identified significance thresholds, its health risks will not be cumulatively considerable, resulting in less than significant health risk impacts to existing regional conditions.

As described further above, sensitive receptor exposure to TACs was evaluated by conducting a screening HRA for demolition, excavation, construction (including reconductoring activities) and a complete HRA for routine facility operation, as described in Section 3.3.5. The HRAs for the project were conducted consistent with the following guidance: *Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015); *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines* (BAAQMD 2016); 2017 CEQA Guidelines (BAAQMD 2017c); and *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD 2012).

The results of the screening HRA for demolition, excavation, construction (including reconductoring activities) are presented in Table 3.3-21 and show that the excess lifetime cancer risks and chronic HIs at the MEIR, MEIW, and MESR are less than the BAAQMD's significance thresholds of 10 in 1 million and 1, respectively. Therefore, predicted impacts associated with the project demolition, excavation, construction (including reconductoring activities) are not cumulatively considerable, and result in less-than-significant health risk impacts. It should be noted that these less-than-significant impacts are conservative, given the conservative assumptions used in developing the DPM emission estimates and the DPM cancer potency safety factor inherent in OEHHA's calculations. Detailed health risk calculations are provided in Appendix 3.3D.

Table 3.3-21. Health Risks for Exposure to Demolition, Excavation, Construction (including Reconductoring) Emissions at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	3.62	0.32	0.42	10
Chronic Non-cancer HI	0.0025	0.0131	0.0003	1

The results of the HRA for routine facility operation are presented in Table 3.3-22 and show that the excess lifetime cancer risk and chronic and acute non-cancer HIs 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, as shown in Table 3.3-18, the project's incremental increase in annual average $PM_{2.5}$ concentration is 0.01 µg/m^3, which is less than the BAAQMD's significance threshold of 0.3 µg/m^3. Therefore, predicted impacts associated with routine facility operation are not cumulatively considerable, and result in less-than-significant health risk impacts. Additional details are provided in Appendix 3.3E.

Table 3.3-22. Health Risks Estimated for Exposure to Project-Related Operational Emissions at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	2.38	0.53	0.34	10
Chronic Non-cancer HI	6.54E-04	1.75E-03	9.29E-05	1
Acute Non-cancer HI	0.14	0.14	0.02	1

In accordance with BAAQMD Regulation 2, Rule 5, maximum HRA results for operation of a single emission unit are presented in Table 3.3-23. As shown, routine generator operation does not trigger the regulatory requirement for TBACT as the incremental cancer risk does not exceed the threshold of 1 in 1 million. Nevertheless, as stated previously, each of the generators will be equipped with an SCR System, which is considered TBACT. Therefore, the project will be required to comply with BAAQMD Regulation 2, Rule 5 and result in less-than-significant health risk impacts. Additional details are provided in Appendix 3.3E.

Table 3.3-23. Health Risks Estimated for Exposure to Project-Related Emissions from Operation of a Single Emission Unit at the Maximally Exposed Individual Receptors

Receptor Type	MEIR	MEIW	MESR	BAAQMD Threshold
Cancer Risk Impact (in 1 million)	0.11	0.09	0.01	1
Chronic Non-cancer HI	2.94E-05	3.10E-04	2.60E-06	0.20
Acute Non-cancer HI	0.02	0.02	4.85E-04	--

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

Less Than Significant Impact. 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 will 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 project will result in an odor source and receptors being located within the distances indicated in Table 3.3-24. Table 3.3-24 also lists types of facilities known to emit objectionable odors. Second, if the project will result in an odor source and receptors being located closer than the screening level distances indicated in Table 3.3-24, a more detailed analysis should be conducted, as described in the BAAQMD's CEQA Guidelines (BAAQMD 2017c).

Given its nature as a data center, the project will not be an operational odor source listed in Table 3.3-24, and this type of project is not known to cause any significant odor impacts. Odor impacts from project operations will be similar to those from existing odor sources in the vicinity of the project site, which include heavy and light industrial uses. A further evaluation of this facility is not warranted by any local conditions or special circumstances. Therefore, the project will not create objectionable odors affecting a substantial number of people.

Potential odor sources during demolition, excavation, construction (including reconductoring activities) include diesel exhaust from heavy-duty equipment and jet-fuel exhaust from helicopter take-offs and landings. Demolition, excavation, construction (including reconductoring-related) odors near existing receptor locations will be temporary in nature and dissipate as a function of distance. Potential odor sources from routine project operations will include diesel exhaust from engine testing, trash pick-up, or heavy-duty delivery vehicles and the occasional use of architectural coatings during routine maintenance. Accordingly, demolition, excavation, construction (including reconductoring), and operation of the project is not expected to result in odor impacts that will exceed BAAQMD's odor thresholds or otherwise result in significant odor impacts.

Table 3.3-24. 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 and Coating Operations (for example, auto body shops)	1 mile
Rendering Plant	2 miles

Table 3.3-24. Project Screening Trigger Levels for Potential Odor Sources

Type of Operation	Project Screening Distance
Food Processing Facility	1 mile
Confined Animal Facility, Feed Lot, or Dairy	1 mile
Green Waste and Recycling Operations	1 mile
Metal Smelting Plants	2 miles
Coffee Roaster	1 mile

Source: BAAQMD 2017c

Previously Identified Mitigation Measures:

None.

New Proposed Mitigation Measures:

None.

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Appendix 3.3
Air Quality – Revised Calculations

Appendix 3.3-A, Table 1R
Construction Emissions Summary and Threshold Comparison
Lightspeed SJC02
Revised September 2020

Lightspeed SJC02 Construction Emissions

Construction	Criteria Pollutant Emissions					
	CO	**VOC**	**NO_X**	**SO_X**	**PM_{10}** [d]	**$PM_{2.5}$** [d]
Average Daily Emissions (lb/day) [e]	102	20.8	53.5	0.86	51.2	10.9
Maximum Project Emissions (tons)	19.1	3.88	10.0	0.16	9.58	2.04
BAAQMD Thresholds of Significance (lb/day) [a]	--	54	54	--	82	54
Exceeds Threshold (Y/N)?	N	N	N	N	N	N

Construction	GHG Emissions			
	CO_2	**N_2O**	**CH_4**	**CO_2e** [b]
Average Daily Emissions (metric tons/day) [e]	12.5	4.74E-04	3.17E-04	12.7
Maximum Project Emissions (metric tons)	4,691	1.77E-01	1.18E-01	4,747
BAAQMD Thresholds of Significance (metric tons/year) [b, c]	--	--	--	10,000
Exceeds Threshold (Y/N)?	N	N	N	N

Notes:

[a] BAAQMD Thresholds of Significance taken from Table 2-1 of the *2017 CEQA Air Quality Guidelines* (BAAQMD, 2017).

[b] The following global warming potentials were used to estimate CO_2 equivalent emissions, per 40 CFR Part 98, Table A-1:

CH_4 = 25
N_2O = 298

[c] BAAQMD does not have a GHG significance threshold for construction so, instead, the operation threshold was used. This threshold is applicable to stationary-source projects based on processes and equipment that would require an Air District permit to operate.

[d] These estimates conservatively include fugitive dust emissions, even though the significance threshold is specific to exhaust emissions only.

[e] Although peak daily emissions may be higher than what is reported here, the BAAQMD's significance thresholds are average daily thresholds. Accordingly, the results reported here are the total project emissions averaged over the entire construction duration.

Appendix 3.3-A, Table 2R
Construction Emissions Summary by Source Category
Lightspeed SJC02
Revised September 2020

CO Emissions

Emission Source	CO Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (lb/month)	658.95	658.95	658.95	1,216.67	1,234.29	1,130.15	1,207.70	1,107.91	812.81	568.96	568.96	457.91	457.91	262.47	163.35	131.23	131.23
Total (lb/day)	29.95	29.95	29.95	55.30	56.10	51.37	54.90	50.36	36.95	25.86	25.86	20.81	20.81	11.93	7.42	5.97	5.97
Onsite Construction Vehicle																	
Total (lb/month)	21.95	21.95	21.95	21.95	3.42	2.58	2.58	2.58	2.58	2.35	0.80	0.80	0.80	0.80	0.80	0.80	0.40
Total (lb/day)	1.00	1.00	1.00	1.00	0.16	0.12	0.12	0.12	0.12	0.11	0.04	0.04	0.04	0.04	0.04	0.04	0.02
Offsite Construction Equipment																	
Total (lb/month)	744.47	899.14	1,577.69	2,145.25	1,955.61	2,036.10	2,237.89	1,903.58	1,651.62	1,218.02	1,147.43	1,428.85	1,281.98	1,281.98	539.55	495.59	32.12
Total (lb/day)	33.84	40.87	71.71	97.51	88.89	92.55	101.72	86.53	75.07	55.36	52.16	64.95	58.27	58.27	24.53	22.53	1.46
Offsite Construction Vehicle																	
Total (lb/month)	2.57	2.57	2.57	2.57	2.57	2.57	2.57	2.57	5.96	5.52	1.90	1.90	1.90	1.45	1.45	1.45	0.40
Total (lb/day)	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.27	0.25	0.09	0.09	0.09	0.07	0.07	0.07	0.02
Onroad Construction Vehicle																	
Total (lb/month)	127.13	127.13	142.20	168.40	226.96	256.15	272.31	265.24	260.28	268.09	329.02	340.85	334.52	330.02	260.10	197.08	97.95
Total (lb/day)	5.78	5.78	6.46	7.65	10.32	11.64	12.38	12.06	11.83	12.19	14.96	15.49	15.21	15.00	11.82	8.96	4.45
Total Project CO Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**1,555.07**	**1,709.74**	**2,403.37**	**3,554.84**	**3,422.85**	**3,427.56**	**3,723.05**	**3,281.88**	**2,733.25**	**2,062.94**	**2,048.11**	**2,230.31**	**2,077.11**	**1,876.71**	**965.25**	**826.15**	**262.09**
Maximum Daily Emissions (lb/day)	**70.68**	**77.72**	**109.24**	**161.58**	**155.58**	**155.80**	**169.23**	**149.18**	**124.24**	**93.77**	**93.10**	**101.38**	**94.41**	**85.31**	**43.87**	**37.55**	**11.91**
Maximum Project Emissions (tons)	**19.08**																
Average Daily Emissions (lb/day) [a]	**102.03**																

VOC Emissions

Emission Source	VOC Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (lb/month)	83.92	83.92	83.92	175.35	189.51	178.07	200.52	174.34	105.03	76.77	76.77	72.55	72.55	40.45	23.78	20.23	20.23
Total (lb/day)	3.81	3.81	3.81	7.97	8.61	8.09	9.11	7.92	4.77	3.49	3.49	3.30	3.30	1.84	1.08	0.92	0.92
Onsite Construction Vehicle																	
Total (lb/month)	6.60	6.60	6.60	6.60	0.84	0.58	0.58	0.58	0.58	0.45	0.05	0.05	0.05	0.05	0.05	0.05	0.03
Total (lb/day)	0.30	0.30	0.30	0.30	0.04	0.03	0.03	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																	
Total (lb/month)	85.14	116.45	238.90	604.39	596.08	747.99	911.48	708.86	523.30	181.25	181.48	236.81	221.93	221.93	92.78	83.35	3.56
Total (lb/day)	3.87	5.29	10.86	27.47	27.09	34.00	41.43	32.22	23.79	8.24	8.25	10.76	10.09	10.09	4.22	3.79	0.16
Offsite Construction Vehicle																	
Total (lb/month)	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	1.43	1.11	0.27	0.27	0.27	0.17	0.17	0.17	0.03
Total (lb/day)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.07	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Onsite Paving																	
Total (lb/month)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	5.36	5.36	5.36	5.36
Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24	0.24	0.24	0.24
Onroad Construction Vehicle																	
Total (lb/month)	15.18	15.18	15.43	16.08	17.03	17.51	17.78	17.66	17.57	15.00	15.94	16.12	16.02	15.95	14.69	11.51	9.98
Total (lb/day)	0.69	0.69	0.70	0.73	0.77	0.80	0.81	0.80	0.80	0.68	0.72	0.73	0.73	0.72	0.67	0.52	0.45
Total Project VOC Emissions (Construction Equipment, Paving, and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**191.31**	**222.63**	**345.33**	**802.90**	**803.95**	**944.64**	**1,130.84**	**901.93**	**647.91**	**274.58**	**274.52**	**331.17**	**316.19**	**283.91**	**136.84**	**120.67**	**39.18**
Maximum Daily Emissions (lb/day)	**8.70**	**10.12**	**15.70**	**36.50**	**36.54**	**42.94**	**51.40**	**41.00**	**29.45**	**12.48**	**12.48**	**15.05**	**14.37**	**12.91**	**6.22**	**5.48**	**1.78**
Maximum Project Emissions (tons)	**3.88**																
Average Daily Emissions (lb/day) [a]	**20.77**																

Construction Emissions Summary by Source Category
Lightspeed SJC02
Revised September 2020

SO_x Emissions

Emission Source	**SO_x Emissions by Month**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (lb/month)	1.68	1.68	1.68	2.92	3.20	3.06	3.07	2.70	1.73	1.34	1.34	1.27	1.27	0.83	0.46	0.41	0.41
Total (lb/day)	0.08	0.08	0.08	0.13	0.15	0.14	0.14	0.12	0.08	0.06	0.06	0.06	0.06	0.04	0.02	0.02	0.02
Onsite Construction Vehicle																	
Total (lb/month)	0.18	0.18	0.18	0.18	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (lb/day)	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																	
Total (lb/month)	1.57	2.12	4.53	29.98	29.68	42.11	54.78	41.65	28.75	3.86	3.69	5.12	4.81	4.81	2.03	1.85	0.04
Total (lb/day)	0.07	0.10	0.21	1.36	1.35	1.91	2.49	1.89	1.31	0.18	0.17	0.23	0.22	0.22	0.09	0.08	0.00
Offsite Construction Vehicle																	
Total (lb/month)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Construction Vehicle																	
Total (lb/month)	1.51	1.51	1.55	1.65	1.81	1.89	1.94	1.92	1.91	1.96	2.15	2.18	2.17	2.15	1.92	1.39	1.09
Total (lb/day)	0.07	0.07	0.07	0.07	0.08	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.09	0.06	0.05
Total Project SO_x Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**4.95**	**5.51**	**7.96**	**34.74**	**34.73**	**47.09**	**59.82**	**46.29**	**32.43**	**7.22**	**7.19**	**8.59**	**8.26**	**7.80**	**4.42**	**3.66**	**1.55**
Maximum Daily Emissions (lb/day)	**0.22**	**0.25**	**0.36**	**1.58**	**1.58**	**2.14**	**2.72**	**2.10**	**1.47**	**0.33**	**0.33**	**0.39**	**0.38**	**0.35**	**0.20**	**0.17**	**0.07**
Maximum Project Emissions (tons)	**0.16**																
Average Daily Emissions (lb/day) [a]	**0.86**																

NO_x Emissions

Emission Source	**NO_x Emissions by Month**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (lb/month)	233.27	233.27	233.27	501.49	610.69	529.89	688.24	668.91	299.15	309.96	309.96	300.01	300.01	85.84	66.57	42.92	42.92
Total (lb/day)	10.60	10.60	10.60	22.79	27.76	24.09	31.28	30.40	13.60	14.09	14.09	13.64	13.64	3.90	3.03	1.95	1.95
Onsite Construction Vehicle																	
Total (lb/month)	78.20	78.20	78.20	78.20	9.45	6.33	6.33	6.33	6.33	6.04	0.07	0.07	0.07	0.07	0.07	0.07	0.03
Total (lb/day)	3.55	3.55	3.55	3.55	0.43	0.29	0.29	0.29	0.29	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																	
Total (lb/month)	270.37	299.30	424.55	738.56	796.05	791.39	726.66	621.52	549.71	411.09	402.30	403.62	323.06	323.06	178.55	96.32	23.65
Total (lb/day)	12.29	13.60	19.30	33.57	36.18	35.97	33.03	28.25	24.99	18.69	18.29	18.35	14.68	14.68	8.12	4.38	1.08
Offsite Construction Vehicle																	
Total (lb/month)	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	16.42	15.69	3.21	3.21	3.21	1.64	1.64	1.64	0.03
Total (lb/day)	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.75	0.71	0.15	0.15	0.15	0.07	0.07	0.07	0.00
Onroad Construction Vehicle																	
Total (lb/month)	420.12	420.12	421.30	430.65	435.07	437.32	438.54	438.00	437.58	382.31	386.71	387.56	387.09	386.74	375.22	276.26	269.10
Total (lb/day)	19.10	19.10	19.15	19.57	19.78	19.88	19.93	19.91	19.89	17.38	17.58	17.62	17.60	17.58	17.06	12.56	12.23
Total Project NO_x Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**1,006.96**	**1,035.89**	**1,162.32**	**1,753.89**	**1,856.26**	**1,769.92**	**1,864.76**	**1,739.75**	**1,309.19**	**1,125.09**	**1,102.23**	**1,094.47**	**1,013.43**	**797.35**	**622.05**	**417.21**	**335.74**
Maximum Daily Emissions (lb/day)	**45.77**	**47.09**	**52.83**	**79.72**	**84.38**	**80.45**	**84.76**	**79.08**	**59.51**	**51.14**	**50.10**	**49.75**	**46.07**	**36.24**	**28.28**	**18.96**	**15.26**
Maximum Project Emissions (tons)	**10.00**																
Average Daily Emissions (lb/day) [a]	**53.49**																

Construction Emissions Summary by Source Category
Lightspeed SJC02
Revised September 2020

PM_{10} Emissions

Emission Source	PM_{10} Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Demolition Fugitive Dust																	
Total (lb/month)	28.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (lb/day)	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Equipment																	
Total (lb/month)	8.36	8.36	8.36	25.45	30.33	24.67	32.09	31.49	18.29	17.60	17.60	14.66	14.66	4.50	3.91	2.25	2.25
Total (lb/day)	0.38	0.38	0.38	1.16	1.38	1.12	1.46	1.43	0.83	0.80	0.80	0.67	0.67	0.20	0.18	0.10	0.10
Onsite Construction Vehicle																	
Total (lb/month)	1.20	1.20	1.20	1.20	0.16	0.12	0.12	0.12	0.12	0.10	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Total (lb/day)	0.05	0.05	0.05	0.05	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Fugitive Dust																	
Total (lb/month)	2,089.32	2,089.32	2,089.32	2,094.72	393.11	315.76	315.76	315.76	315.76	310.37	155.67	155.67	155.67	155.67	155.67	154.69	77.35
Total (lb/day)	94.97	94.97	94.97	95.21	17.87	14.35	14.35	14.35	14.35	14.11	7.08	7.08	7.08	7.08	7.08	7.03	3.52
Offsite Construction Equipment																	
Total (lb/month)	11.36	12.25	16.10	32.11	34.47	31.15	27.98	24.75	23.47	19.20	18.93	15.80	10.53	10.53	6.08	2.96	1.66
Total (lb/day)	0.52	0.56	0.73	1.46	1.57	1.42	1.27	1.12	1.07	0.87	0.86	0.72	0.48	0.48	0.28	0.13	0.08
Offsite Construction Vehicle																	
Total (lb/month)	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.26	0.22	0.07	0.07	0.07	0.05	0.05	0.05	0.01
Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Fugitive Dust																	
Total (lb/month)	309.38	309.47	309.47	309.38	309.47	309.38	309.38	309.38	580.09	580.09	270.80	270.71	270.80	232.13	232.04	232.04	77.35
Total (lb/day)	14.06	14.07	14.07	14.06	14.07	14.06	14.06	14.06	26.37	26.37	12.31	12.31	12.31	10.55	10.55	10.55	3.52
Onroad Construction Vehicle																	
Total (lb/month)	74.24	74.24	79.41	89.01	110.08	120.27	126.08	123.54	122.06	135.42	159.74	164.46	162.06	160.45	132.35	100.25	60.68
Total (lb/day)	3.37	3.37	3.61	4.05	5.00	5.47	5.73	5.62	5.55	6.16	7.26	7.48	7.37	7.29	6.02	4.56	2.76
Total Project PM_{10} Emissions (Construction Equipment, Fugitive Dust, and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**2,522.25**	**2,494.93**	**2,503.95**	**2,551.97**	**877.72**	**801.45**	**811.51**	**805.13**	**1,060.06**	**1,063.00**	**622.84**	**621.39**	**613.81**	**563.35**	**530.12**	**492.27**	**219.30**
Maximum Daily Emissions (lb/day)	**114.65**	**113.41**	**113.82**	**116.00**	**39.90**	**36.43**	**36.89**	**36.60**	**48.18**	**48.32**	**28.31**	**28.25**	**27.90**	**25.61**	**24.10**	**22.38**	**9.97**
Maximum Project Emissions (tons)	**9.58**																
Average Daily Emissions (lb/day) [a]	**51.22**																

Construction Emissions Summary by Source Category
Lightspeed SJC02
Revised September 2020

$PM_{2.5}$ Emissions

Emission Source	$PM_{2.5}$ Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Demolition Fugitive Dust																	
Total (lb/month)	4.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total (lb/day)	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Construction Equipment																	
Total (lb/month)	30.96	30.96	30.96	74.68	80.80	74.08	87.21	76.94	48.09	33.28	33.28	29.48	29.48	14.01	9.12	7.01	7.01
Total (lb/day)	1.41	1.41	1.41	3.39	3.67	3.37	3.96	3.50	2.19	1.51	1.51	1.34	1.34	0.64	0.41	0.32	0.32
Onsite Construction Vehicle																	
Total (lb/month)	0.85	0.85	0.85	0.85	0.11	0.08	0.08	0.08	0.08	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total (lb/day)	0.04	0.04	0.04	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Fugitive Dust																	
Total (lb/month)	208.98	208.98	208.98	209.57	39.40	31.67	31.67	31.67	31.67	31.09	15.62	15.62	15.62	15.62	15.62	15.47	7.73
Total (lb/day)	9.50	9.50	9.50	9.53	1.79	1.44	1.44	1.44	1.44	1.41	0.71	0.71	0.71	0.71	0.71	0.70	0.35
Offsite Construction Equipment																	
Total (lb/month)	36.71	47.70	87.95	105.23	102.25	93.04	90.88	77.98	72.65	62.63	62.26	73.18	66.70	66.70	27.71	24.45	2.12
Total (lb/day)	1.67	2.17	4.00	4.78	4.65	4.23	4.13	3.54	3.30	2.85	2.83	3.33	3.03	3.03	1.26	1.11	0.10
Offsite Construction Vehicle																	
Total (lb/month)	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.18	0.14	0.04	0.04	0.04	0.03	0.03	0.03	0.01
Total (lb/day)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Fugitive Dust																	
Total (lb/month)	30.94	30.95	30.95	30.94	30.95	30.94	30.94	30.94	58.01	58.01	27.08	27.07	27.08	23.21	23.20	23.20	7.73
Total (lb/day)	1.41	1.41	1.41	1.41	1.41	1.41	1.41	1.41	2.64	2.64	1.23	1.23	1.23	1.06	1.05	1.05	0.35
Onroad Construction Vehicle																	
Total (lb/month)	25.10	25.10	26.51	29.18	34.91	37.67	39.25	38.56	38.16	40.99	47.60	48.88	48.23	47.79	40.10	30.83	20.08
Total (lb/day)	1.14	1.14	1.20	1.33	1.59	1.71	1.78	1.75	1.73	1.86	2.16	2.22	2.19	2.17	1.82	1.40	0.91
Total Project $PM_{2.5}$ Emissions (Construction Equipment, Fugitive Dust, and Vehicles)																	
Maximum Monthly Emissions (lb/month)	**337.89**	**344.60**	**386.26**	**450.52**	**288.49**	**267.55**	**280.09**	**256.23**	**248.84**	**226.20**	**185.89**	**194.27**	**187.15**	**167.37**	**115.79**	**100.99**	**44.68**
Maximum Daily Emissions (lb/day)	**15.36**	**15.66**	**17.56**	**20.48**	**13.11**	**12.16**	**12.73**	**11.65**	**11.31**	**10.28**	**8.45**	**8.83**	**8.51**	**7.61**	**5.26**	**4.59**	**2.03**
Maximum Project Emissions (tons)	**2.04**																
Average Daily Emissions (lb/day) [a]	**10.92**																

CO_2 Emissions

Emission Source	CO_2 Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (metric tons/month)	57.16	57.16	57.16	108.69	118.84	112.79	110.68	96.54	67.98	49.85	49.85	45.09	45.09	27.65	18.32	13.82	13.82
Total (metric tons/day)	2.60	2.60	2.60	4.94	5.40	5.13	5.03	4.39	3.09	2.27	2.27	2.05	2.05	1.26	0.83	0.63	0.63
Onsite Construction Vehicle																	
Total (metric tons/month)	3.99	3.99	3.99	3.99	0.53	0.38	0.38	0.38	0.38	0.37	0.06	0.06	0.06	0.06	0.06	0.06	0.03
Total (metric tons/day)	0.18	0.18	0.18	0.18	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Construction Equipment																	
Total (metric tons/month)	63.96	80.35	143.34	167.48	158.56	153.71	158.15	135.74	124.90	116.37	111.13	141.02	125.27	125.27	52.92	46.63	4.50
Total (metric tons/day)	2.91	3.65	6.52	7.61	7.21	6.99	7.19	6.17	5.68	5.29	5.05	6.41	5.69	5.69	2.41	2.12	0.20
Offsite Construction Vehicle																	
Total (metric tons/month)	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.92	0.90	0.24	0.24	0.24	0.16	0.16	0.16	0.03
Total (metric tons/day)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.04	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Onroad Construction Vehicle																	
Total (metric tons/month)	84.82	84.82	87.00	92.14	100.82	105.08	107.48	106.43	105.76	109.46	119.22	121.11	120.12	119.44	107.00	76.24	60.36
Total (metric tons/day)	3.86	3.86	3.95	4.19	4.58	4.78	4.89	4.84	4.81	4.98	5.42	5.51	5.46	5.43	4.86	3.47	2.74
Total Project CO_2 Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (metric tons/month)	**210.26**	**226.65**	**291.82**	**372.63**	**379.07**	**372.29**	**377.01**	**339.42**	**299.93**	**276.95**	**280.50**	**307.52**	**290.78**	**272.57**	**178.46**	**136.91**	**78.74**
Maximum Daily Emissions (metric tons/day)	**9.56**	**10.30**	**13.26**	**16.94**	**17.23**	**16.92**	**17.14**	**15.43**	**13.63**	**12.59**	**12.75**	**13.98**	**13.22**	**12.39**	**8.11**	**6.22**	**3.58**
Maximum Project Emissions (metric tons)	**4,691.50**																
Average Daily Emissions (metric tons/day) [a]	**12.54**																

Construction Emissions Summary by Source Category
Lightspeed SJC02
Revised September 2020

N_2O Emissions

Emission Source	N_2O Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (metric tons/month)	2.77E-03	2.77E-03	2.77E-03	5.27E-03	5.76E-03	5.47E-03	5.37E-03	4.68E-03	3.30E-03	2.42E-03	2.42E-03	2.19E-03	2.19E-03	1.34E-03	8.88E-04	6.70E-04	6.70E-04
Total (metric tons/day)	1.26E-04	1.26E-04	1.26E-04	2.40E-04	2.62E-04	2.49E-04	2.44E-04	2.13E-04	1.50E-04	1.10E-04	1.10E-04	9.94E-05	9.94E-05	6.09E-05	4.04E-05	3.05E-05	3.05E-05
Onsite Construction Vehicle																	
Total (metric tons/month)	1.20E-05	1.20E-05	1.20E-05	1.20E-05	2.66E-06	2.24E-06	2.24E-06	2.24E-06	2.24E-06	2.24E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	6.95E-07
Total (metric tons/day)	5.43E-07	5.43E-07	5.43E-07	5.43E-07	1.21E-07	1.02E-07	1.02E-07	1.02E-07	1.02E-07	1.02E-07	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	3.16E-08
Offsite Construction Equipment																	
Total (metric tons/month)	3.10E-03	3.90E-03	6.95E-03	8.51E-03	8.08E-03	8.05E-03	8.46E-03	7.17E-03	6.45E-03	5.64E-03	5.39E-03	6.84E-03	6.07E-03	6.07E-03	2.57E-03	2.26E-03	2.18E-04
Total (metric tons/day)	1.41E-04	1.77E-04	3.16E-04	3.87E-04	3.67E-04	3.66E-04	3.84E-04	3.26E-04	2.93E-04	2.56E-04	2.45E-04	3.11E-04	2.76E-04	2.76E-04	1.17E-04	1.03E-04	9.91E-06
Offsite Construction Vehicle																	
Total (metric tons/month)	2.37E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06	2.37E-06	3.85E-06	3.85E-06	2.16E-06	2.16E-06	2.16E-06	1.95E-06	1.95E-06	1.95E-06	6.95E-07
Total (metric tons/day)	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.08E-07	1.75E-07	1.75E-07	9.82E-08	9.82E-08	9.82E-08	8.86E-08	8.86E-08	8.86E-08	3.16E-08
Onroad Construction Vehicle																	
Total (metric tons/month)	7.61E-04	7.61E-04	8.69E-04	1.06E-03	1.57E-03	1.79E-03	1.93E-03	1.87E-03	1.85E-03	2.20E-03	2.78E-03	2.90E-03	2.85E-03	2.82E-03	2.18E-03	1.63E-03	6.81E-04
Total (metric tons/day)	3.46E-05	3.46E-05	3.95E-05	4.83E-05	7.12E-05	8.14E-05	8.77E-05	8.49E-05	8.42E-05	1.00E-04	1.27E-04	1.32E-04	1.29E-04	1.28E-04	9.93E-05	7.40E-05	3.09E-05
Total Project N_2O Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (metric tons/month)	**6.65E-03**	**7.44E-03**	**1.06E-02**	**1.49E-02**	**1.54E-02**	**1.53E-02**	**1.58E-02**	**1.37E-02**	**1.16E-02**	**1.03E-02**	**1.06E-02**	**1.19E-02**	**1.11E-02**	**1.02E-02**	**5.64E-03**	**4.56E-03**	**1.57E-03**
Maximum Daily Emissions (metric tons/day)	**3.02E-04**	**3.38E-04**	**4.82E-04**	**6.75E-04**	**7.01E-04**	**6.96E-04**	**7.16E-04**	**6.24E-04**	**5.28E-04**	**4.67E-04**	**4.81E-04**	**5.42E-04**	**5.05E-04**	**4.65E-04**	**2.56E-04**	**2.07E-04**	**7.14E-05**
Maximum Project Emissions (metric tons)	**1.77E-01**																
Average Daily Emissions (metric tons/day) [a]	**4.74E-04**																

CH_4 Emissions

Emission Source	CH_4 Emissions by Month																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Construction Equipment																	
Total (metric tons/month)	1.91E-03	1.91E-03	1.91E-03	3.64E-03	3.98E-03	3.78E-03	3.71E-03	3.23E-03	2.28E-03	1.67E-03	1.67E-03	1.51E-03	1.51E-03	9.26E-04	6.14E-04	4.63E-04	4.63E-04
Total (metric tons/day)	8.70E-05	8.70E-05	8.70E-05	1.65E-04	1.81E-04	1.72E-04	1.69E-04	1.47E-04	1.04E-04	7.59E-05	7.59E-05	6.86E-05	6.86E-05	4.21E-05	2.79E-05	2.10E-05	2.10E-05
Onsite Construction Vehicle																	
Total (metric tons/month)	1.75E-05	1.75E-05	1.75E-05	1.75E-05	3.09E-06	2.43E-06	2.43E-06	2.43E-06	2.43E-06	2.43E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	5.63E-07
Total (metric tons/day)	2.34E-07	7.94E-07	7.94E-07	7.94E-07	1.40E-07	1.11E-07	1.11E-07	1.11E-07	1.11E-07	1.11E-07	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	2.56E-08
Offsite Construction Equipment																	
Total (metric tons/month)	2.14E-03	2.69E-03	4.80E-03	6.25E-03	5.95E-03	6.11E-03	6.58E-03	5.51E-03	4.83E-03	3.90E-03	3.72E-03	4.72E-03	4.20E-03	4.20E-03	1.77E-03	1.56E-03	1.51E-04
Total (metric tons/day)	9.74E-05	1.22E-04	2.18E-04	2.84E-04	2.71E-04	2.78E-04	2.99E-04	2.51E-04	2.19E-04	1.77E-04	1.69E-04	2.15E-04	1.91E-04	1.91E-04	8.06E-05	7.10E-05	6.85E-06
Offsite Construction Vehicle																	
Total (metric tons/month)	2.70E-06	2.70E-06	2.70E-06	2.70E-06	2.70E-06	2.70E-06	2.70E-06	2.70E-06	5.70E-06	5.69E-06	2.26E-06	2.26E-06	2.26E-06	1.84E-06	1.84E-06	1.84E-06	5.63E-07
Total (metric tons/day)	1.62E-06	1.52E-06	1.43E-06	1.33E-06	1.24E-06	1.15E-06	1.05E-06	9.56E-07	9.27E-07	7.60E-07	5.20E-07	4.36E-07	3.51E-07	2.57E-07	1.83E-07	1.09E-07	2.56E-08
Onroad Construction Vehicle																	
Total (metric tons/month)	4.61E-04	4.61E-04	5.04E-04	5.82E-04	7.58E-04	8.43E-04	8.92E-04	8.71E-04	8.59E-04	9.80E-04	1.18E-03	1.22E-03	1.20E-03	1.19E-03	9.56E-04	7.18E-04	3.87E-04
Total (metric tons/day)	2.09E-05	2.09E-05	2.29E-05	2.64E-05	3.45E-05	3.83E-05	4.06E-05	3.96E-05	3.90E-05	4.45E-05	5.38E-05	5.56E-05	5.47E-05	5.41E-05	4.35E-05	3.27E-05	1.76E-05
Total Project CH_4 Emissions (Construction Equipment and Vehicles)																	
Maximum Monthly Emissions (metric tons/month)	**4.54E-03**	**5.09E-03**	**7.24E-03**	**1.05E-02**	**1.07E-02**	**1.07E-02**	**1.12E-02**	**9.62E-03**	**7.97E-03**	**6.56E-03**	**6.58E-03**	**7.46E-03**	**6.91E-03**	**6.31E-03**	**3.35E-03**	**2.75E-03**	**1.00E-03**
Maximum Daily Emissions (metric tons/day)	**2.07E-04**	**2.33E-04**	**3.30E-04**	**4.78E-04**	**4.87E-04**	**4.89E-04**	**5.09E-04**	**4.38E-04**	**3.63E-04**	**2.98E-04**	**2.99E-04**	**3.39E-04**	**3.14E-04**	**2.87E-04**	**1.52E-04**	**1.25E-04**	**4.55E-05**
Maximum Project Emissions (metric tons)	**1.18E-01**																
Average Daily Emissions (metric tons/day) [a]	**3.17E-04**																

Notes:
[a] The days per month for construction in the data above was provided by the Applicant's engineering contractor.

Appendix 3.3-A, Table 3
Number of Onsite Construction Equipment and Vehicles
Lightspeed SJC02
November 2019

Number of Onsite Construction Equipment for Lightspeed SJC02 Construction

Onsite Equipment	Number per Day [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
Excavator [b]	4	4	4	4	2	2	2	2	2	0	0	0	0	0	0	0	0
Grader	0	0	0	4	4	4	4	2	1	0	0	0	0	0	0	0	0
Cranes [c]	0	0	0	0	0	0	4	4	0	1	1	2	2	0	0	0	0
Backhoe	0	0	0	1	2	2	1	1	1	1	1	0	0	0	0	0	0
Rubber Tired Loader [d]	2	2	2	2	3	3	1	1	0	0	0	0	0	0	0	0	0
Forklift	0	0	0	1	2	2	2	2	3	3	3	3	3	2	2	1	1
Roller [e]	0	0	0	4	4	2	2	2	2	2	2	0	0	0	0	0	0
Bore/Drill Rigs [f]	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Other General Industrial Equipment [g]	0	0	0	1	1	1	2	2	2	1	1	1	1	0	0	0	0

Notes:

[a] Equipment counts presented above were provided by the Applicant's engineering contractor.

[b] The Hydraulic Hammer for the Excavator was not included in the above table, or resulting emissions estimates, as they are expected to be hydraulically-powered with negligible emissions.

[c] Numbers presented for Cranes include the equipment counts for the 75 Ton Hydraulic Crane, 35 Ton Hydraulic Crane, and Heavy Lift Lattice Boom Main Crane.

[d] Numbers presented for Rubber Tired Loader include the equipment counts for the Front End Loader.

[e] Numbers presented for Roller include the equipment counts for the Compactor.

[f] Numbers presented for Bore/Drill Rigs include the equipment counts for the Horizontal Directional Drill Equipment.

[g] Numbers presented for Other General Industrial Equipment include the equipment counts for the Light Towers.

Number of Onsite Vehicles for Lightspeed SJC02 Construction

Vehicle Type	Number per Day [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Pick-up Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Dump Truck	25	25	25	25	3	2	2	2	2	2	0	0	0	0	0	0	0

Notes:

[a] Vehicle counts presented above were provided by the Applicant's engineering contractor.

Appendix 3.3-A, Table 4
Onsite Construction Equipment Emissions
Lightspeed SJC02
November 2019

Onsite Construction Equipment CO Emissions from Lightspeed SJC02 Construction

Onsite Equipment	CO Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	209.55	209.55	209.55	209.55	209.55	209.55	209.55	209.55	209.55	198.24	198.24	198.24	198.24	198.24	99.12	99.12	99.12
Excavator	359.45	359.45	359.45	359.45	179.73	179.73	179.73	179.73	179.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	199.59	199.59	199.59	199.59	99.79	49.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	232.69	232.69	0.00	54.53	54.53	109.05	109.05	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	62.69	125.38	125.38	62.69	62.69	62.69	62.16	62.16	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	89.95	89.95	89.95	89.95	134.92	134.92	44.97	44.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	32.46	64.91	64.91	64.91	64.91	97.37	96.35	96.35	96.35	96.35	64.23	64.23	32.12	32.12
Roller	0.00	0.00	0.00	208.27	208.27	104.13	104.13	104.13	104.13	103.42	103.42	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	57.22	57.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	54.72	54.72	54.72	109.44	109.44	109.44	54.28	54.28	54.28	54.28	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**658.95**	**658.95**	**658.95**	**1,216.67**	**1,234.29**	**1,130.15**	**1,207.70**	**1,107.91**	**812.81**	**568.96**	**568.96**	**457.91**	**457.91**	**262.47**	**163.35**	**131.23**	**131.23**
Onsite Total (lb/day) [a]	**29.95**	**29.95**	**29.95**	**55.30**	**56.10**	**51.37**	**54.90**	**50.36**	**36.95**	**25.86**	**25.86**	**20.81**	**20.81**	**11.93**	**7.42**	**5.97**	**5.97**
Onsite Project Total (tons)	**5.71**																

Onsite Construction Equipment VOC Emissions from Lightspeed SJC02 Construction

Onsite Equipment	VOC Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	36.45	36.45	36.45	36.45	36.45	36.45	36.45	36.45	36.45	33.34	33.34	33.34	33.34	33.34	16.67	16.67	16.67
Excavator	26.91	26.91	26.91	26.91	13.45	13.45	13.45	13.45	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	52.36	52.36	52.36	52.36	26.18	13.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	49.91	49.91	0.00	11.34	11.34	22.68	22.68	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	5.76	11.52	11.52	5.76	5.76	5.76	5.15	5.15	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	20.56	20.56	20.56	20.56	30.84	30.84	10.28	10.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	3.96	7.93	7.93	7.93	7.93	11.89	10.67	10.67	10.67	10.67	7.11	7.11	3.56	3.56
Roller	0.00	0.00	0.00	22.88	22.88	11.44	11.44	11.44	11.44	10.41	10.41	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	7.61	7.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	6.47	6.47	6.47	12.94	12.94	12.94	5.86	5.86	5.86	5.86	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**83.92**	**83.92**	**83.92**	**175.35**	**189.51**	**178.07**	**200.52**	**174.34**	**105.03**	**76.77**	**76.77**	**72.55**	**72.55**	**40.45**	**23.78**	**20.23**	**20.23**
Onsite Total (lb/day) [a]	**3.81**	**3.81**	**3.81**	**7.97**	**8.61**	**8.09**	**9.11**	**7.92**	**4.77**	**3.49**	**3.49**	**3.30**	**3.30**	**1.84**	**1.08**	**0.92**	**0.92**
Onsite Project Total (tons)	**0.84**																

Onsite Construction Equipment NO_X Emissions from Lightspeed SJC02 Construction

Onsite Equipment	NO_X Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	38.53	19.26	19.26	19.26
Excavator	30.28	30.28	30.28	30.28	15.14	15.14	15.14	15.14	15.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	38.67	38.67	38.67	38.67	19.34	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	301.51	301.51	0.00	75.38	75.38	150.76	150.76	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	4.53	9.05	9.05	4.53	4.53	4.53	4.53	4.53	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	164.46	164.46	164.46	164.46	246.69	246.69	82.23	82.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	23.65	47.31	47.31	47.31	47.31	70.96	70.96	70.96	70.96	70.96	47.31	47.31	23.65	23.65
Roller	0.00	0.00	0.00	161.60	161.60	80.80	80.80	80.80	80.80	80.80	80.80	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	13.93	13.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	39.76	39.76	39.76	79.52	79.52	79.52	39.76	39.76	39.76	39.76	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**233.27**	**233.27**	**233.27**	**501.49**	**610.69**	**529.89**	**688.24**	**668.91**	**299.15**	**309.96**	**309.96**	**300.01**	**300.01**	**85.84**	**66.57**	**42.92**	**42.92**
Onsite Total (lb/day) [a]	**10.60**	**10.60**	**10.60**	**22.79**	**27.76**	**24.09**	**31.28**	**30.40**	**13.60**	**14.09**	**14.09**	**13.64**	**13.64**	**3.90**	**3.03**	**1.95**	**1.95**
Onsite Project Total (tons)	**2.73**																

Onsite Construction Equipment Emissions
Lightspeed SJC02
November 2019

Onsite Construction Equipment SO_X Emissions from Lightspeed SJC02 Construction

Onsite Equipment	SO_X Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.37	0.37	0.37
Excavator	0.58	0.58	0.58	0.58	0.29	0.29	0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	0.74	0.74	0.74	0.74	0.37	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.65	0.00	0.16	0.16	0.32	0.32	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	0.09	0.17	0.17	0.09	0.09	0.09	0.09	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	0.35	0.35	0.35	0.35	0.53	0.53	0.18	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	0.04	0.09	0.09	0.09	0.09	0.13	0.13	0.13	0.13	0.13	0.09	0.09	0.04	0.04
Roller	0.00	0.00	0.00	0.29	0.29	0.15	0.15	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	0.07	0.07	0.07	0.15	0.15	0.15	0.07	0.07	0.07	0.07	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**1.68**	**1.68**	**1.68**	**2.92**	**3.20**	**3.06**	**3.07**	**2.70**	**1.73**	**1.34**	**1.34**	**1.27**	**1.27**	**0.83**	**0.46**	**0.41**	**0.41**
Onsite Total (lb/day) [a]	**0.08**	**0.08**	**0.08**	**0.13**	**0.15**	**0.14**	**0.14**	**0.12**	**0.08**	**0.06**	**0.06**	**0.06**	**0.06**	**0.04**	**0.02**	**0.02**	**0.02**
Onsite Project Total (tons)	**0.01**																

Onsite Construction Equipment PM_{10} Emissions from Lightspeed SJC02 Construction

Onsite Equipment	PM_{10} Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	0.59	0.59	0.59
Excavator	0.93	0.93	0.93	0.93	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	1.19	1.19	1.19	1.19	0.59	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	11.44	11.44	0.00	2.86	2.86	5.72	5.72	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	0.14	0.28	0.28	0.14	0.14	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	6.24	6.24	6.24	6.24	9.36	9.36	3.12	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	1.66	3.32	3.32	3.32	3.32	4.97	4.97	4.97	4.97	4.97	3.32	3.32	1.66	1.66
Roller	0.00	0.00	0.00	11.32	11.32	5.66	5.66	5.66	5.66	5.66	5.66	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	2.79	2.79	2.79	5.57	5.57	5.57	2.79	2.79	2.79	2.79	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**8.36**	**8.36**	**8.36**	**25.45**	**30.33**	**24.67**	**32.09**	**31.49**	**18.29**	**17.60**	**17.60**	**14.66**	**14.66**	**4.50**	**3.91**	**2.25**	**2.25**
Onsite Total (lb/day) [a]	**0.38**	**0.38**	**0.38**	**1.16**	**1.38**	**1.12**	**1.46**	**1.43**	**0.83**	**0.80**	**0.80**	**0.67**	**0.67**	**0.20**	**0.18**	**0.10**	**0.10**
Onsite Project Total (tons)	**0.13**																

Onsite Construction Equipment $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Onsite Equipment	$PM_{2.5}$ Emissions (lb/month)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Water Truck	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	11.71	9.78	9.78	9.78	9.78	9.78	4.89	4.89	4.89
Excavator	11.88	11.88	11.88	11.88	5.94	5.94	5.94	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	20.53	20.53	20.53	20.53	10.26	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	22.48	22.48	0.00	4.97	4.97	9.94	9.94	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	3.36	6.72	6.72	3.36	3.36	3.36	2.82	2.82	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	7.37	7.37	7.37	7.37	11.06	11.06	3.69	3.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	2.44	4.89	4.89	4.89	4.89	7.33	6.35	6.35	6.35	6.35	4.23	4.23	2.12	2.12
Roller	0.00	0.00	0.00	13.45	13.45	6.72	6.72	6.72	6.72	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	2.57	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	3.95	3.95	3.95	7.89	7.89	7.89	3.41	3.41	3.41	3.41	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**30.96**	**30.96**	**30.96**	**74.68**	**80.80**	**74.08**	**87.21**	**76.94**	**48.09**	**33.28**	**33.28**	**29.48**	**29.48**	**14.01**	**9.12**	**7.01**	**7.01**
Onsite Total (lb/day) [a]	**1.41**	**1.41**	**1.41**	**3.39**	**3.67**	**3.37**	**3.96**	**3.50**	**2.19**	**1.51**	**1.51**	**1.34**	**1.34**	**0.64**	**0.41**	**0.32**	**0.32**
Onsite Project Total (tons)	**0.35**																

Onsite Construction Equipment Emissions
Lightspeed SJC02
November 2019

Onsite Construction Equipment CO_2 Emissions from Lightspeed SJC02 Construction

Onsite Equipment	CO_2 Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.64	18.65	18.65	18.65	18.65	18.65	9.33	9.33	9.33
Excavator	25.93	25.93	25.93	25.93	12.96	12.96	12.96	12.96	12.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	28.27	28.27	28.27	28.27	14.13	7.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cranes	0.00	0.00	0.00	0.00	0.00	0.00	19.69	19.69	0.00	4.91	4.91	9.81	9.81	0.00	0.00	0.00	0.00
Backhoe	0.00	0.00	0.00	3.57	7.14	7.14	3.57	3.57	3.57	3.57	3.57	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	12.59	12.59	12.59	12.59	18.89	18.89	6.30	6.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forklift	0.00	0.00	0.00	4.49	8.99	8.99	8.99	8.99	13.48	13.49	13.49	13.49	13.49	8.99	8.99	4.50	4.50
Roller	0.00	0.00	0.00	12.10	12.10	6.05	6.05	6.05	6.05	6.10	6.10	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	8.75	8.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other General Industrial Equipment	0.00	0.00	0.00	3.11	3.11	3.11	6.21	6.21	6.21	3.13	3.13	3.13	3.13	0.00	0.00	0.00	0.00
Onsite Total (metric tons/month)	**57.16**	**57.16**	**57.16**	**108.69**	**118.84**	**112.79**	**110.68**	**96.54**	**67.98**	**49.85**	**49.85**	**45.09**	**45.09**	**27.65**	**18.32**	**13.82**	**13.82**
Onsite Total (metric tons/day) [a]	**2.60**	**2.60**	**2.60**	**4.94**	**5.40**	**5.13**	**5.03**	**4.39**	**3.09**	**2.27**	**2.27**	**2.05**	**2.05**	**1.26**	**0.83**	**0.63**	**0.63**
Onsite Project Total (metric tons)	**1,050.48**																

Onsite Construction Equipment N_2O Emissions from Lightspeed SJC02 Construction

Onsite Equipment	N_2O Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	9.04E-04	4.52E-04	4.52E-04	4.52E-04
Excavator	1.26E-03	1.26E-03	1.26E-03	1.26E-03	6.29E-04	6.29E-04	6.29E-04	6.29E-04	6.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Grader	0.00E+00	0.00E+00	0.00E+00	1.37E-03	1.37E-03	1.37E-03	1.37E-03	6.85E-04	3.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cranes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.55E-04	9.55E-04	0.00E+00	2.38E-04	2.38E-04	4.76E-04	4.76E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	0.00E+00	0.00E+00	0.00E+00	1.73E-04	3.46E-04	3.46E-04	1.73E-04	1.73E-04	1.73E-04	1.73E-04	1.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rubber Tired Loader	6.10E-04	6.10E-04	6.10E-04	6.10E-04	9.16E-04	9.16E-04	3.05E-04	3.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Forklift	0.00E+00	0.00E+00	0.00E+00	2.18E-04	4.36E-04	4.36E-04	4.36E-04	4.36E-04	6.54E-04	6.54E-04	6.54E-04	6.54E-04	6.54E-04	4.36E-04	4.36E-04	2.18E-04	2.18E-04
Roller	0.00E+00	0.00E+00	0.00E+00	5.86E-04	5.86E-04	2.93E-04	2.93E-04	2.93E-04	2.93E-04	2.96E-04	2.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bore/Drill Rigs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-04	4.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Other General Industrial Equipment	0.00E+00	0.00E+00	0.00E+00	1.51E-04	1.51E-04	1.51E-04	3.01E-04	3.01E-04	3.01E-04	1.52E-04	1.52E-04	1.52E-04	1.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/month)	**2.77E-03**	**2.77E-03**	**2.77E-03**	**5.27E-03**	**5.76E-03**	**5.47E-03**	**5.37E-03**	**4.68E-03**	**3.30E-03**	**2.42E-03**	**2.42E-03**	**2.19E-03**	**2.19E-03**	**1.34E-03**	**8.88E-04**	**6.70E-04**	**6.70E-04**
Onsite Total (metric tons/day) [a]	**1.26E-04**	**1.26E-04**	**1.26E-04**	**2.40E-04**	**2.62E-04**	**2.49E-04**	**2.44E-04**	**2.13E-04**	**1.50E-04**	**1.10E-04**	**1.10E-04**	**9.94E-05**	**9.94E-05**	**6.09E-05**	**4.04E-05**	**3.05E-05**	**3.05E-05**
Onsite Project Total (metric tons)	**5.09E-02**																

Onsite Construction Equipment CH_4 Emissions from Lightspeed SJC02 Construction

Onsite Equipment	CH_4 Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.25E-04	6.25E-04	6.25E-04	6.25E-04	6.25E-04	3.12E-04	3.12E-04	3.12E-04
Excavator	8.68E-04	8.68E-04	8.68E-04	8.68E-04	4.34E-04	4.34E-04	4.34E-04	4.34E-04	4.34E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Grader	0.00E+00	0.00E+00	0.00E+00	9.47E-04	9.47E-04	9.47E-04	9.47E-04	4.73E-04	2.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cranes	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.60E-04	6.60E-04	0.00E+00	1.64E-04	1.64E-04	3.29E-04	3.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	0.00E+00	0.00E+00	0.00E+00	1.20E-04	2.39E-04	2.39E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	1.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rubber Tired Loader	4.22E-04	4.22E-04	4.22E-04	4.22E-04	6.33E-04	6.33E-04	2.11E-04	2.11E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Forklift	0.00E+00	0.00E+00	0.00E+00	1.51E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	3.01E-04	3.01E-04	1.51E-04	1.51E-04
Roller	0.00E+00	0.00E+00	0.00E+00	4.05E-04	4.05E-04	2.03E-04	2.03E-04	2.03E-04	2.03E-04	2.04E-04	2.04E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bore/Drill Rigs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	2.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Other General Industrial Equipment	0.00E+00	0.00E+00	0.00E+00	1.04E-04	1.04E-04	1.04E-04	2.08E-04	2.08E-04	2.08E-04	1.05E-04	1.05E-04	1.05E-04	1.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/month)	**1.91E-03**	**1.91E-03**	**1.91E-03**	**3.64E-03**	**3.98E-03**	**3.78E-03**	**3.71E-03**	**3.23E-03**	**2.28E-03**	**1.67E-03**	**1.67E-03**	**1.51E-03**	**1.51E-03**	**9.26E-04**	**6.14E-04**	**4.63E-04**	**4.63E-04**
Onsite Total (metric tons/day) [a]	**8.70E-05**	**8.70E-05**	**8.70E-05**	**1.65E-04**	**1.81E-04**	**1.72E-04**	**1.69E-04**	**1.47E-04**	**1.04E-04**	**7.59E-05**	**7.59E-05**	**6.86E-05**	**6.86E-05**	**4.21E-05**	**2.79E-05**	**2.10E-05**	**2.10E-05**
Onsite Project Total (metric tons)	**3.52E-02**																

Notes:
[a] Per information provided by the Applicant's engineering contractor, the days per month are as follows:

Appendix 3.3-A, Table 5
Onsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Onsite Vehicle Exhaust CO Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.02
Onsite Dump Truck	0.81	0.81	0.81	0.81	0.10	0.07	0.07	0.07	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.85**	**0.85**	**0.85**	**0.85**	**0.14**	**0.11**	**0.11**	**0.11**	**0.11**	**0.09**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.02**
Vehicle Type	**CO Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.40
Onsite Dump Truck	17.89	17.89	17.89	17.89	2.15	1.43	1.43	1.43	1.43	1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**18.78**	**18.78**	**18.78**	**18.78**	**3.04**	**2.32**	**2.32**	**2.32**	**2.32**	**2.09**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.80**	**0.40**
Onsite Project Total (tons)	**0.05**																

Onsite Vehicle Exhaust VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type	VOC Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.29	0.29	0.29	0.29	0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.29**	**0.29**	**0.29**	**0.29**	**0.04**	**0.03**	**0.03**	**0.03**	**0.03**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**VOC Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.03
Onsite Dump Truck	6.30	6.30	6.30	6.30	0.76	0.50	0.50	0.50	0.50	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**6.35**	**6.35**	**6.35**	**6.35**	**0.81**	**0.56**	**0.56**	**0.56**	**0.56**	**0.43**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.03**
Onsite Project Total (tons)	**0.01**																

Onsite Vehicle Exhaust SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	SO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**SO_X Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.17	0.17	0.17	0.17	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.17**	**0.17**	**0.17**	**0.17**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Onsite Vehicle Exhaust NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	NO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	3.39	3.39	3.39	3.39	0.41	0.27	0.27	0.27	0.27	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**3.39**	**3.39**	**3.39**	**3.39**	**0.41**	**0.27**	**0.27**	**0.27**	**0.27**	**0.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**NO_X Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.03
Onsite Dump Truck	74.61	74.61	74.61	74.61	8.95	5.97	5.97	5.97	5.97	5.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**74.69**	**74.69**	**74.69**	**74.69**	**9.03**	**6.05**	**6.05**	**6.05**	**6.05**	**5.77**	**0.07**	**0.07**	**0.07**	**0.07**	**0.07**	**0.07**	**0.03**
Onsite Project Total (tons)	**0.17**																

Onsite Vehicle Exhaust and Vehicle Wear PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type	PM_{10} Emissions (lb/day) [b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.05	0.05	0.05	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.05**	**0.05**	**0.05**	**0.05**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**PM_{10} Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01
Onsite Dump Truck	1.17	1.17	1.17	1.17	0.14	0.09	0.09	0.09	0.09	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**1.19**	**1.19**	**1.19**	**1.19**	**0.16**	**0.12**	**0.12**	**0.12**	**0.12**	**0.10**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.01**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Exhaust and Vehicle Wear $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type	$PM_{2.5}$ Emissions (lb/day) [b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.04	0.04	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.04**	**0.04**	**0.04**	**0.04**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**$PM_{2.5}$ Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Onsite Dump Truck	0.84	0.84	0.84	0.84	0.10	0.07	0.07	0.07	0.07	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.85**	**0.85**	**0.85**	**0.85**	**0.11**	**0.08**	**0.08**	**0.08**	**0.08**	**0.06**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Onsite Vehicle Exhaust CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO_2 Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Dump Truck	0.17	0.17	0.17	0.17	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (metric tons/day)	**0.17**	**0.17**	**0.17**	**0.17**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**CO_2 Emissions (metric tons/month) [a]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03
Onsite Dump Truck	3.65	3.65	3.65	3.65	0.44	0.29	0.29	0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (metric tons/month)	**3.71**	**3.71**	**3.71**	**3.71**	**0.50**	**0.35**	**0.35**	**0.35**	**0.35**	**0.35**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.03**
Onsite Project Total (metric tons)	**17.48**																

Onsite Vehicle Exhaust N_2O Emissions from Lightspeed SJC02 Construction

Vehicle Type	N_2O Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	6.32E-08	3.16E-08
Onsite Dump Truck	4.80E-07	4.80E-07	4.80E-07	4.80E-07	5.76E-08	3.84E-08	3.84E-08	3.84E-08	3.84E-08	3.84E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/day)	**5.43E-07**	**5.43E-07**	**5.43E-07**	**5.43E-07**	**1.21E-07**	**1.02E-07**	**1.02E-07**	**1.02E-07**	**1.02E-07**	**1.02E-07**	**6.32E-08**	**6.32E-08**	**6.32E-08**	**6.32E-08**	**6.32E-08**	**6.32E-08**	**3.16E-08**
Vehicle Type	**N_2O Emissions (metric tons/month) [a]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	1.39E-06	6.95E-07
Onsite Dump Truck	1.06E-05	1.06E-05	1.06E-05	1.06E-05	1.27E-06	8.45E-07	8.45E-07	8.45E-07	8.45E-07	8.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/month)	**1.20E-05**	**1.20E-05**	**1.20E-05**	**1.20E-05**	**2.66E-06**	**2.24E-06**	**2.24E-06**	**2.24E-06**	**2.24E-06**	**2.24E-06**	**1.39E-06**	**1.39E-06**	**1.39E-06**	**1.39E-06**	**1.39E-06**	**1.39E-06**	**6.95E-07**
Onsite Project Total (metric tons)	**7.07E-05**																

Onsite Vehicle Exhaust CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CH_4 Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	5.12E-08	2.56E-08
Onsite Dump Truck	5.10E-07	5.10E-07	5.10E-07	5.10E-07	6.12E-08	4.08E-08	4.08E-08	4.08E-08	4.08E-08	4.08E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/day)	**1.15E-09**	**5.61E-07**	**5.61E-07**	**5.61E-07**	**1.12E-07**	**9.20E-08**	**9.20E-08**	**9.20E-08**	**9.20E-08**	**9.20E-08**	**5.12E-08**	**5.12E-08**	**5.12E-08**	**5.12E-08**	**5.12E-08**	**5.12E-08**	**2.56E-08**
Vehicle Type	**CH_4 Emissions (metric tons/month) [a]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Onsite Pick-up Truck	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	1.13E-06	5.63E-07
Onsite Dump Truck	1.12E-05	1.12E-05	1.12E-05	1.12E-05	1.35E-06	8.98E-07	8.98E-07	8.98E-07	8.98E-07	8.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/month)	**1.23E-05**	**1.23E-05**	**1.23E-05**	**1.23E-05**	**2.47E-06**	**2.02E-06**	**2.02E-06**	**2.02E-06**	**2.02E-06**	**2.02E-06**	**1.13E-06**	**1.13E-06**	**1.13E-06**	**1.13E-06**	**1.13E-06**	**1.13E-06**	**5.63E-07**
Onsite Project Total (metric tons)	**6.93E-05**																

Notes:
[a] The days per month for construction in the data above was provided by the Applicant's engineering contractor.
[b] PM_{10} and $PM_{2.5}$ Emissions include emissions from exhaust and tire and brake wear.

Appendix 3.3-A, Table 6
Onsite Vehicle Idling Emissions
Lightspeed SJC02
November 2019

Onsite Vehicle Idling CO Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.14	0.14	0.14	0.14	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.14**	**0.14**	**0.14**	**0.14**	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**CO Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	3.17	3.17	3.17	3.17	0.38	0.25	0.25	0.25	0.25	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**3.17**	**3.17**	**3.17**	**3.17**	**0.38**	**0.25**	**0.25**	**0.25**	**0.25**	**0.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.01**																

Onsite Vehicle Idling VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type	VOC Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**VOC Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.24	0.24	0.24	0.24	0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.24**	**0.24**	**0.24**	**0.24**	**0.03**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Idling SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	SO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**SO_X Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Idling NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	NO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.16	0.16	0.16	0.16	0.02	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.16**	**0.16**	**0.16**	**0.16**	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**NO_X Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	3.51	3.51	3.51	3.51	0.42	0.28	0.28	0.28	0.28	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**3.51**	**3.51**	**3.51**	**3.51**	**0.42**	**0.28**	**0.28**	**0.28**	**0.28**	**0.27**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.01**																

Onsite Vehicle Idling Emissions
Lightspeed SJC02
November 2019

Onsite Vehicle Idling PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type	PM_{10} Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**PM_{10} Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Idling $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type	$PM_{2.5}$ Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**$PM_{2.5}$ Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Onsite Vehicle Idling CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO_2 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (metric tons/day)	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**CO_2 Emissions (metric tons/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	0.28	0.28	0.28	0.28	0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (metric tons/month)	**0.28**	**0.28**	**0.28**	**0.28**	**0.03**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (metric tons)	**1.27**																

Onsite Vehicle Idling CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CH_4 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	2.33E-07	2.33E-07	2.33E-07	2.33E-07	2.80E-08	1.87E-08	1.87E-08	1.87E-08	1.87E-08	1.85E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/day)	**2.33E-07**	**2.33E-07**	**2.33E-07**	**2.33E-07**	**2.80E-08**	**1.87E-08**	**1.87E-08**	**1.87E-08**	**1.87E-08**	**1.85E-08**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Vehicle Type	**CH_4 Emissions (metric tons/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Dump Truck [a]	5.13E-06	5.13E-06	5.13E-06	5.13E-06	6.16E-07	4.10E-07	4.10E-07	4.10E-07	4.10E-07	4.08E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Onsite Total (metric tons/month)	**5.13E-06**	**5.13E-06**	**5.13E-06**	**5.13E-06**	**6.16E-07**	**4.10E-07**	**4.10E-07**	**4.10E-07**	**4.10E-07**	**4.08E-07**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**	**0.00E+00**
Onsite Project Total (metric tons)	**2.32E-05**																

Notes:

[a] It is estimated that each onsite dump truck idles for approximately 5 minutes each day, or: 0.083 idle-hrs/day.

[b] The days per month for construction in the data above was provided by the Applicant's engineering contractor, as presented in Appendix 3.3-A, Table 11.

Appendix 3.3-A, Table 7R
Number of Offsite Construction Equipment and Vehicles
Lightspeed SJC02
Revised September 2020

Number of Offsite Construction Equipment for Lightspeed SJC02 Construction

Offsite Equipment	Number per Day [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0
Concrete Truck	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	0
Excavator [b]	4	4	4	4	2	2	2	2	2	0	0	0	0	0	0	0	0
Grader	0	0	0	4	4	4	4	2	1	0	0	0	0	0	0	0	0
Backhoe	2	2	2	2	2	2	2	2	2	2	1	0	0	0	0	0	0
Rubber Tired Loader [c]	2	2	2	2	3	3	1	1	1	1	1	1	1	1	1	0	0
Forklift	2	2	2	2	2	2	2	2	3	3	3	3	0	0	0	0	1
Roller [d]	0	0	0	4	4	2	2	2	2	2	2	0	0	0	0	0	0
Bore/Drill Rigs [e]	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
Mower/Grader for Reconductoring	0	1	2	0	1	0	0	0	0	0	1	0	1	1	0	0	0
Line Trucks for Reconductoring [f]	0	0	6	4	4	4	4	4	4	6	6	6	6	6	0	0	0
Water Truck for Reconductoring	0	1	1	1	0	0	0	0	0	1	1	1	1	1	0	0	0
Helicopter for Reconductoring [g]	0	0	0	4	4	6	8	6	4	0	0	0	0	0	0	0	0

Notes:

[a] Equipment counts presented above were provided by the Applicant's engineering contractor.

[b] The Hydraulic Hammer for the Excavator was not included in the above table, or resulting emissions estimates, as they are expected to be hydraulically-powered with negligible emissions.

[c] Numbers presented for Rubber Tired Loader include the equipment counts for the Front End Loader.

[d] Numbers presented for Roller include the equipment counts for the Compactor.

[e] Numbers presented for Bore/Drill Rigs include the equipment counts for the Horizontal Directional Drill Equipment.

[f] Line Trucks include trucks equipped with pull/tensions, lifts, augers, and derrick booms.

[g] Helicopter counts represent the number of takeoff and landings per day.

Number of Offsite Vehicles for Lightspeed SJC02 Construction

Vehicle Type	Number per Day [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Pick-up Truck	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	2
Dump Truck	3	3	3	3	3	3	3	3	10	10	2	2	2	1	1	1	0

Notes:

[a] Vehicle counts presented above were provided by the Applicant's engineering contractor.

Appendix 3.3-A, Table 8R
Offsite Construction Equipment Emissions
Lightspeed SJC02
Revised September 2020

Offsite Construction Equipment CO Emissions from Lightspeed SJC02 Construction

Offsite Equipment	CO Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	104.78	104.78	104.78	104.78	104.78	104.78	104.78	104.78	104.78	99.12	99.12	99.12	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	495.59	495.59	495.59	495.59	495.59	0.00
Excavator	359.45	359.45	359.45	359.45	179.73	179.73	179.73	179.73	179.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	199.59	199.59	199.59	199.59	99.79	49.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	125.38	125.38	125.38	125.38	125.38	125.38	125.38	125.38	125.38	124.31	62.16	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	89.95	89.95	89.95	89.95	134.92	134.92	44.97	44.97	44.97	43.96	43.96	43.96	43.96	43.96	43.96	0.00	0.00
Forklift	64.91	64.91	64.91	64.91	64.91	64.91	64.91	64.91	97.37	96.35	96.35	96.35	0.00	0.00	0.00	0.00	32.12
Roller	0.00	0.00	0.00	208.27	208.27	104.13	104.13	104.13	104.13	103.42	103.42	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	57.22	57.22	57.22	57.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	49.90	99.79	0.00	49.90	0.00	0.00	0.00	0.00	0.00	48.60	0.00	48.60	48.60	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	628.65	419.10	419.10	419.10	419.10	419.10	419.10	594.71	594.71	594.71	594.71	594.71	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	104.78	104.78	104.78	0.00	0.00	0.00	0.00	0.00	99.12	99.12	99.12	99.12	99.12	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	469.04	469.04	703.56	938.08	703.56	469.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**744.47**	**899.14**	**1,577.69**	**2,145.25**	**1,955.61**	**2,036.10**	**2,237.89**	**1,903.58**	**1,651.62**	**1,218.02**	**1,147.43**	**1,428.85**	**1,281.98**	**1,281.98**	**539.55**	**495.59**	**32.12**
Offsite Total (lb/day) [a]	**33.84**	**40.87**	**71.71**	**97.51**	**88.89**	**92.55**	**101.72**	**86.53**	**75.07**	**55.36**	**52.16**	**64.95**	**58.27**	**58.27**	**24.53**	**22.53**	**1.46**
Offsite Project Total (tons)	**11.29**																

Offsite Construction Equipment VOC Emissions from Lightspeed SJC02 Construction

Offsite Equipment	VOC Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	18.23	18.23	18.23	18.23	18.23	18.23	18.23	18.23	18.23	16.67	16.67	16.67	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	83.35	83.35	83.35	83.35	83.35	0.00
Excavator	26.91	26.91	26.91	26.91	13.45	13.45	13.45	13.45	13.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	52.36	52.36	52.36	52.36	26.18	13.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	11.52	11.52	11.52	11.52	11.52	11.52	11.52	11.52	11.52	10.30	5.15	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	20.56	20.56	20.56	20.56	30.84	30.84	10.28	10.28	10.28	9.43	9.43	9.43	9.43	9.43	9.43	0.00	0.00
Forklift	7.93	7.93	7.93	7.93	7.93	7.93	7.93	7.93	11.89	10.67	10.67	10.67	0.00	0.00	0.00	0.00	3.56
Roller	0.00	0.00	0.00	22.88	22.88	11.44	11.44	11.44	11.44	10.41	10.41	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	7.61	7.61	7.61	7.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	13.09	26.18	0.00	13.09	0.00	0.00	0.00	0.00	0.00	12.46	0.00	12.46	12.46	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	109.36	72.90	72.90	72.90	72.90	72.90	72.90	100.02	100.02	100.02	100.02	100.02	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	18.23	18.23	18.23	0.00	0.00	0.00	0.00	0.00	16.67	16.67	16.67	16.67	16.67	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	352.88	352.88	529.32	705.76	529.32	352.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**85.14**	**116.45**	**238.90**	**604.39**	**596.08**	**747.99**	**911.48**	**708.86**	**523.30**	**181.25**	**181.48**	**236.81**	**221.93**	**221.93**	**92.78**	**83.35**	**3.56**
Offsite Total (lb/day) [a]	**3.87**	**5.29**	**10.86**	**27.47**	**27.09**	**34.00**	**41.43**	**32.22**	**23.79**	**8.24**	**8.25**	**10.76**	**10.09**	**10.09**	**4.22**	**3.79**	**0.16**
Offsite Project Total (tons)	**2.88**																

Offsite Construction Equipment Emissions
Lightspeed SJC02
Revised September 2020

Offsite Construction Equipment NO_X Emissions from Lightspeed SJC02 Construction

Offsite Equipment	NO_X Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	19.26	19.26	19.26	19.26	19.26	19.26	19.26	19.26	19.26	19.26	19.26	19.26	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	96.32	96.32	96.32	96.32	96.32	0.00
Excavator	30.28	30.28	30.28	30.28	15.14	15.14	15.14	15.14	15.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	38.67	38.67	38.67	38.67	19.34	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	9.05	9.05	9.05	9.05	9.05	9.05	9.05	9.05	9.05	9.05	4.53	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	164.46	164.46	164.46	164.46	246.69	246.69	82.23	82.23	82.23	82.23	82.23	82.23	82.23	82.23	82.23	0.00	0.00
Forklift	47.31	47.31	47.31	47.31	47.31	47.31	47.31	47.31	70.96	70.96	70.96	70.96	0.00	0.00	0.00	0.00	23.65
Roller	0.00	0.00	0.00	161.60	161.60	80.80	80.80	80.80	80.80	80.80	80.80	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	13.93	13.93	13.93	13.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	9.67	19.34	0.00	9.67	0.00	0.00	0.00	0.00	0.00	9.67	0.00	9.67	9.67	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	115.58	77.05	77.05	77.05	77.05	77.05	77.05	115.58	115.58	115.58	115.58	115.58	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	19.26	19.26	19.26	0.00	0.00	0.00	0.00	0.00	19.26	19.26	19.26	19.26	19.26	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	171.60	171.60	257.40	343.20	257.40	171.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**270.37**	**299.30**	**424.55**	**738.56**	**796.05**	**791.39**	**726.66**	**621.52**	**549.71**	**411.09**	**402.30**	**403.62**	**323.06**	**323.06**	**178.55**	**96.32**	**23.65**
Offsite Total (lb/day) [a]	**12.29**	**13.60**	**19.30**	**33.57**	**36.18**	**35.97**	**33.03**	**28.25**	**24.99**	**18.69**	**18.29**	**18.35**	**14.68**	**14.68**	**8.12**	**4.38**	**1.08**
Offsite Project Total (tons)	**3.69**																

Offsite Construction Equipment SO_X Emissions from Lightspeed SJC02 Construction

Offsite Equipment	SO_X Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85	1.85	1.85	1.85	1.85	0.00
Excavator	0.58	0.58	0.58	0.58	0.29	0.29	0.29	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	0.74	0.74	0.74	0.74	0.37	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	0.35	0.35	0.35	0.35	0.53	0.53	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.00	0.00
Forklift	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.13	0.13	0.13	0.13	0.00	0.00	0.00	0.00	0.04
Roller	0.00	0.00	0.00	0.29	0.29	0.15	0.15	0.15	0.15	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.27	0.27	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	0.19	0.37	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.19	0.19	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	2.22	1.48	1.48	1.48	1.48	1.48	1.48	2.22	2.22	2.22	2.22	2.22	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	0.37	0.37	0.37	0.00	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.37	0.37	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	25.52	25.52	38.28	51.04	38.28	25.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**1.57**	**2.12**	**4.53**	**29.98**	**29.68**	**42.11**	**54.78**	**41.65**	**28.75**	**3.86**	**3.69**	**5.12**	**4.81**	**4.81**	**2.03**	**1.85**	**0.04**
Offsite Total (lb/day) [a]	**0.07**	**0.10**	**0.21**	**1.36**	**1.35**	**1.91**	**2.49**	**1.89**	**1.31**	**0.18**	**0.17**	**0.23**	**0.22**	**0.22**	**0.09**	**0.08**	**0.00**
Offsite Project Total (tons)	**0.13**																

Offsite Construction Equipment Emissions
Lightspeed SJC02
Revised September 2020

Offsite Construction Equipment PM_{10} Emissions from Lightspeed SJC02 Construction

Offsite Equipment	PM_{10} Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.96	2.96	2.96	2.96	2.96	0.00
Excavator	0.93	0.93	0.93	0.93	0.47	0.47	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	1.19	1.19	1.19	1.19	0.59	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	6.24	6.24	6.24	6.24	9.36	9.36	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	0.00	0.00
Forklift	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	4.97	4.97	4.97	4.97	0.00	0.00	0.00	0.00	1.66
Roller	0.00	0.00	0.00	11.32	11.32	5.66	5.66	5.66	5.66	5.66	5.66	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.43	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	0.30	0.59	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.30	0.30	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	3.56	2.37	2.37	2.37	2.37	2.37	2.37	3.56	3.56	3.56	3.56	3.56	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	0.59	0.59	0.59	0.00	0.00	0.00	0.00	0.00	0.59	0.59	0.59	0.59	0.59	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	5.28	5.28	7.92	10.56	7.92	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**11.36**	**12.25**	**16.10**	**32.11**	**34.47**	**31.15**	**27.98**	**24.75**	**23.47**	**19.20**	**18.93**	**15.80**	**10.53**	**10.53**	**6.08**	**2.96**	**1.66**
Offsite Total (lb/day) [a]	**0.52**	**0.56**	**0.73**	**1.46**	**1.57**	**1.42**	**1.27**	**1.12**	**1.07**	**0.87**	**0.86**	**0.72**	**0.48**	**0.48**	**0.28**	**0.13**	**0.08**
Offsite Project Total (tons)	**0.15**																

Offsite Construction Equipment $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Offsite Equipment	$PM_{2.5}$ Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	5.85	4.89	4.89	4.89	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.45	24.45	24.45	24.45	24.45	0.00
Excavator	11.88	11.88	11.88	11.88	5.94	5.94	5.94	5.94	5.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	20.53	20.53	20.53	20.53	10.26	5.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	6.72	6.72	6.72	6.72	6.72	6.72	6.72	6.72	6.72	5.64	2.82	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	7.37	7.37	7.37	7.37	11.06	11.06	3.69	3.69	3.69	3.26	3.26	3.26	3.26	3.26	3.26	0.00	0.00
Forklift	4.89	4.89	4.89	4.89	4.89	4.89	4.89	4.89	7.33	6.35	6.35	6.35	0.00	0.00	0.00	0.00	2.12
Roller	0.00	0.00	0.00	13.45	13.45	6.72	6.72	6.72	6.72	5.96	5.96	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	2.57	2.57	2.57	2.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	5.13	10.26	0.00	5.13	0.00	0.00	0.00	0.00	0.00	4.76	0.00	4.76	4.76	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	35.12	23.41	23.41	23.41	23.41	23.41	23.41	29.34	29.34	29.34	29.34	29.34	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	5.85	5.85	5.85	0.00	0.00	0.00	0.00	0.00	4.89	4.89	4.89	4.89	4.89	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	5.28	5.28	7.92	10.56	7.92	5.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**36.71**	**47.70**	**87.95**	**105.23**	**102.25**	**93.04**	**90.88**	**77.98**	**72.65**	**62.63**	**62.26**	**73.18**	**66.70**	**66.70**	**27.71**	**24.45**	**2.12**
Offsite Total (lb/day) [a]	**1.67**	**2.17**	**4.00**	**4.78**	**4.65**	**4.23**	**4.13**	**3.54**	**3.30**	**2.85**	**2.83**	**3.33**	**3.03**	**3.03**	**1.26**	**1.11**	**0.10**
Offsite Project Total (tons)	**0.55**																

Offsite Construction Equipment Emissions
Lightspeed SJC02
Revised September 2020

Offsite Construction Equipment CO_2 Emissions from Lightspeed SJC02 Construction

Offsite Equipment	CO_2 Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.32	9.33	9.33	9.33	0.00	0.00	0.00	0.00	0.00
Concrete Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.63	46.63	46.63	46.63	46.63	0.00
Excavator	25.93	25.93	25.93	25.93	12.96	12.96	12.96	12.96	12.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grader	0.00	0.00	0.00	28.27	28.27	28.27	28.27	14.13	7.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Backhoe	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	7.14	3.57	0.00	0.00	0.00	0.00	0.00	0.00
Rubber Tired Loader	12.59	12.59	12.59	12.59	18.89	18.89	6.30	6.30	6.30	6.29	6.29	6.29	6.29	6.29	6.29	0.00	0.00
Forklift	8.99	8.99	8.99	8.99	8.99	8.99	8.99	8.99	13.48	13.49	13.49	13.49	0.00	0.00	0.00	0.00	4.50
Roller	0.00	0.00	0.00	12.10	12.10	6.05	6.05	6.05	6.05	6.10	6.10	0.00	0.00	0.00	0.00	0.00	0.00
Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	8.75	8.75	8.75	8.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mower/Grader for Reconductoring	0.00	7.07	14.13	0.00	7.07	0.00	0.00	0.00	0.00	0.00	7.07	0.00	7.07	7.07	0.00	0.00	0.00
Line Trucks for Reconductoring	0.00	0.00	55.93	37.28	37.28	37.28	37.28	37.28	37.28	55.95	55.95	55.95	55.95	55.95	0.00	0.00	0.00
Water Truck for Reconductoring	0.00	9.32	9.32	9.32	0.00	0.00	0.00	0.00	0.00	9.33	9.33	9.33	9.33	9.33	0.00	0.00	0.00
Helicopter for Reconductoring	0.00	0.00	0.00	16.55	16.55	24.82	33.09	24.82	16.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (metric tons/month)	**63.96**	**80.35**	**143.34**	**167.48**	**158.56**	**153.71**	**158.15**	**135.74**	**124.90**	**116.37**	**111.13**	**141.02**	**125.27**	**125.27**	**52.92**	**46.63**	**4.50**
Offsite Total (metric tons/day) [a]	**2.91**	**3.65**	**6.52**	**7.61**	**7.21**	**6.99**	**7.19**	**6.17**	**5.68**	**5.29**	**5.05**	**6.41**	**5.69**	**5.69**	**2.41**	**2.12**	**0.20**
Offsite Project Total (metric tons)	**1,909.30**																

Offsite Construction Equipment N_2O Emissions from Lightspeed SJC02 Construction

Offsite Equipment	N_2O Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Concrete Truck	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.26E-03	2.26E-03	2.26E-03	2.26E-03	2.26E-03	0.00E+00
Excavator	1.26E-03	1.26E-03	1.26E-03	1.26E-03	6.29E-04	6.29E-04	6.29E-04	6.29E-04	6.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Grader	0.00E+00	0.00E+00	0.00E+00	1.37E-03	1.37E-03	1.37E-03	1.37E-03	6.85E-04	3.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	3.46E-04	1.73E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rubber Tired Loader	6.10E-04	6.10E-04	6.10E-04	6.10E-04	9.16E-04	9.16E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	3.05E-04	0.00E+00	0.00E+00
Forklift	4.36E-04	4.36E-04	4.36E-04	4.36E-04	4.36E-04	4.36E-04	4.36E-04	4.36E-04	6.54E-04	6.54E-04	6.54E-04	6.54E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.18E-04
Roller	0.00E+00	0.00E+00	0.00E+00	5.86E-04	5.86E-04	2.93E-04	2.93E-04	2.93E-04	2.93E-04	2.96E-04	2.96E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bore/Drill Rigs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.24E-04	4.24E-04	4.24E-04	4.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mower/Grader for Reconductoring	0.00E+00	3.43E-04	6.85E-04	0.00E+00	3.43E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-04	0.00E+00	3.43E-04	3.43E-04	0.00E+00	0.00E+00	0.00E+00
Line Trucks for Reconductoring	0.00E+00	0.00E+00	2.71E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	1.81E-03	2.71E-03	2.71E-03	2.71E-03	2.71E-03	2.71E-03	0.00E+00	0.00E+00	0.00E+00
Water Truck for Reconductoring	0.00E+00	4.52E-04	4.52E-04	4.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.52E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	0.00E+00	0.00E+00	0.00E+00
Helicopter for Reconductoring	0.00E+00	0.00E+00	0.00E+00	1.20E-03	1.20E-03	1.80E-03	2.39E-03	1.80E-03	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite Total (metric tons/month)	**3.10E-03**	**3.90E-03**	**6.95E-03**	**8.51E-03**	**8.08E-03**	**8.05E-03**	**8.46E-03**	**7.17E-03**	**6.45E-03**	**5.64E-03**	**5.39E-03**	**6.84E-03**	**6.07E-03**	**6.07E-03**	**2.57E-03**	**2.26E-03**	**2.18E-04**
Offsite Total (metric tons/day) [a]	**1.41E-04**	**1.77E-04**	**3.16E-04**	**3.87E-04**	**3.67E-04**	**3.66E-04**	**3.84E-04**	**3.26E-04**	**2.93E-04**	**2.56E-04**	**2.45E-04**	**3.11E-04**	**2.76E-04**	**2.76E-04**	**1.17E-04**	**1.03E-04**	**9.91E-06**
Offsite Project Total (metric tons)	**9.57E-02**																

Offsite Construction Equipment Emissions
Lightspeed SJC02
Revised September 2020

Offsite Construction Equipment CH_4 Emissions from Lightspeed SJC02 Construction

Offsite Equipment	CH_4 Emissions (metric tons/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Water Truck	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Concrete Truck	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-03	1.56E-03	1.56E-03	1.56E-03	1.56E-03	0.00E+00
Excavator	8.68E-04	8.68E-04	8.68E-04	8.68E-04	4.34E-04	4.34E-04	4.34E-04	4.34E-04	4.34E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Grader	0.00E+00	0.00E+00	0.00E+00	9.47E-04	9.47E-04	9.47E-04	9.47E-04	4.73E-04	2.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Backhoe	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	2.39E-04	1.20E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rubber Tired Loader	4.22E-04	4.22E-04	4.22E-04	4.22E-04	6.33E-04	6.33E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	2.11E-04	0.00E+00	0.00E+00
Forklift	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	4.52E-04	4.52E-04	4.52E-04	4.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-04
Roller	0.00E+00	0.00E+00	0.00E+00	4.05E-04	4.05E-04	2.03E-04	2.03E-04	2.03E-04	2.03E-04	2.04E-04	2.04E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Bore/Drill Rigs	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.93E-04	2.93E-04	2.93E-04	2.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mower/Grader for Reconductoring	0.00E+00	2.37E-04	4.73E-04	0.00E+00	2.37E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-04	0.00E+00	2.37E-04	2.37E-04	0.00E+00	0.00E+00	0.00E+00
Line Trucks for Reconductoring	0.00E+00	0.00E+00	1.87E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.25E-03	1.87E-03	1.87E-03	1.87E-03	1.87E-03	1.87E-03	0.00E+00	0.00E+00	0.00E+00
Water Truck for Reconductoring	0.00E+00	3.12E-04	3.12E-04	3.12E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.12E-04	3.12E-04	3.12E-04	3.12E-04	3.12E-04	0.00E+00	0.00E+00	0.00E+00
Helicopter for Reconductoring	0.00E+00	0.00E+00	0.00E+00	1.20E-03	1.20E-03	1.80E-03	2.39E-03	1.80E-03	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Offsite Total (metric tons/month)	**2.14E-03**	**2.69E-03**	**4.80E-03**	**6.25E-03**	**5.95E-03**	**6.11E-03**	**6.58E-03**	**5.51E-03**	**4.83E-03**	**3.90E-03**	**3.72E-03**	**4.72E-03**	**4.20E-03**	**4.20E-03**	**1.77E-03**	**1.56E-03**	**1.51E-04**
Offsite Total (metric tons/day) [a]	**9.74E-05**	**1.22E-04**	**2.18E-04**	**2.84E-04**	**2.71E-04**	**2.78E-04**	**2.99E-04**	**2.51E-04**	**2.19E-04**	**1.77E-04**	**1.69E-04**	**2.15E-04**	**1.91E-04**	**1.91E-04**	**8.06E-05**	**7.10E-05**	**6.85E-06**
Offsite Project Total (metric tons)	**6.91E-02**																

Notes:
[a] Per information provided by the Applicant's engineering contractor, the days per month are as follows: 22

Appendix 3.3-A, Table 9
Offsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Offsite Vehicle Exhaust CO Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.02
Offsite Dump Truck	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.16	0.15	0.03	0.03	0.03	0.01	0.01	0.01	0.00
Offsite Total (lb/day)	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.21**	**0.19**	**0.07**	**0.07**	**0.07**	**0.06**	**0.06**	**0.06**	**0.02**
Vehicle Type	**CO Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40
Offsite Dump Truck	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	3.58	3.23	0.65	0.65	0.65	0.32	0.32	0.32	0.00
Offsite Total (lb/month)	**2.19**	**2.19**	**2.19**	**2.19**	**2.19**	**2.19**	**2.19**	**2.19**	**4.69**	**4.23**	**1.64**	**1.64**	**1.64**	**1.32**	**1.32**	**1.32**	**0.40**
Offsite Project Total (tons)	**0.02**																

Offsite Vehicle Exhaust VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type	VOC Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	0.04	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.06**	**0.05**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
Vehicle Type	**VOC Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.03
Offsite Dump Truck	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	1.26	0.95	0.19	0.19	0.19	0.09	0.09	0.09	0.00
Offsite Total (lb/month)	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**0.45**	**1.33**	**1.01**	**0.25**	**0.25**	**0.25**	**0.16**	**0.16**	**0.16**	**0.03**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Exhaust SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	SO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**SO_X Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.04**	**0.04**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Exhaust NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	NO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.68	0.65	0.13	0.13	0.13	0.06	0.06	0.06	0.00
Offsite Total (lb/day)	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.21**	**0.68**	**0.65**	**0.13**	**0.13**	**0.13**	**0.07**	**0.07**	**0.07**	**0.00**
Vehicle Type	**NO_X Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.03
Offsite Dump Truck	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	14.92	14.25	2.85	2.85	2.85	1.43	1.43	1.43	0.00
Offsite Total (lb/month)	**4.57**	**4.57**	**4.57**	**4.57**	**4.57**	**4.57**	**4.57**	**4.57**	**15.02**	**14.33**	**2.93**	**2.93**	**2.93**	**1.51**	**1.51**	**1.51**	**0.03**
Offsite Project Total (tons)	**0.04**																

Offsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Offsite Vehicle Exhaust and Vehicle Wear PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type	PM_{10} Emissions (lb/day) [b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**PM_{10} Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.01
Offsite Dump Truck	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.23	0.19	0.04	0.04	0.04	0.02	0.02	0.02	0.00
Offsite Total (lb/month)	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.26**	**0.22**	**0.07**	**0.07**	**0.07**	**0.05**	**0.05**	**0.05**	**0.01**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Exhaust and Vehicle Wear $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type	$PM_{2.5}$ Emissions (lb/day) [b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**$PM_{2.5}$ Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Offsite Dump Truck	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.17	0.12	0.02	0.02	0.02	0.01	0.01	0.01	0.00
Offsite Total (lb/month)	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.18**	**0.14**	**0.04**	**0.04**	**0.04**	**0.03**	**0.03**	**0.03**	**0.01**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Exhaust CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO_2 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Dump Truck	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Offsite Total (metric tons/day)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.04**	**0.04**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
Vehicle Type	**CO_2 Emissions (metric tons/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.03
Offsite Dump Truck	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.73	0.72	0.14	0.14	0.14	0.07	0.07	0.07	0.00
Offsite Total (metric tons/month)	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**	**0.30**	**0.81**	**0.79**	**0.22**	**0.22**	**0.22**	**0.15**	**0.15**	**0.15**	**0.03**
Offsite Project Total (metric tons)	**5.08**																

Offsite Vehicle Exhaust N_2O Emissions from Lightspeed SJC02 Construction

Vehicle Type	N_2O Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	7.90E-08	3.16E-08
Offsite Dump Truck	2.88E-08	2.88E-08	2.88E-08	2.88E-08	2.88E-08	2.88E-08	2.88E-08	2.88E-08	9.60E-08	9.60E-08	1.92E-08	1.92E-08	1.92E-08	9.60E-09	9.60E-09	9.60E-09	0.00E+00
Offsite Total (metric tons/day)	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.08E-07**	**1.75E-07**	**1.75E-07**	**9.82E-08**	**9.82E-08**	**9.82E-08**	**8.86E-08**	**8.86E-08**	**8.86E-08**	**3.16E-08**
Vehicle Type	**N_2O Emissions (metric tons/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	1.74E-06	6.95E-07
Offsite Dump Truck	6.34E-07	6.34E-07	6.34E-07	6.34E-07	6.34E-07	6.34E-07	6.34E-07	6.34E-07	2.11E-06	2.11E-06	4.22E-07	4.22E-07	4.22E-07	2.11E-07	2.11E-07	2.11E-07	0.00E+00
Offsite Total (metric tons/month)	**2.37E-06**	**2.37E-06**	**2.37E-06**	**2.37E-06**	**2.37E-06**	**2.37E-06**	**2.37E-06**	**2.37E-06**	**3.85E-06**	**3.85E-06**	**2.16E-06**	**2.16E-06**	**2.16E-06**	**1.95E-06**	**1.95E-06**	**1.95E-06**	**6.95E-07**
Offsite Project Total (metric tons)	**3.97E-05**																

Offsite Vehicle Exhaust Emissions
Lightspeed SJC02
November 2019

Offsite Vehicle Exhaust CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CH_4 Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Pick-up Truck	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	6.40E-08	2.56E-08
Offsite Dump Truck	3.06E-08	3.06E-08	3.06E-08	3.06E-08	3.06E-08	3.06E-08	3.06E-08	3.06E-08	1.02E-07	1.02E-07	2.04E-08	2.04E-08	2.04E-08	1.02E-08	1.02E-08	1.02E-08	0.00E+00
Offsite Total (metric tons/day)	**1.59E-06**	**1.50E-06**	**1.40E-06**	**1.31E-06**	**1.21E-06**	**1.12E-06**	**1.02E-06**	**9.28E-07**	**8.33E-07**	**6.67E-07**	**5.01E-07**	**4.17E-07**	**3.33E-07**	**2.48E-07**	**1.74E-07**	**9.98E-08**	**2.56E-08**
Vehicle Type	**CH_4 Emissions (metric tons/month) [a]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Pick-up Truck	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	1.41E-06	5.63E-07
Offsite Dump Truck	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	6.73E-07	2.24E-06	2.24E-06	4.49E-07	4.49E-07	4.49E-07	2.24E-07	2.24E-07	2.24E-07	0.00E+00
Offsite Total (metric tons/month)	**2.08E-06**	**2.08E-06**	**2.08E-06**	**2.08E-06**	**2.08E-06**	**2.08E-06**	**2.08E-06**	**2.08E-06**	**3.65E-06**	**3.65E-06**	**1.86E-06**	**1.86E-06**	**1.86E-06**	**1.63E-06**	**1.63E-06**	**1.63E-06**	**5.63E-07**
Offsite Project Total (metric tons)	**3.50E-05**																

Notes:
[a] The days per month for construction in the data above was provided by the Applicant's engineering contractor.
[b] PM_{10} and $PM_{2.5}$ Emissions include emissions from exhaust and tire and brake wear.

Appendix 3.3-A, Table 10R
Offsite Vehicle Idling Emissions
Lightspeed SJC02
Revised September 2020

Offsite Vehicle Idling CO Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Offsite Total (lb/day)	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.06**	**0.06**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
Vehicle Type	**CO Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	1.27	1.29	0.26	0.26	0.26	0.13	0.13	0.13	0.00
Offsite Total (lb/month)	**0.38**	**0.38**	**0.38**	**0.38**	**0.38**	**0.38**	**0.38**	**0.38**	**1.27**	**1.29**	**0.26**	**0.26**	**0.26**	**0.13**	**0.13**	**0.13**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type	VOC Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**VOC Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.10	0.10	0.02	0.02	0.02	0.01	0.01	0.01	0.00
Offsite Total (lb/month)	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.10**	**0.10**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	SO_X Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**SO_X Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	NO_X Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.06	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Offsite Total (lb/day)	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.06**	**0.06**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
Vehicle Type	**NO_X Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	1.41	1.36	0.27	0.27	0.27	0.14	0.14	0.14	0.00
Offsite Total (lb/month)	**0.42**	**0.42**	**0.42**	**0.42**	**0.42**	**0.42**	**0.42**	**0.42**	**1.41**	**1.36**	**0.27**	**0.27**	**0.27**	**0.14**	**0.14**	**0.14**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling Emissions
Lightspeed SJC02
Revised September 2020

Offsite Vehicle Idling PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type	PM_{10} Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**PM_{10} Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type	$PM_{2.5}$ Emissions (lb/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**$PM_{2.5}$ Emissions (lb/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Offsite Project Total (tons)	**0.00**																

Offsite Vehicle Idling CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO_2 Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (metric tons/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type	**CO_2 Emissions (metric tons/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.11	0.11	0.02	0.02	0.02	0.01	0.01	0.01	0.00
Offsite Total (metric tons/month)	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.11**	**0.11**	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.00**
Offsite Project Total (metric tons)	**0.59**																

Offsite Vehicle Idling CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CH_4 Emissions (metric tons/day)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	2.80E-08	2.80E-08	2.80E-08	2.80E-08	2.80E-08	2.80E-08	2.80E-08	2.80E-08	9.33E-08	9.27E-08	1.85E-08	1.85E-08	1.85E-08	9.27E-09	9.27E-09	9.27E-09	0.00E+00
Offsite Total (metric tons/day)	**2.80E-08**	**2.80E-08**	**2.80E-08**	**2.80E-08**	**2.80E-08**	**2.80E-08**	**2.80E-08**	**2.80E-08**	**9.33E-08**	**9.27E-08**	**1.85E-08**	**1.85E-08**	**1.85E-08**	**9.27E-09**	**9.27E-09**	**9.27E-09**	**0.00E+00**
Vehicle Type	**CH_4 Emissions (metric tons/month) [b]**																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Offsite Dump Truck [a]	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07	6.16E-07	2.05E-06	2.04E-06	4.08E-07	4.08E-07	4.08E-07	2.04E-07	2.04E-07	2.04E-07	0.00E+00
Offsite Total (metric tons/month)	**6.16E-07**	**6.16E-07**	**6.16E-07**	**6.16E-07**	**6.16E-07**	**6.16E-07**	**6.16E-07**	**6.16E-07**	**2.05E-06**	**2.04E-06**	**4.08E-07**	**4.08E-07**	**4.08E-07**	**2.04E-07**	**2.04E-07**	**2.04E-07**	**0.00E+00**
Offsite Project Total (metric tons)	**1.09E-05**																

Notes:
[a] It is estimated that each Offsite dump truck idles for approximately 5 minutes each day, or: 0.083 idle-hrs/day.
[b] The days per month for construction in the data above was provided by the Applicant's engineering contractor, as presented in Appendix 3.3-A, Table 11R.

Appendix 3.3-A, Table 11R
Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
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Grading and Truck Dumping/Loading Activity Levels for Lightspeed SJC02 Construction

Source	Monthly Activity Levels																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Graded Area (acres) [a]	0	0	0	11	11	11	11	11	11	0	0	0	0	0	0	0	0
Soil Imported/Exported (cubic yards) [b]	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	19,333	0	0
Graded Area (acres) for Reconductoring [c]	0	0.2	0.2	0	0.2	0	0	0	0	0	0.2	0	0.2	0.2	0	0	0

Notes:
[a] Estimated the entire site to be graded due to the need for laydown/storage; assumed this disturbance was equally distributed amongst the months in which graders are utilized.
[b] Soil Imported/Exported provided by the Applicant's engineering contractor. Assumed the imports/exports and associated loading/dumping activity are equally distributed amongst the months in which front end loaders are utilized either onsite or offsite.
[c] Up to 12 pull sites (each measuring 40 x 100 feet) used during reconductoring activities may require grading. Assumed the disturbance was equally distributed amongst the months in which mowers/graders are utilized. Also assumed that helicopter landing/takeoff and laydown/parking areas will utilize areas which are already graveled or paved, such that additional grading will not be required.

Demolition Activity Levels

Source	Monthly Activity Levels																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Debris Generated from Mechanical Dismemberment (tons) [a]	2,938.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes:
[a] Debris generated from demolition of existing buildings was estimated based on information provided by the Applicant's engineering contractor. A building, barn, two houses, and a garage are anticipated to be demolished during the first month of the construction time frame. Only materials generated from demolition that may generate fugitive dust were included. The demolition quantities were determined as follows:

	Volume of Building Based on Dimensions		**Estimated Building Waste Volume***		**Estimated Weight of Demolition Debris***	
Rust Colored Building	84,150	cubic feet	21,038	cubic feet	389.19	tons
Barn	448,950	cubic feet	112,238	cubic feet	2076.39	tons
House 1	28,080	cubic feet	7,020	cubic feet	129.87	tons
House 2	62,500	cubic feet	15,625	cubic feet	289.06	tons
Garage	11,760	cubic feet	2,940	cubic feet	54.39	tons
Total	635,440	cubic feet	158,860	cubic feet	2,939	tons

* Estimated building waste volume and weight of demolition debris using the following conversion factors, as presented in Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017):

1 cubic foot of Building Volume =	0.25	cubic feet of Building Waste Volume
1 cubic yard of Building Waste Volume =	0.5	ton of Building Waste Weight

Onsite Vehicle Fugitive PM_{10} Emissions from Unpaved Roads During Lightspeed SJC02 Construction

Vehicle Type	Fugitive PM_{10} Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	7.03	3.52
Onsite Dump Truck	87.89	87.89	87.89	87.89	10.55	7.03	7.03	7.03	7.03	7.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**94.92**	**94.92**	**94.92**	**94.92**	**17.58**	**14.06**	**14.06**	**14.06**	**14.06**	**14.06**	**7.03**	**7.03**	**7.03**	**7.03**	**7.03**	**7.03**	**3.52**
Vehicle Type	**Fugitive PM_{10} Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	154.69	77.35
Onsite Dump Truck	1,933.65	1,933.65	1,933.65	1,933.65	232.04	154.69	154.69	154.69	154.69	154.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**2,088.34**	**2,088.34**	**2,088.34**	**2,088.34**	**386.73**	**309.38**	**309.38**	**309.38**	**309.38**	**309.38**	**154.69**	**154.69**	**154.69**	**154.69**	**154.69**	**154.69**	**77.35**
Onsite Project Total (tons)	**5.65**																

Notes:
[a] Emissions based on the controlled unpaved road emission factor for PM_{10}.

Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
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Onsite Vehicle Fugitive $PM_{2.5}$ Emissions from Unpaved Roads During Lightspeed SJC02 Construction

Vehicle Type	Fugitive $PM_{2.5}$ Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.35
Onsite Dump Truck	8.79	8.79	8.79	8.79	1.05	0.70	0.70	0.70	0.70	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/day)	**9.49**	**9.49**	**9.49**	**9.49**	**1.76**	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**0.70**	**0.70**	**0.70**	**0.70**	**0.70**	**0.70**	**0.35**
Vehicle Type	**Fugitive $PM_{2.5}$ Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onsite Pick-up Truck	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	15.47	7.73
Onsite Dump Truck	193.36	193.36	193.36	193.36	23.20	15.47	15.47	15.47	15.47	15.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lb/month)	**208.83**	**208.83**	**208.83**	**208.83**	**38.67**	**30.94**	**30.94**	**30.94**	**30.94**	**30.94**	**15.47**	**15.47**	**15.47**	**15.47**	**15.47**	**15.47**	**7.73**
Onsite Project Total (tons)	**0.56**																

Notes:
[a] Emissions based on the controlled unpaved road emission factor for $PM_{2.5}$.

Offsite Vehicle Fugitive PM_{10} Emissions from Unpaved Roads During Lightspeed SJC02 Construction

Vehicle Type	Fugitive PM_{10} Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	8.79	3.52
Offsite Dump Truck	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.27	17.58	17.58	3.52	3.52	3.52	1.76	1.76	1.76	0.00
Onsite Total (lb/day)	**14.06**	**14.06**	**14.06**	**14.06**	**14.06**	**14.06**	**14.06**	**14.06**	**26.37**	**26.37**	**12.31**	**12.31**	**12.31**	**10.55**	**10.55**	**10.55**	**3.52**
Vehicle Type	**Fugitive PM_{10} Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	193.36	77.35
Offsite Dump Truck	116.02	116.02	116.02	116.02	116.02	116.02	116.02	116.02	386.73	386.73	77.35	77.35	77.35	38.67	38.67	38.67	0.00
Onsite Total (lb/month)	**309.38**	**309.38**	**309.38**	**309.38**	**309.38**	**309.38**	**309.38**	**309.38**	**580.09**	**580.09**	**270.71**	**270.71**	**270.71**	**232.04**	**232.04**	**232.04**	**77.35**
Onsite Project Total (tons)	**2.61**																

Notes:
[a] Emissions based on the controlled unpaved road emission factor for PM_{10}.

Offsite Vehicle Fugitive $PM_{2.5}$ Emissions from Unpaved Roads During Lightspeed SJC02 Construction

Vehicle Type	Fugitive $PM_{2.5}$ Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.35
Offsite Dump Truck	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	1.76	1.76	0.35	0.35	0.35	0.18	0.18	0.18	0.00
Onsite Total (lb/day)	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**1.41**	**2.64**	**2.64**	**1.23**	**1.23**	**1.23**	**1.05**	**1.05**	**1.05**	**0.35**
Vehicle Type	**Fugitive $PM_{2.5}$ Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Offsite Pick-up Truck	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	19.34	7.73
Offsite Dump Truck	11.60	11.60	11.60	11.60	11.60	11.60	11.60	11.60	38.67	38.67	7.73	7.73	7.73	3.87	3.87	3.87	0.00
Onsite Total (lb/month)	**30.94**	**30.94**	**30.94**	**30.94**	**30.94**	**30.94**	**30.94**	**30.94**	**58.01**	**58.01**	**27.07**	**27.07**	**27.07**	**23.20**	**23.20**	**23.20**	**7.73**
Onsite Project Total (tons)	**0.26**																

Notes:
[a] Emissions based on the controlled unpaved road emission factor for $PM_{2.5}$.

Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
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Onsite Grading and Truck Dumping/Loading Fugitive PM_{10} Emissions from Lightspeed SJC02 Construction

Construction Activity	Fugitive PM_{10} Emissions (lb/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading [c]	0.00	0.00	0.00	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Dumping/Loading [d, e]	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00
Onsite Total (lb/day)	**0.04**	**0.04**	**0.04**	**0.29**	**0.29**	**0.29**	**0.29**	**0.29**	**0.29**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.00**	**0.00**
Construction Activity	**Fugitive PM_{10} Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading	0.00	0.00	0.00	5.40	5.40	5.40	5.40	5.40	5.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Dumping/Loading	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.00	0.00
Onsite Total (lb/month)	**0.98**	**0.98**	**0.98**	**6.38**	**6.38**	**6.38**	**6.38**	**6.38**	**6.38**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**	**0.98**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.02**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for PM_{10}.
[c] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following blade width was assumed for grading equipment: 12 ft
[d] Assume that soil is dumped from or loaded to the truck the same month it is imported or exported, respectively.
[e] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following conversion factor was used: 1.26 tons/cubic yard

Onsite Grading and Truck Dumping/Loading Fugitive $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Construction Activity	Fugitive $PM_{2.5}$ Emissions (lb/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading [c]	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Dumping/Loading [d, e]	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Onsite Total (lb/day)	**0.01**	**0.01**	**0.01**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**	**0.00**
Construction Activity	**Fugitive $PM_{2.5}$ Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading	0.00	0.00	0.00	0.58	0.58	0.58	0.58	0.58	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Truck Dumping/Loading	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.00	0.00
Onsite Total (lb/month)	**0.15**	**0.15**	**0.15**	**0.73**	**0.73**	**0.73**	**0.73**	**0.73**	**0.73**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.15**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for $PM_{2.5}$.
[c] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following blade width was assumed for grading equipment: 12 ft
[d] Assume that soil is dumped from or loaded to the truck the same month it is imported or exported, respectively.
[e] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following conversion factor was used: 1.26 tons/cubic yard

Offsite Grading Fugitive PM_{10} Emissions from Lightspeed SJC02 Construction

Construction Activity	Fugitive PM_{10} Emissions (lb/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading for Reconductoring [c]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Construction Activity	**Fugitive PM_{10} Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading for Reconductoring	0.00	0.09	0.09	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.09	0.00	0.00	0.00
Offsite Total (lb/month)	**0.00**	**0.09**	**0.09**	**0.00**	**0.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.09**	**0.00**	**0.09**	**0.09**	**0.00**	**0.00**	**0.00**
Offsite Project Total (tons)	**0.00**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for PM_{10}.
[c] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following blade width was assumed for grading equipment: 12 ft

Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
Revised September 2020

Offsite Grading Fugitive $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Construction Activity	Fugitive $PM_{2.5}$ Emissions (lb/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading for Reconductoring [c]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Construction Activity	**Fugitive $PM_{2.5}$ Emissions (lb/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Grading for Reconductoring	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.00
Offsite Total (lb/month)	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**0.00**	**0.00**
Offsite Project Total (tons)	**0.00**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for $PM_{2.5}$.
[c] Per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017), the following blade width was assumed for grading equipment: 12 ft

Onsite Demolition Fugitive PM_{10} Emissions from Lightspeed SJC02 Construction

Demolition Activity	Fugitive PM_{10} Emissions (lbs/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Dismemberment	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading [c]	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	**1.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Demolition Activity	**Fugitive PM_{10} Emissions (lbs/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Dismemberment	1.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading [c]	26.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	**28.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.01**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for PM_{10}.
[c] Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Onsite Demolition Fugitive $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Demolition Activity	Fugitive $PM_{2.5}$ Emissions (lbs/day) [a, b]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Dismemberment	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading [c]	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/day)	**0.19**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Demolition Activity	**Fugitive $PM_{2.5}$ Emissions (lbs/month) [a, b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Dismemberment	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debris Loading [c]	4.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onsite Total (lbs/month)	**4.29**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Onsite Project Total (tons)	**0.00**																

Notes:
[a] Work days per month are as follows, provided by the Applicant's engineering contractor: 22
[b] Emissions based on the controlled emission factor for $PM_{2.5}$.
[c] Assume that all debris generated per month from dismemberment is loaded in the same month that it is generated.

Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
Revised September 2020

Construction Vehicle Activity for Lightspeed SJC02 Construction

Vehicle Type	Onsite Miles/Day [a]	Offsite Miles/Day [a]	Working Days per
Pick-up Truck	4	2	22
Dump Truck	4	2	22

Notes:

[a] Estimated based on the dimensions of the project site and anticipated activity onsite and offsite.

[b] Work days per month provided by the Applicant's engineering contractor.

Fugitive Dust Emission Factors for Unpaved Roads
Vehicles on Unpaved Surfaces at Industrial Sites

Parameter	PM_{10}	$PM_{2.5}$
Mean Vehicle Weight [a]	16.5	16.5
Silt Content [b]	8.5	8.5
k [c]	1.5	0.15
a [c]	0.9	0.9
b [c]	0.45	0.45
P [d]	64	64
Emission Factor (Uncontrolled, lb/mile) [e]	1.95	0.20
Reduction from Watering Twice Daily [f]	55%	55%
Emission Factor (Controlled, lb/mile)	0.88	0.09

Notes:

[a] Mean vehicle weight assumes that medium/heavy duty trucks weigh 16.5 tons.

[b] Silt content taken from Table 13.2.2-1 of Section 13.2.2 of *AP-42* (EPA, 2006) for a Construction Site, Scraper Route; this value is consistent with the CalEEMod default for the San Francisco Bay Area Air Basin.

[c] k, a, and b taken from Table 13.2.2-2 of Section 13.2.2 of *AP-42* (EPA, 2006) for industrial roads.

[d] P taken as the CalEEMod default for the Santa Clara climate region of the San Francisco Bay Area Air Basin.

[e] Emission factor calculated using Equations 1a and 2 from Section 13.2.2 of *AP-42* (EPA, 2006):

Emission Factor (lb/mile) = $\{k \text{ (lb/mile)} \times [\text{Silt Content (\%)} / 12]^{a} \times [\text{Mean Vehicle Weight (tons)} / 3]^{b}\} \times [(365 - P) / 365]$

[f] Control efficiency taken from Table XI-D of the *SCAQMD CEQA Handbook* for Travel Over Unpaved Roads (SCAQMD, 2007), based on the basic construction mitigation measures recommended by BAAQMD (BAAQMD, 2017).

Fugitive Dust Emission Factors for Truck Dumping/Loading
Truck Dumping on a Pile or Loading to a Truck from a Pile

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
U [b]	4.9	4.9
M [a]	12.0	12.0
Emission Factor (lb/ton) [c]	0.0001	0.00001
Reduction from Watering Twice Daily [d]	55%	55%
Emission Factor (Controlled, lb/ton)	0.00004	0.000006

Notes:

[a] k and M taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

[b] U taken as the CalEEMod default for the Santa Clara climate region of the San Francisco Bay Area Air Basin. Value converted from units of m/s to mph.

[c] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017):

Emission Factor (lb/ton) = $k \times 0.0032 \times [U \text{ (mph)} / 5]^{1.3} / [M \text{ (\%)} / 2]^{1.4}$

[d] Control efficiency based on watering twice daily, for consistency with the treatment of unpaved roads.

Emissions from Fugitive Dust and Other Offroad Activities
Lightspeed SJC02
Revised September 2020

Fugitive Dust Emission Factors for Grading
Grading Equipment Passes

Parameter	PM_{10}	$PM_{2.5}$
S [a]	7.1	7.1
F [a]	0.6	0.031
Emission Factor (lb/VMT) [b]	1.543	0.167
Reduction from Watering Twice Daily [c]	55%	55%
Emission Factor (Controlled, lb/VMT)	0.694	0.075

Notes:
[a] S and F taken from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
[b] Emission factor calculated using the following equation from Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017):
PM_{10} Emission Factor (lb/VMT) = $0.051 \times [S\ (mph)]^{2.0} \times F_{PM10}$
$PM_{2.5}$ Emission Factor (lb/VMT) = $0.04 \times [S\ (mph)]^{2.5} \times F_{PM2.5}$
[c] Control efficiency based on watering twice daily, for consistency with the treatment of unpaved roads.

Fugitive Dust Emission Factors for Dismemberment
Dismemberment and Collapse of Structures

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
U (mph) [b]	4.9	4.9
M (%) [c]	2.0	2.0
Emission Factor (lbs/ton) [d]	0.00110	0.00017
Reduction from Watering Twice Daily [e]	55%	55%
Emission Factor (Controlled, lbs/ton)	0.00049	0.00007

Notes:
[a] k, the particle size multiplier, taken from Section 13.2.4.3 of *AP-42* (EPA, 2006) per Section 4.4 of Appendix A of the *CalEEMod User's Guide (* BREEZE, 2017).
[b] U, the mean wind speed, taken as the CalEEMod default for the Santa Clara climate region of the San Francisco Bay Area Air Basin. Converted from meters/second (m/s) to miles per hour (mph).
[c] M, the material moisture content, taken from Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
[d] Emission factor calculated using the following equation from Section 13.2.4.3 of *AP-42* (EPA, 2006) per Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017):
Emission Factor (lbs/ton) = $k \times 0.0032 \times [U / 5]^{1.3} / [M / 2]^{1.4}$
[e] Control efficiency based on watering twice daily, for consistency with the treatment of unpaved roads.

Fugitive Dust Emission Factors for Debris Loading
Loading of Debris/Building Waste

Parameter	PM_{10}	$PM_{2.5}$
k [a]	0.35	0.053
EF_{L-TSP} [b]	0.058	0.058
Emission Factor (lbs/ton) [c]	0.020	0.003
Reduction from Watering Twice Daily [d]	55%	55%
Emission Factor (Controlled, lbs/ton)	0.009	0.001

Notes:
[a] k taken from Section 13.2.4.3 of *AP-42* (EPA, 2006) per Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
[b] EF_{L-TSP} taken from Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
[c] Emission factor calculated using the following equation from Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017):
Emission Factor (lbs/ton) = $k \times EF_{L-TSP}$ (lbs/ton)
[d] Control efficiency based on watering twice daily, for consistency with the treatment of unpaved roads.

Appendix 3.3-A, Table 12
Onsite Paving Emissions
Lightspeed SJC02
November 2019

Paving VOC Emissions from Lightspeed SJC02 Construction

Paving Area	VOC Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Paved Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.24	0.24	0.24	0.24	0.24
Onsite Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.24**	**0.24**	**0.24**	**0.24**	**0.24**	**0.24**
Paving Area	**VOC Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Paved Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.36	5.36	5.36	5.36	5.36	5.36
Onsite Total (lb/month)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**5.36**	**5.36**	**5.36**	**5.36**	**5.36**	**5.36**
Onsite Project Total (tons)	**0.02**																

Notes:

[a] Assumed paving activities occur during only the last six months of construction.

Paving Emission Variables

Parameter	Value
Total Paved Area (acres) [a]	12.3
Working Days per Month [b]	22
Emission Factor (lb/acre) [c]	2.6

Notes:

[a] Total paved area estimated to include parking spaces, outdoor equipment areas, and the substation, for a total area of 535,000 square feet.
[b] Working days per month were provided by the Applicant's engineering contractor.
[c] Emission factor is per Section 4.8 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

Appendix 3.3-A, Table 13R
Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Usage During Lightspeed SJC02 Construction

Vehicle Type	Number per Day																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks [a, d]	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	120	120
Onroad Material Hauling Trucks [b, d]	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	0	0
Construction Worker Commute [c]	56	56	58	62	120	129	135	138	154	194	261	275	280	283	223	166	57
Dump Truck for Reconductoring [e]	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	0
Pick-up Truck for Reconductoring [e]	1	1	5	10	10	15	15	15	10	10	10	10	8	5	0	0	0
Construction Worker Commute for Reconductoring [c]	3	3	12	28	28	43	53	43	27	27	27	26	16	11	0	0	0

Notes:

[a] Onroad Delivery Trucks include information provided by the Applicant's engineering contractor, and exclude material haul trucks separately reported. Concrete truck trips are assumed to be included in this estimate.

[b] Material Hauling Trucks include data from the Applicant's engineering contractor. A net volume of 15 cubic yards per tandum dump truck results in 7,333 total trips for soil imports/exports. Truck trips limited to the months in which soil imports/exports are expected to be handled onsite, as presented in Appendix 3.3-A, Table 11.

[c] Assumed 1 commute per 1 worker; number of workers traveling to both onsite and offsite locations provided by the Applicant's engineering contractor as Total Staffing each month.

[d] Assumed deliveries, material hauling, reconductoring dump truck trips, and reconductoring crew transport trips (via pick-up trucks) would occur 22 days per month based on information from the Applicant's engineering contractor.

[e] Dump Trucks and Pick-up Trucks used for reconductoring activities were assumed to be onroad vehicles as the offsite work sites will be small and largely located in areas that are already paved or graveled. The dump trucks will be primarily used for hauling materials to recycling centers, and the pick-up trucks will be used to transport crews between pull sites.

Onroad Vehicle Exhaust CO Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.52	1.25	1.25	1.25	1.25	1.25	1.25	1.54	1.54
Material Hauling Trucks	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.77	0.77	0.77	0.77	0.77	0.77	0.00	0.00
Construction Worker Commute	2.57	2.57	2.66	2.85	5.51	5.92	6.20	6.33	7.07	8.02	10.79	11.37	11.58	11.70	9.22	6.86	2.36
Dump Truck for Reconductoring	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.05	0.05	0.23	0.45	0.45	0.68	0.68	0.68	0.45	0.41	0.41	0.41	0.32	0.20	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.14	0.14	0.55	1.29	1.29	1.97	2.43	1.97	1.24	1.12	1.12	1.07	0.66	0.45	0.00	0.00	0.00
Onroad Total (lb/day)	**5.20**	**5.20**	**5.89**	**7.07**	**9.73**	**11.06**	**11.79**	**11.47**	**11.25**	**11.59**	**14.36**	**14.90**	**14.61**	**14.41**	**11.24**	**8.40**	**3.89**

Vehicle Type	CO Emissions (lb/month)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	33.48	33.48	33.48	33.48	33.48	33.48	33.48	33.48	33.48	27.54	27.54	27.54	27.54	27.54	27.54	33.80	33.80
Material Hauling Trucks	20.37	20.37	20.37	20.37	20.37	20.37	20.37	20.37	20.37	16.85	16.85	16.85	16.85	16.85	16.85	0.00	0.00
Construction Worker Commute	56.54	56.54	58.56	62.60	121.16	130.25	136.30	139.33	155.49	176.44	237.38	250.11	254.66	257.39	202.82	150.98	51.84
Dump Truck for Reconductoring	0.00	0.00	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.76	0.76	0.76	0.76	0.76	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.99	0.99	4.96	9.92	9.92	14.88	14.88	14.88	9.92	8.92	8.92	8.92	7.14	4.46	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	3.03	3.03	12.12	28.27	28.27	43.42	53.51	43.42	27.26	24.56	24.56	23.65	14.55	10.00	0.00	0.00	0.00
Onroad Total (lb/month)	**114.41**	**114.41**	**129.48**	**155.56**	**214.12**	**243.31**	**259.46**	**252.40**	**247.43**	**255.06**	**316.00**	**327.82**	**321.49**	**316.99**	**247.20**	**184.77**	**85.64**
Onroad Project Total (tons)	**1.89**																

Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Exhaust VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type	VOC Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.31	0.31	0.31	0.31	0.31	0.31	0.38	0.38
Material Hauling Trucks	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.18	0.18	0.18	0.18	0.18	0.18	0.00	0.00
Construction Worker Commute	0.04	0.04	0.04	0.05	0.09	0.10	0.10	0.10	0.12	0.12	0.17	0.18	0.18	0.18	0.14	0.11	0.04
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.00	0.00	0.01	0.02	0.02	0.03	0.04	0.03	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.00	0.00
Onroad Total (lb/day)	**0.65**	**0.65**	**0.66**	**0.69**	**0.73**	**0.76**	**0.77**	**0.76**	**0.76**	**0.64**	**0.68**	**0.69**	**0.69**	**0.69**	**0.63**	**0.49**	**0.42**
Vehicle Type	**VOC Emissions (lb/month)**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	8.47	8.47	8.47	8.47	8.47	8.47	8.47	8.47	8.47	6.82	6.82	6.82	6.82	6.82	6.82	8.38	8.38
Material Hauling Trucks	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	4.83	3.87	3.87	3.87	3.87	3.87	3.87	0.00	0.00
Construction Worker Commute	0.92	0.92	0.95	1.02	1.97	2.12	2.22	2.27	2.53	2.72	3.67	3.86	3.93	3.97	3.13	2.33	0.80
Dump Truck for Reconductoring	0.00	0.00	0.00	0.22	0.22	0.22	0.22	0.22	0.22	0.17	0.17	0.17	0.17	0.17	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.02	0.02	0.09	0.18	0.18	0.26	0.26	0.26	0.18	0.15	0.15	0.15	0.12	0.08	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.05	0.05	0.20	0.46	0.46	0.71	0.87	0.71	0.44	0.38	0.38	0.37	0.22	0.15	0.00	0.00	0.00
Onroad Total (lb/month)	**14.29**	**14.29**	**14.54**	**15.17**	**16.13**	**16.61**	**16.87**	**16.76**	**16.67**	**14.12**	**15.06**	**15.25**	**15.15**	**15.07**	**13.82**	**10.71**	**9.18**
Onroad Project Total (tons)	**0.12**																

Onroad Vehicle Exhaust SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	SO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Material Hauling Trucks	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.00	0.00
Construction Worker Commute	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.04	0.03	0.02	0.01
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/day)	**0.07**	**0.07**	**0.07**	**0.07**	**0.08**	**0.08**	**0.09**	**0.09**	**0.09**	**0.09**	**0.10**	**0.10**	**0.10**	**0.10**	**0.09**	**0.06**	**0.05**
Vehicle Type	**SO_X Emissions (lb/month)**																
	1.00	**2.00**	**3.00**	**4.00**	**5.00**	**6.00**	**7.00**	**8.00**	**9.00**	**10.00**	**11.00**	**12.00**	**13.00**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.73	0.73	0.73	0.73	0.73	0.73	0.90	0.90
Material Hauling Trucks	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.55	0.55	0.55	0.55	0.55	0.55	0.00	0.00
Construction Worker Commute	0.16	0.16	0.16	0.17	0.34	0.36	0.38	0.39	0.43	0.53	0.72	0.75	0.77	0.78	0.61	0.46	0.16
Dump Truck for Reconductoring	0.00	0.00	0.00	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.00	0.00	0.01	0.03	0.03	0.04	0.04	0.04	0.03	0.02	0.02	0.02	0.02	0.01	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.01	0.01	0.03	0.08	0.08	0.12	0.15	0.12	0.08	0.07	0.07	0.07	0.04	0.03	0.00	0.00	0.00
Onroad Total (lb/month)	**1.48**	**1.48**	**1.52**	**1.62**	**1.78**	**1.86**	**1.91**	**1.89**	**1.88**	**1.94**	**2.12**	**2.15**	**2.14**	**2.12**	**1.89**	**1.36**	**1.06**
Onroad Project Total (tons)	**0.02**																

Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Exhaust NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type	NO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	10.47	10.47	10.47	10.47	10.47	10.47	10.47	10.47	10.47	8.96	8.96	8.96	8.96	8.96	8.96	10.99	10.99
Material Hauling Trucks	7.34	7.34	7.34	7.34	7.34	7.34	7.34	7.34	7.34	6.42	6.42	6.42	6.42	6.42	6.42	0.00	0.00
Construction Worker Commute	0.19	0.19	0.20	0.21	0.42	0.45	0.47	0.48	0.53	0.58	0.78	0.82	0.84	0.84	0.67	0.50	0.17
Dump Truck for Reconductoring	0.00	0.00	0.00	0.33	0.33	0.33	0.33	0.33	0.33	0.29	0.29	0.29	0.29	0.29	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.00	0.00	0.02	0.04	0.04	0.06	0.06	0.06	0.04	0.03	0.03	0.03	0.03	0.02	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.01	0.01	0.04	0.10	0.10	0.15	0.18	0.15	0.09	0.08	0.08	0.08	0.05	0.03	0.00	0.00	0.00
Onroad Total (lb/day)	**18.02**	**18.02**	**18.07**	**18.49**	**18.69**	**18.79**	**18.85**	**18.83**	**18.81**	**16.36**	**16.56**	**16.60**	**16.58**	**16.57**	**16.05**	**11.49**	**11.16**
Vehicle Type	**NO_X Emissions (lb/month)**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	230.37	230.37	230.37	230.37	230.37	230.37	230.37	230.37	230.37	197.08	197.08	197.08	197.08	197.08	197.08	241.87	241.87
Material Hauling Trucks	161.49	161.49	161.49	161.49	161.49	161.49	161.49	161.49	161.49	141.34	141.34	141.34	141.34	141.34	141.34	0.00	0.00
Construction Worker Commute	4.27	4.27	4.42	4.73	9.15	9.83	10.29	10.52	11.74	12.74	17.14	18.06	18.39	18.58	14.64	10.90	3.74
Dump Truck for Reconductoring	0.00	0.00	0.00	7.27	7.27	7.27	7.27	7.27	7.27	6.36	6.36	6.36	6.36	6.36	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.08	0.08	0.42	0.84	0.84	1.26	1.26	1.26	0.84	0.73	0.73	0.73	0.58	0.36	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.23	0.23	0.91	2.13	2.13	3.28	4.04	3.28	2.06	1.77	1.77	1.71	1.05	0.72	0.00	0.00	0.00
Onroad Total (lb/month)	**396.43**	**396.43**	**397.61**	**406.82**	**411.24**	**413.49**	**414.71**	**414.18**	**413.76**	**360.02**	**364.42**	**365.27**	**364.80**	**364.45**	**353.06**	**252.77**	**245.61**
Onroad Project Total (tons)	**3.17**																

Onroad Vehicle Exhaust, Vehicle Wear, and Fugitive Dust PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type	PM_{10} Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.51	1.48	1.48	1.48	1.48	1.48	1.48	1.81	1.81
Material Hauling Trucks	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.85	0.85	0.85	0.85	0.85	0.85	0.00	0.00
Construction Worker Commute	0.92	0.92	0.96	1.02	1.98	2.13	2.23	2.28	2.54	3.20	4.31	4.54	4.62	4.67	3.68	2.74	0.94
Dump Truck for Reconductoring	0.00	0.00	0.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.01	0.01	0.07	0.13	0.13	0.20	0.20	0.20	0.13	0.13	0.13	0.13	0.11	0.07	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.05	0.05	0.20	0.46	0.46	0.71	0.87	0.71	0.45	0.45	0.45	0.43	0.26	0.18	0.00	0.00	0.00
Onroad Total (lb/day)	**3.37**	**3.37**	**3.61**	**4.04**	**5.00**	**5.46**	**5.73**	**5.61**	**5.55**	**6.15**	**7.26**	**7.47**	**7.36**	**7.29**	**6.01**	**4.55**	**2.76**
Vehicle Type	**PM_{10} Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	33.29	33.29	33.29	33.29	33.29	33.29	33.29	33.29	33.29	32.53	32.53	32.53	32.53	32.53	32.53	39.93	39.93
Material Hauling Trucks	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	19.17	18.80	18.80	18.80	18.80	18.80	18.80	0.00	0.00
Construction Worker Commute	20.34	20.34	21.07	22.52	43.58	46.85	49.03	50.12	55.93	70.44	94.77	99.85	101.66	102.75	80.97	60.27	20.70
Dump Truck for Reconductoring	0.00	0.00	0.00	0.86	0.86	0.86	0.86	0.86	0.86	0.85	0.85	0.85	0.85	0.85	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.29	0.29	1.47	2.95	2.95	4.42	4.42	4.42	2.95	2.95	2.95	2.95	2.36	1.47	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	1.09	1.09	4.36	10.17	10.17	15.62	19.25	15.62	9.81	9.80	9.80	9.44	5.81	3.99	0.00	0.00	0.00
Onroad Total (lb/month)	**74.18**	**74.18**	**79.36**	**88.96**	**110.02**	**120.21**	**126.02**	**123.48**	**122.01**	**135.37**	**159.70**	**164.42**	**162.01**	**160.40**	**132.30**	**100.20**	**60.62**
Onroad Project Total (tons)	**1.00**																

Notes:

[a] PM_{10} Emissions include emissions from exhaust, paved roads, and tire and brake wear.

Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Exhaust, Vehicle Wear, and Fugitive Dust $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type	$PM_{2.5}$ Emissions (lb/day) [a]																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.53	0.53	0.53	0.53	0.53	0.53	0.65	0.65
Material Hauling Trucks	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.29	0.29	0.29	0.29	0.29	0.29	0.00	0.00
Construction Worker Commute	0.25	0.25	0.26	0.28	0.54	0.58	0.61	0.62	0.69	0.87	1.17	1.23	1.26	1.27	1.00	0.74	0.26
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.00	0.00	0.02	0.04	0.04	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.03	0.02	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.01	0.01	0.05	0.13	0.13	0.19	0.24	0.19	0.12	0.12	0.12	0.12	0.07	0.05	0.00	0.00	0.00
Onroad Total (lb/day)	**1.14**	**1.14**	**1.20**	**1.32**	**1.58**	**1.71**	**1.78**	**1.75**	**1.73**	**1.86**	**2.16**	**2.22**	**2.19**	**2.17**	**1.82**	**1.40**	**0.91**
Vehicle Type	**$PM_{2.5}$ Emissions (lb/month) [a]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	11.74	11.74	11.74	11.74	11.74	11.74	14.40	14.40
Material Hauling Trucks	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.69	6.33	6.33	6.33	6.33	6.33	6.33	0.00	0.00
Construction Worker Commute	5.53	5.53	5.72	6.12	11.84	12.73	13.32	13.62	15.20	19.13	25.74	27.12	27.61	27.91	21.99	16.37	5.62
Dump Truck for Reconductoring	0.00	0.00	0.00	0.30	0.30	0.30	0.30	0.30	0.30	0.28	0.28	0.28	0.28	0.28	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.08	0.08	0.40	0.80	0.80	1.20	1.20	1.20	0.80	0.80	0.80	0.80	0.64	0.40	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.30	0.30	1.18	2.76	2.76	4.24	5.23	4.24	2.66	2.66	2.66	2.56	1.58	1.08	0.00	0.00	0.00
Onroad Total (lb/month)	**25.04**	**25.04**	**26.45**	**29.13**	**34.85**	**37.62**	**39.20**	**38.51**	**38.11**	**40.95**	**47.55**	**48.84**	**48.18**	**47.75**	**40.06**	**30.77**	**20.02**
Onroad Project Total (tons)	**0.31**																

Notes:
[a] $PM_{2.5}$ Emissions include emissions from exhaust, paved roads, and tire and brake wear.

Onroad Vehicle Exhaust CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CO_2 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.91	1.88	1.88	1.88	1.88	1.88	1.88	2.30	2.30
Material Hauling Trucks	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.47	1.45	1.45	1.45	1.45	1.45	1.45	0.00	0.00
Construction Worker Commute	0.38	0.38	0.39	0.42	0.82	0.88	0.92	0.94	1.05	1.28	1.73	1.82	1.85	1.87	1.48	1.10	0.38
Dump Truck for Reconductoring	0.00	0.00	0.00	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.01	0.01	0.03	0.06	0.06	0.09	0.09	0.09	0.06	0.06	0.06	0.06	0.05	0.03	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.02	0.02	0.08	0.19	0.19	0.29	0.36	0.29	0.18	0.18	0.18	0.17	0.11	0.07	0.00	0.00	0.00
Onroad Total (metric tons/day)	**3.79**	**3.79**	**3.89**	**4.12**	**4.52**	**4.71**	**4.82**	**4.77**	**4.74**	**4.91**	**5.36**	**5.44**	**5.40**	**5.37**	**4.80**	**3.40**	**2.68**
Vehicle Type	**CO_2 Emissions (metric tons/month)**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	42.04	42.04	42.04	42.04	42.04	42.04	42.04	42.04	42.04	41.27	41.27	41.27	41.27	41.27	41.27	50.65	50.65
Material Hauling Trucks	32.41	32.41	32.41	32.41	32.41	32.41	32.41	32.41	32.41	31.85	31.85	31.85	31.85	31.85	31.85	0.00	0.00
Construction Worker Commute	8.38	8.38	8.68	9.28	17.96	19.31	20.20	20.65	23.05	28.26	38.02	40.06	40.79	41.23	32.49	24.18	8.30
Dump Truck for Reconductoring	0.00	0.00	0.00	1.46	1.46	1.46	1.46	1.46	1.46	1.43	1.43	1.43	1.43	1.43	0.00	0.00	0.00
Pick-up Truck for Reconductoring	0.13	0.13	0.67	1.34	1.34	2.02	2.02	2.02	1.34	1.31	1.31	1.31	1.05	0.65	0.00	0.00	0.00
Construction Worker Commute for Reconductoring	0.45	0.45	1.80	4.19	4.19	6.44	7.93	6.44	4.04	3.93	3.93	3.79	2.33	1.60	0.00	0.00	0.00
Onroad Total (metric tons/month)	**83.41**	**83.41**	**85.59**	**90.72**	**99.40**	**103.66**	**106.06**	**105.01**	**104.34**	**108.06**	**117.82**	**119.71**	**118.72**	**118.04**	**105.61**	**74.84**	**58.96**
Onroad Project Total (metric tons)	**1,683.36**																

Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Exhaust N_2O Emissions from Lightspeed SJC02 Construction

Vehicle Type	N_2O Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	6.85E-06	8.41E-06	8.41E-06
Material Hauling Trucks	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	4.27E-06	0.00E+00	0.00E+00
Construction Worker Commute	2.21E-05	2.21E-05	2.29E-05	2.45E-05	4.74E-05	5.10E-05	5.34E-05	5.45E-05	6.09E-05	7.67E-05	1.03E-04	1.09E-04	1.11E-04	1.12E-04	8.81E-05	6.56E-05	2.25E-05
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	1.92E-07	0.00E+00	0.00E+00	0.00E+00
Pick-up Truck for Reconductoring	1.38E-07	1.38E-07	6.92E-07	1.38E-06	1.38E-06	2.08E-06	2.08E-06	2.08E-06	1.38E-06	1.38E-06	1.38E-06	1.38E-06	1.11E-06	6.92E-07	0.00E+00	0.00E+00	0.00E+00
Construction Worker Commute for Reconductoring	1.19E-06	1.19E-06	4.74E-06	1.11E-05	1.11E-05	1.70E-05	2.09E-05	1.70E-05	1.07E-05	1.07E-05	1.07E-05	1.03E-05	6.32E-06	4.35E-06	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/day)	**3.46E-05**	**3.46E-05**	**3.95E-05**	**4.83E-05**	**7.12E-05**	**8.14E-05**	**8.77E-05**	**8.49E-05**	**8.42E-05**	**1.00E-04**	**1.27E-04**	**1.32E-04**	**1.29E-04**	**1.28E-04**	**9.93E-05**	**7.40E-05**	**3.09E-05**
Vehicle Type	**N_2O Emissions (metric tons/month)**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.85E-04	1.85E-04
Material Hauling Trucks	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	9.39E-05	0.00E+00	0.00E+00
Construction Worker Commute	4.87E-04	4.87E-04	5.04E-04	5.39E-04	1.04E-03	1.12E-03	1.17E-03	1.20E-03	1.34E-03	1.69E-03	2.27E-03	2.39E-03	2.43E-03	2.46E-03	1.94E-03	1.44E-03	4.96E-04
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	4.22E-06	0.00E+00	0.00E+00	0.00E+00
Pick-up Truck for Reconductoring	3.04E-06	3.04E-06	1.52E-05	3.04E-05	3.04E-05	4.57E-05	4.57E-05	4.57E-05	3.04E-05	3.04E-05	3.04E-05	3.04E-05	2.44E-05	1.52E-05	0.00E+00	0.00E+00	0.00E+00
Construction Worker Commute for Reconductoring	2.61E-05	2.61E-05	1.04E-04	2.43E-04	2.43E-04	3.74E-04	4.61E-04	3.74E-04	2.35E-04	2.35E-04	2.35E-04	2.26E-04	1.39E-04	9.57E-05	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/month)	**7.61E-04**	**7.61E-04**	**8.69E-04**	**1.06E-03**	**1.57E-03**	**1.79E-03**	**1.93E-03**	**1.87E-03**	**1.85E-03**	**2.20E-03**	**2.78E-03**	**2.90E-03**	**2.85E-03**	**2.82E-03**	**2.18E-03**	**1.63E-03**	**6.81E-04**
Onroad Project Total (metric tons)	**3.05E-02**																

Onroad Vehicle Exhaust CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type	CH_4 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	7.28E-06	8.94E-06	8.94E-06
Material Hauling Trucks	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	0.00E+00	0.00E+00
Construction Worker Commute	7.74E-06	7.74E-06	8.02E-06	8.57E-06	1.66E-05	1.78E-05	1.87E-05	1.91E-05	2.13E-05	2.68E-05	3.61E-05	3.80E-05	3.87E-05	3.91E-05	3.08E-05	2.29E-05	7.88E-06
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	0.00E+00	0.00E+00	0.00E+00
Pick-up Truck for Reconductoring	1.12E-07	1.12E-07	5.61E-07	1.12E-06	1.12E-06	1.68E-06	1.68E-06	1.68E-06	1.12E-06	1.12E-06	1.12E-06	1.12E-06	8.97E-07	5.61E-07	0.00E+00	0.00E+00	0.00E+00
Construction Worker Commute for Reconductoring	4.15E-07	4.15E-07	1.66E-06	3.87E-06	3.87E-06	5.94E-06	7.33E-06	5.94E-06	3.73E-06	3.73E-06	3.73E-06	3.59E-06	2.21E-06	1.52E-06	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/day)	**2.01E-05**	**2.01E-05**	**2.21E-05**	**2.56E-05**	**3.36E-05**	**3.75E-05**	**3.97E-05**	**3.87E-05**	**3.82E-05**	**4.37E-05**	**5.30E-05**	**5.47E-05**	**5.38E-05**	**5.32E-05**	**4.26E-05**	**3.19E-05**	**1.68E-05**
Vehicle Type	**CH_4 Emissions (metric tons/month)**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.97E-04	1.97E-04
Material Hauling Trucks	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	0.00E+00	0.00E+00
Construction Worker Commute	1.70E-04	1.70E-04	1.76E-04	1.89E-04	3.65E-04	3.92E-04	4.11E-04	4.20E-04	4.68E-04	5.90E-04	7.94E-04	8.36E-04	8.52E-04	8.61E-04	6.78E-04	5.05E-04	1.73E-04
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	4.49E-06	0.00E+00	0.00E+00	0.00E+00
Pick-up Truck for Reconductoring	2.47E-06	2.47E-06	1.23E-05	2.47E-05	2.47E-05	3.70E-05	3.70E-05	3.70E-05	2.47E-05	2.47E-05	2.47E-05	2.47E-05	1.97E-05	1.23E-05	0.00E+00	0.00E+00	0.00E+00
Construction Worker Commute for Reconductoring	9.12E-06	9.12E-06	3.65E-05	8.52E-05	8.52E-05	1.31E-04	1.61E-04	1.31E-04	8.21E-05	8.21E-05	8.21E-05	7.91E-05	4.87E-05	3.35E-05	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/month)	**4.42E-04**	**4.42E-04**	**4.85E-04**	**5.63E-04**	**7.39E-04**	**8.24E-04**	**8.73E-04**	**8.52E-04**	**8.40E-04**	**9.61E-04**	**1.16E-03**	**1.20E-03**	**1.18E-03**	**1.17E-03**	**9.38E-04**	**7.01E-04**	**3.70E-04**
Onroad Project Total (metric tons)	**1.38E-02**																

Onroad Vehicle Exhaust Emissions
Lightspeed SJC02
Revised September 2020

Onroad Construction Vehicle Activity for Lightspeed SJC02 Construction

Vehicle Type	Roundtrip Miles/Day	Working Days per Month [a]
Onroad Delivery Trucks [b]	14.6	22
Material Hauling Trucks [c]	40.0	22
Construction Worker Commute [b]	21.6	22
Dump Truck for Reconductoring [c]	40.0	22
Pick-up Truck for Reconductoring [d]	17.5	22
Construction Worker Commute for Reconductoring [b]	21.6	22

Notes:

[a] The working days per month was provided by the Applicant's engineering contractor.

[b] Roundtrip miles/day for Onroad Delivery Trucks and Construction Worker Commute taken as the Urban, San Francisco Bay Area Air Basin C-NW and H-W values, respectively, from Table 4.2 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017).

[c] Roundtrip miles/day for Material Hauling Trucks and Reconductoring Dump Trucks taken as the default from Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017). The Reconductoring Dump Trucks were assumed to be best represented by Material Hauling Trucks.

[d] Reconductoring Pick-up Trucks were assumed to travel the entire length of the reconductored line (8.76 miles) twice per day.

Appendix 3.3-A, Table 14R
Onroad Vehicle Idling Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Idling CO Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	CO Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.46	0.46	0.46	0.46	0.46	0.46	0.56	0.56
Material Hauling Trucks	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Onroad Total (lb/day)	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.59**	**0.56**	**0.56**
Vehicle Type [a]	**CO Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	9.90	10.03	10.03	10.03	10.03	10.03	10.03	12.31	12.31
Material Hauling Trucks	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.82	2.86	2.86	2.86	2.86	2.86	2.86	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.00	0.00	0.00
Onroad Total (lb/month)	**12.72**	**12.72**	**12.72**	**12.85**	**12.85**	**12.85**	**12.85**	**12.85**	**12.85**	**13.03**	**13.03**	**13.03**	**13.03**	**13.03**	**12.90**	**12.31**	**12.31**
Onroad Project Total (tons)	**0.11**																

Onroad Vehicle Idling VOC Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	VOC Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Material Hauling Trucks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/day)	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**
Vehicle Type [a]	**VOC Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.65	0.65	0.65	0.65	0.65	0.65	0.80	0.80
Material Hauling Trucks	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Onroad Total (lb/month)	**0.89**	**0.89**	**0.89**	**0.90**	**0.90**	**0.90**	**0.90**	**0.90**	**0.90**	**0.88**	**0.88**	**0.88**	**0.88**	**0.88**	**0.87**	**0.80**	**0.80**
Onroad Project Total (tons)	**0.01**																

Onroad Vehicle Idling SO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	SO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type [a]	**SO_X Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Material Hauling Trucks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/month)	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**	**0.03**
Onroad Project Total (tons)	**0.00**																

Onroad Vehicle Idling Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Idling NO_X Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	NO_X Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.87	0.87	0.87	1.07	1.07
Material Hauling Trucks	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Onroad Total (lb/day)	**1.08**	**1.08**	**1.08**	**1.08**	**1.08**	**1.08**	**1.08**	**1.08**	**1.08**	**1.01**	**1.01**	**1.01**	**1.01**	**1.01**	**1.01**	**1.07**	**1.07**
Vehicle Type [a]	**NO_X Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	20.56	20.56	20.56	20.56	20.56	20.56	20.56	20.56	20.56	19.14	19.14	19.14	19.14	19.14	19.14	23.49	23.49
Material Hauling Trucks	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.12	3.02	3.02	3.02	3.02	3.02	3.02	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.00	0.00	0.00
Onroad Total (lb/month)	**23.69**	**23.69**	**23.69**	**23.83**	**23.83**	**23.83**	**23.83**	**23.83**	**23.83**	**22.30**	**22.30**	**22.30**	**22.30**	**22.30**	**22.16**	**23.49**	**23.49**
Onroad Project Total (tons)	**0.20**																

Onroad Vehicle Idling PM_{10} Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	PM_{10} Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type [a]	**PM_{10} Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
Material Hauling Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/month)	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**
Onroad Project Total (tons)	**0.00**																

Onroad Vehicle Idling $PM_{2.5}$ Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	$PM_{2.5}$ Emissions (lb/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Material Hauling Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/day)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Vehicle Type [a]	**$PM_{2.5}$ Emissions (lb/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
Material Hauling Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (lb/month)	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.04**	**0.05**	**0.05**
Onroad Project Total (tons)	**0.00**																

Onroad Vehicle Idling Emissions
Lightspeed SJC02
Revised September 2020

Onroad Vehicle Idling CO_2 Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	CO_2 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Material Hauling Trucks	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Onroad Total (metric tons/day)	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**	**0.06**
Vehicle Type [a]	**CO_2 Emissions (metric tons/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.14	1.14	1.14	1.14	1.14	1.14	1.40	1.40
Material Hauling Trucks	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.00
Dump Truck for Reconductoring	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00
Onroad Total (metric tons/month)	**1.41**	**1.41**	**1.41**	**1.42**	**1.42**	**1.42**	**1.42**	**1.42**	**1.42**	**1.40**	**1.40**	**1.40**	**1.40**	**1.40**	**1.39**	**1.40**	**1.40**
Onroad Project Total (metric tons)	**23.93**																

Onroad Vehicle Idling CH_4 Emissions from Lightspeed SJC02 Construction

Vehicle Type [a]	CH_4 Emissions (metric tons/day)																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.46E-07	6.25E-07	6.25E-07	6.25E-07	6.25E-07	6.25E-07	6.25E-07	7.67E-07	7.67E-07
Material Hauling Trucks	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.07E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	2.06E-07	0.00E+00	0.00E+00
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	9.33E-09	9.33E-09	9.33E-09	9.33E-09	9.33E-09	9.33E-09	9.27E-09	9.27E-09	9.27E-09	9.27E-09	9.27E-09	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/day)	**8.54E-07**	**8.54E-07**	**8.54E-07**	**8.63E-07**	**8.63E-07**	**8.63E-07**	**8.63E-07**	**8.63E-07**	**8.63E-07**	**8.40E-07**	**8.40E-07**	**8.40E-07**	**8.40E-07**	**8.40E-07**	**8.31E-07**	**7.67E-07**	**7.67E-07**
Vehicle Type [a]	**CH_4 Emissions (metric tons/month) [b]**																
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**
Onroad Delivery Trucks	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.38E-05	1.38E-05	1.38E-05	1.38E-05	1.38E-05	1.38E-05	1.69E-05	1.69E-05
Material Hauling Trucks	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.56E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	4.53E-06	0.00E+00	0.00E+00
Dump Truck for Reconductoring	0.00E+00	0.00E+00	0.00E+00	2.05E-07	2.05E-07	2.05E-07	2.05E-07	2.05E-07	2.05E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	2.04E-07	0.00E+00	0.00E+00	0.00E+00
Onroad Total (metric tons/month)	**1.88E-05**	**1.88E-05**	**1.88E-05**	**1.90E-05**	**1.90E-05**	**1.90E-05**	**1.90E-05**	**1.90E-05**	**1.90E-05**	**1.85E-05**	**1.85E-05**	**1.85E-05**	**1.85E-05**	**1.85E-05**	**1.83E-05**	**1.69E-05**	**1.69E-05**
Onroad Project Total (metric tons)	**3.15E-04**																

Notes:
[a] It is estimated that each Onroad delivery truck, material haul truck, and dump truck idles for approximately 5 minutes each day, or: 0.083 idle-hrs/day.
[b] The days per month for construction in the data above was provided by the Applicant's engineering contractor, as presented in Appendix 3.3-A, Table 13R.

Appendix 3.3-A, Table 15R
Equations Used to Calculate Criteria Pollutant and GHG Emissions
Lightspeed SJC02
Revised September 2020

Equations Used to Calculate Emissions from Lightspeed SJC02 Construction

Emission Source	Pollutants	Equations	Variables
Construction Equipment Exhaust	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E_m = EF x N x Hp x L x H / 453.6	E_m = Emissions (lb/month)
			EF = Emission factor (g/bhp-hr)
			N = Number of pieces of equipment
			Hp = Average horsepower
			L = Average load factor
			H = Hours per month
			453.6 = Conversion from g to lb
		E_d = E_m / D	E_d = Emissions (lb/day)
			E_m = Emissions (lb/month)
			D = Number of construction days per month
		E_t = ΣE_m / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
	CO_2	E_m = N x FC x EF x H x 0.001	E_m = Emissions (metric tons/month)
			N = Number of pieces of equipment
			FC = Fuel consumption (gallons/hour)
			EF = Emission factor (kg/gallon)
			H = Hours per month
			0.001 = Conversion from kg to metric tons
		E_d = E_m / D	E_d = Emissions (metric tons/day)
			E_m = Emissions (metric tons/month)
			D = Number of construction days per month
		E_t = ΣE_m	E_m = Emissions (metric tons/month)
			E_t = Total Project Emissions (metric tons)
	CH_4 and N_2O	E_m = N x FC x EF x H / 1,000 x 0.001	E_m = Emissions (metric tons/month)
			N = Number of pieces of equipment
			FC = Fuel consumption (gallons/hour)
			EF = Emission factor (g/gallon)
			H = Hours per month
			1,000 = Conversion from g to kg
			0.001 = Conversion from kg to metric tons
		E_d = E_m / D	E_d = Emissions (metric tons/day)
			E_m = Emissions (metric tons/month)
			D = Number of construction days per month
		E_t = ΣE_m	E_m = Emissions (metric tons/month)
			E_t = Total Project Emissions (metric tons)
Vehicle Exhaust and Paved Road Fugitive PM_{10} and $PM_{2.5}$	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E_d = N x VMT x EF / 453.6	E_d = Emissions (lb/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			EF = EMFAC2017 emission factor (g/mile). Paved road fugitive PM_{10} and $PM_{2.5}$ emission factors calculated per Section 13.2.1 of *AP-42* (EPA, 2011).
			453.6 = Conversion from g to lb
		E_m = E_d x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		E_t = ΣE_m / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
Unpaved Road Fugitive PM_{10} and $PM_{2.5}$	PM_{10} and $PM_{2.5}$	E_d = N x VMT x EF	E_d = Emissions (lb/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			EF = Unpaved road fugitive PM_{10} and $PM_{2.5}$ emission factors (lb/mile) calculated per Section 13.2.2 of *AP-42* (EPA, 2006).
		E_m = E_d x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		E_t = ΣE_m / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons

Equations Used to Calculate Criteria Pollutant and GHG Emissions
Lightspeed SJC02
Revised September 2020

Equations Used to Calculate Emissions from Lightspeed SJC02 Construction

Emission Source	Pollutants	Equations	Variables
Vehicle Exhaust	CO_2	E_d = N x VMT / FE x EF x 0.001	E_d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel economy (mpg)
			EF = Emission factor (kg/gallon)
			0.001 = Conversion from kg to metric tons
		$E_m = E_d$ x D	E_m = Emissions (metric tons/month)
			E_d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$	E_t = Total Project Emissions (metric tons)
			E_m = Emissions (metric tons/month)
	CH_4 and N_2O	E_d = N x VMT x EF / 1,000 x 0.001	E_d = Emissions (metric tons/day)
			N = Number of vehicles
			VMT = Vehicle miles traveled per day (miles/day)
			EF = Emission factor (g/mile)
			1,000 = Conversion from g to kg
			0.001 = Conversion from kg to metric tons
		$E_m = E_d$ x D	E_m = Emissions (metric tons/month)
			E_d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$	E_m = Emissions (metric tons/month)
			E_t = Total Project Emissions (metric tons)
Vehicle Idling	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E_d = N x I x EF / 453.6	E_d = Emissions (lb/day)
			N = Number of vehicles
			I = Idle time per vehicle per day (idle-hr/day)
			EF = EMFAC2017 emission factor (g/idle-hr)
			453.6 = Conversion from g to lb
		$E_m = E_d$ x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
Vehicle Idling	CO_2 and CH_4	E_d = N x I x EF / 1,000 x 0.001	E_d = Emissions (metric tons/day)
			N = Number of vehicles
			I = Idle time per vehicle per day (idle-hr/day)
			EF = EMFAC2017 emission factor (g/idle-hr)
			1,000 = Conversion from g to kg
			0.001 = Conversion from kg to metric tons
		$E_m = E_d$ x D	E_m = Emissions (metric tons/month)
			E_d = Emissions (metric tons/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$	E_t = Total Project Emissions (metric tons)
			E_m = Emissions (metric tons/month)
Fugitive PM_{10} and $PM_{2.5}$ from Truck Dumping/Loading	PM_{10} and $PM_{2.5}$	E_d = V x 1.2641662 x EF / D	E_d = Emissions (lb/day)
			V= Volume of material dumped (cubic yards/month)
			1.2641662 = Conversion from cubic yards to tons
			EF = Fugitive PM_{10} and $PM_{2.5}$ emission factors (lb/ton), calculated per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
			D = Number of construction days per month
		$E_m = E_d$ x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_m = Emissions (lb/month)
			E_t = Total Project Emissions (tons)
			2,000 = Conversion from lb to tons

Equations Used to Calculate Criteria Pollutant and GHG Emissions
Lightspeed SJC02
Revised September 2020

Equations Used to Calculate Emissions from Lightspeed SJC02 Construction

Emission Source	Pollutants	Equations	Variables
Fugitive PM_{10} and $PM_{2.5}$ from Grading	PM_{10} and $PM_{2.5}$	E_d = EF x A / W x 43,560 / 5,280 / D	E_d = Emissions (lb/day)
			EF = Fugitive PM_{10} and $PM_{2.5}$ emission factors (lb/mile), calculated per Section 4.3 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
			A = Graded area (acres/month)
			W = Grading equipment blade width (ft)
			43,560 = Conversion factor from square feet to acres
			5,280 = Conversion factor from feet to miles
			D = Number of construction days per month
		$E_m = E_d$ x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_m = Emissions (lb/month)
			E_t = Total Project Emissions (tons)
			2,000 = Conversion from lb to tons
Fugitive PM_{10} and $PM_{2.5}$ from Dismemberment and Debris Loading	PM_{10} and $PM_{2.5}$	E_d = T x EF / D	E_d = Emissions (lb/day)
			T = Debris Generated from Mechanical Dismemberment (tons/month)
			D = Number of construction days per month
			EF = Fugitive PM_{10} and $PM_{2.5}$ emission factors (lb/ton), calculated per Section 4.4 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
		$E_m = E_d$ x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
Paving	VOC	E_d = A / M / D x EF	EF = VOC emission factor (lb/acre), calculated per Section 4.8 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
			A = Area of paved areas (acres)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
			M = Number of paving construction months
		$E_m = E_d$ x D	E_m = Emissions (lb/month)
			E_d = Emissions (lb/day)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
Helicopter Exhaust	CO, VOC, NO_X, SO_X, PM_{10}, and $PM_{2.5}$	E_m = EF x N x D	E_m = Emissions (lb/month)
			EF = Emission factor (lb/LTO)
			N = Number of LTOs per day
			D = Number of construction days per month
		$E_d = E_m$ / D	E_d = Emissions (lb/day)
			E_m = Emissions (lb/month)
			D = Number of construction days per month
		$E_t = \Sigma E_m$ / 2,000	E_t = Total Project Emissions (tons)
			E_m = Emissions (lb/month)
			2,000 = Conversion from lb to tons
	CO_2, N_2O, and CH_4	E_m = EF x N x D / 2,204.62	E_m = Emissions (metric tons/month)
			EF = Emission factor (lb/LTO)
			N = Number of LTOs per day
			D = Number of construction days per month
			2,204.62 = Conversion from lb to metric tons
		$E_d = E_m$ / D	E_d = Emissions (metric tons/day)
			E_m = Emissions (metric tons/month)
			D = Number of construction days per month
		$E_t = \Sigma E_m$	E_t = Total Project Emissions (metric tons)
			E_m = Emissions (metric tons/month)

Appendix 3.3-A, Table 16R
Construction Equipment Criteria Pollutant Emission Factors
Lightspeed SJC02
Revised September 2020

Construction Equipment Emission Factors for Lightspeed SJC02 Construction

Equipment [a]	Hours per Month [b]	Horsepower [c]	Load Factor [c]	2020 Emission Factors (g/bhp-hr) [d, e]						2021 Emission Factors (g/bhp-hr) [d, e]						2020 Fuel Consumption (gallons/hour) [f]	2021 Fuel Consumption (gallons/hour) [f]
				CO	VOC	NO_X [h]	SO_X	PM_{10} [h]	$PM_{2.5}$	CO	VOC	NO_X [h]	SO_X	PM_{10} [h]	$PM_{2.5}$		
Onsite																	
Water Truck [g]	220	402	0.38	1.414	0.246	0.260	0.005	0.008	0.079	1.338	0.225	0.260	0.005	0.008	0.066	4.15	4.15
Excavator	220	158	0.38	3.086	0.231	0.260	0.005	0.008	0.102	3.086	0.216	0.260	0.005	0.008	0.091	2.89	2.89
Grader	220	187	0.41	1.342	0.352	0.260	0.005	0.008	0.138	1.307	0.335	0.260	0.005	0.008	0.128	3.15	3.15
Cranes	220	231	0.29	1.790	0.384	2.320	0.005	0.088	0.173	1.678	0.349	2.320	0.005	0.088	0.153	2.19	2.18
Backhoe	220	97	0.37	3.601	0.331	0.260	0.005	0.008	0.193	3.571	0.296	0.260	0.005	0.008	0.162	1.59	1.59
Rubber Tired Loader	220	203	0.36	1.269	0.290	2.320	0.005	0.088	0.104	1.240	0.266	2.320	0.005	0.088	0.092	2.80	2.80
Forklift	220	89	0.20	3.760	0.459	2.740	0.005	0.192	0.283	3.720	0.412	2.740	0.005	0.192	0.245	2.00	2.00
Roller	220	80	0.38	3.531	0.388	2.740	0.005	0.192	0.228	3.507	0.353	2.740	0.005	0.192	0.202	1.35	1.36
Bore/Drill Rigs	220	221	0.50	1.068	0.142	0.260	0.005	0.008	0.048	1.064	0.132	0.260	0.005	0.008	0.043	3.90	3.89
Other General Industrial Equipment	220	88	0.34	3.771	0.446	2.740	0.005	0.192	0.272	3.740	0.404	2.740	0.005	0.192	0.235	1.38	1.39
Offsite																	
Water Truck [g]	220	402	0.38	1.414	0.246	0.260	0.005	0.008	0.079	1.338	0.225	0.260	0.005	0.008	0.066	4.15	4.15
Concrete Truck [g]	220	402	0.38	1.414	0.246	0.260	0.005	0.008	0.079	1.338	0.225	0.260	0.005	0.008	0.066	4.15	4.15
Excavator	220	158	0.38	3.086	0.231	0.260	0.005	0.008	0.102	3.086	0.216	0.260	0.005	0.008	0.091	2.89	2.89
Grader	220	187	0.41	1.342	0.352	0.260	0.005	0.008	0.138	1.307	0.335	0.260	0.005	0.008	0.128	3.15	3.15
Backhoe	220	97	0.37	3.601	0.331	0.260	0.005	0.008	0.193	3.571	0.296	0.260	0.005	0.008	0.162	1.59	1.59
Rubber Tired Loader	220	203	0.36	1.269	0.290	2.320	0.005	0.088	0.104	1.240	0.266	2.320	0.005	0.088	0.092	2.80	2.80
Forklift	220	89	0.20	3.760	0.459	2.740	0.005	0.192	0.283	3.720	0.412	2.740	0.005	0.192	0.245	2.00	2.00
Roller	220	80	0.38	3.531	0.388	2.740	0.005	0.192	0.228	3.507	0.353	2.740	0.005	0.192	0.202	1.35	1.36
Bore/Drill Rigs	220	221	0.50	1.068	0.142	0.260	0.005	0.008	0.048	1.064	0.132	0.260	0.005	0.008	0.043	3.90	3.89
Mower/Grader for Reconductoring	220	187	0.41	1.342	0.352	0.260	0.005	0.008	0.138	1.307	0.335	0.260	0.005	0.008	0.128	3.15	3.15
Line Trucks for Reconductoring [g]	220	402	0.38	1.414	0.246	0.260	0.005	0.008	0.079	1.338	0.225	0.260	0.005	0.008	0.066	4.15	4.15
Water Truck for Reconductoring	220	402	0.38	1.414	0.246	0.260	0.005	0.008	0.079	1.338	0.225	0.260	0.005	0.008	0.066	4.15	4.15

Notes:

[a] Assumed all equipment is fired with diesel fuel, per Section 4.2 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

[b] Hours per month calculated based on the following schedule,

Work hours per day: 10
Work days per month: 22

[c] Construction equipment horsepower and load factor taken from Table 3.3 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017).

[d] Unless otherwise noted, construction equipment emission factors taken from Table 3.4 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017).

[e] Based on the anticipated construction schedule, Months 1 through 9 will occur in 2020 and Months 10 through 17 will occur in 2021. Emissions were estimated using year 2020 or 2021 emission factors and fuel consumption, as appropriate.

[f] Fuel consumption based on consumption in the OFFROAD2017 Web database (https://www.arb.ca.gov/orion/) model for the San Francisco Bay Area in the years 2020 and 2021; value estimated by dividing the reported consumption (gallons/year) by the reported activity (hours/year)

[g] Horsepower, load factor, and emission factors for Off-Highway Trucks were assumed representative of Water, Concrete, and Line Trucks.

[h] NO_X and PM_{10} construction equipment emission factors taken from Table 3.5 of Appendix D of the *CalEEMod User's Guide* (BREEZE, 2017), assuming a mix of Tier 3/Tier 4-compliant equipment.

Appendix 3.3-A, Table 17R
Vehicle Criteria Pollutant Emission Factors
Lightspeed SJC02
Revised September 2020

Vehicle Exhaust Emission Factors for Lightspeed SJC02 Construction

Vehicle Type	Location of Vehicle Operation	Vehicle Class [a]	2020 Exhaust Emission Factors (g/mile) [b, c]						2021 Exhaust Emission Factors (g/mile) [b, c]						Paved Road Emission Factors (g/mile) [d]		2020 Fuel Economy (mpg) [c, e]	2021 Fuel Economy (mpg) [c, e]
			CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$		
Pick-up Truck	Onsite or Offsite, Offroad	Light-duty Truck	2.303	0.152	0.008	0.200	0.057	0.029	2.053	0.132	0.008	0.173	0.057	0.029	N/A	N/A	25.162	25.870
Onroad Delivery Trucks	Onroad	Heavy/Medium-duty Diesel	0.484	0.122	0.011	3.327	0.180	0.105	0.398	0.099	0.011	2.846	0.169	0.094	0.300	0.075	7.628	7.769
Material Hauling Trucks	Onroad	Heavy-duty Diesel	0.472	0.112	0.013	3.746	0.144	0.080	0.391	0.090	0.013	3.279	0.136	0.072	0.300	0.075	6.161	6.269
Construction Worker Commute	Onroad	Light-duty Auto/Truck	0.964	0.016	0.003	0.073	0.046	0.019	0.868	0.013	0.003	0.063	0.046	0.019	0.300	0.075	27.879	28.639
Dump Truck	Onsite or Offsite, Offroad	Heavy-duty Diesel	3.688	1.298	0.034	15.383	0.241	0.173	3.334	0.978	0.034	14.691	0.195	0.128	N/A	N/A	6.161	6.269
Pick-up Truck for Reconductoring	Onroad [f]	Light-duty Truck	1.168	0.021	0.003	0.099	0.046	0.019	1.050	0.018	0.003	0.085	0.046	0.019	0.300	0.075	25.162	25.870
Construction Worker Commute for Reconductoring	Onroad [f]	Light-duty Auto/Truck	0.964	0.016	0.003	0.073	0.046	0.019	0.868	0.013	0.003	0.063	0.046	0.019	0.300	0.075	27.879	28.639
Dump Truck for Reconductoring	Onroad [f]	Heavy-duty Diesel	0.472	0.112	0.013	3.746	0.144	0.080	0.391	0.090	0.013	3.279	0.136	0.072	0.300	0.075	6.161	6.269

Vehicle Idling Emission Factors for Lightspeed Construction

Vehicle Type	Location of Vehicle Operation	Vehicle Class [a]	2020 Idle Emission Factors (g/idle-hr) [b, c]						2021 Idle Emission Factors (g/idle-hr) [b, c]					
			CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$	CO	VOC	SO_X	NO_X	PM_{10}	$PM_{2.5}$
Onroad Delivery Trucks	Onroad	Heavy/Medium-duty Diesel	25.051	1.708	0.062	52.031	0.138	0.132	25.387	1.652	0.061	48.438	0.113	0.108
Material Hauling Trucks	Onroad	Heavy-duty Diesel	31.380	2.410	0.059	34.785	0.029	0.027	31.899	2.394	0.058	33.596	0.024	0.023
Dump Truck	Onsite or Offsite, Offroad	Heavy-duty Diesel	31.380	2.410	0.059	34.785	0.029	0.027	31.899	2.394	0.058	33.596	0.024	0.023
Dump Truck for Reconductoring	Onroad [f]	Heavy-duty Diesel	31.380	2.410	0.059	34.785	0.029	0.027	31.899	2.394	0.058	33.596	0.024	0.023

Notes:

[a] The vehicle classes are represented as follows:

Light-duty Truck: Assumed to be 50% LDT1 Gas and 50% LDT2 Gas values, based on an understanding of the vehicle type.
Heavy-duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
Heavy/Medium-duty Diesel: Assumed to be 50% HHDT DSL and 50% MHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
Light-duty Auto/Truck: Assumed to be 50% LDA Gas, 25% LDT1 Gas, and 25% LDT2 Gas values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017) and assuming workers typically drive gasoline-fueled vehicles.

[b] Exhaust and idling emission factors from EMFAC2017 for Santa Clara County, calendar years 2020 and 2021. A speed of 5 mph was assumed for onsite and offsite vehicles; a speed of 40 mph was assumed for onroad vehicles and worker commutes, which is consistent with the CalEEMod defaults. An average temperature of 62°F and humidity of 63% were used per Table B-1 of *CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions* (UC Davis, 2007).

[c] Based on the anticipated construction schedule, Months 1 through 9 will occur in 2020 and Months 10 through 17 will occur in 2021. Emissions were estimated using year 2020 or 2021 emission factors and fuel economy, as appropriate.

[d] Paved road emission factors calculated using CalEEMod methodology, as described below.

[e] Fuel economy from the EMFAC2017 Web Database (http://www.arb.ca.gov/emfac/2017/) for Santa Clara County, calendar years 2020 and 2021.

[f] All vehicles used for reconductoring activities were assumed to be onroad vehicles as the offsite work sites will be small and largely located in areas that are already paved or graveled. The dump trucks will be primarily used for hauling materials to recycling centers, and the pick-up trucks will be used to transport crews between pull sites.

Derivation of Paved Road Emission Factors
Vehicles on Paved Roads

Parameter	PM_{10}	$PM_{2.5}$
Average Weight [a]	2.4	2.4
k [b]	1.0	0.25
sL [a]	0.1	0.1
Emission Factor (g/mile) [c]	0.300	0.075

Notes:

[a] Average Weight and sL taken as the CalEEMod defaults for the Santa Clara climate region of the San Francisco Bay Area Air Basin.

[b] k taken from Table 13.2.1-1 of Section 13.2.1 of *AP-42* (EPA, 2011).

[c] Emission factor calculated using Equation 1 from Section 13.2.1 of *AP-42* (EPA, 2011):

Emission Factor (g/mile) = k (g/mile) x [sL (g/m^2)]$^{0.91}$ x [Average Weight (tons)]$^{1.02}$

Appendix 3.3-A, Table 18R
GHG Emission Factors
Lightspeed SJC02
Revised September 2020

GHG Exhaust Emission Factors for Lightspeed SJC02 Construction

Fuel / Category Type	Emission Factor	Emission Factor Units	Emission Factor Source
CO_2 Emission Factors			
Gasoline	8.78	kg CO_2/gallon	The Climate Registry. 2019. 2019 *Climate Registry Default Emission Factors*. Table 2.1. May.
Diesel	10.21	kg CO_2/gallon	The Climate Registry. 2019. 2019 *Climate Registry Default Emission Factors*. Table 2.1. May.
N_2O Emission Factors			
Gasoline Passenger Car Model Year 2016 [a]	0.0183	g N_2O/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Gasoline Light-duty Truck Model Year 2016 [a]	0.0079	g N_2O/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Diesel Heavy-duty Truck Model Year 1960 - 2015 [a]	0.0048	g N_2O/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Diesel Off-road Vehicle	0.495	g N_2O/gallon	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.7. May.
CH_4 Emission Factors			
Gasoline Passenger Car Model Year 2016 [a]	0.0064	g CH_4/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Gasoline Light-duty Truck Model Year 2016 [a]	0.0064	g CH_4/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Diesel Heavy-duty Truck Model Year 1960 - 2015 [a]	0.0051	g CH_4/mile	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.5. May.
Diesel Off-road Vehicle	0.342	g CH_4/gallon	The Climate Registry. 2019. *2019 Climate Registry Default Emission Factors*. Table 2.7. May.

Notes:
[a] Model Years 2015 and 2016 were the most recent years of emission factors available. As a result, they were assumed representative of vehicles used for this project.

GHG Idling Emission Factors (Diesel Vehicles Only) for Lightspeed SJC02 Construction

Vehicle Type	Vehicle Class [a]	2020 Idling Emission Factors (g/idle-hr) [b, c]		2021 Idling Emission Factors (g/idle-hr) [b, c]	
		CO_2	CH_4	CO_2	CH_4
Onroad Delivery Trucks	Heavy/Medium-duty Diesel	6,457.043	0.079	6,364.980	0.077
Material Hauling Trucks	Heavy-duty Diesel	6,154.064	0.112	6,065.927	0.111
Dump Truck	Heavy-duty Diesel	6,154.064	0.112	6,065.927	0.111
Dump Truck for Reconductoring	Heavy-duty Diesel	6,154.064	0.112	6,065.927	0.111

Notes:
[a] The vehicle classes are represented as follows:
Heavy-duty Diesel: Assumed to be 100% HHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).
Heavy/Medium-duty Diesel: Assumed to be 50% HHDT DSL and 50% MHDT DSL values, per Section 4.5 of Appendix A of the *CalEEMod User's Guide* (BREEZE, 2017).

[b] Idling emission factors from EMFAC2017 for the Santa Clara County, calendar years 2020 and 2021. An average temperature of 62°F and humidity of 63% were used per Table B-1 of *CT-EMFAC: A Computer Model to Estimate Transportation Project Emissions* (UC Davis, 2007).

[c] Based on the anticipated construction schedule, Months 1 through 9 will occur in 2020 and Months 10 through 17 will occur in 2021. Emissions were estimated using year 2020 or 2021 emission factors, as appropriate.

Appendix 3.3-A, Table 19
Aircraft Criteria Pollutant and GHG Emission Factors
Lightspeed SJC02
September 2020

Helicopter Emission Factors for Lightspeed SJC02 Construction

Aircraft [a]	Emission Factors (lb/LTO) [b]								
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	N_2O	CH_4
Helicopter for Reconductoring	5.33	4.01	1.95	0.29	0.06	0.06	414.51	0.03	0.03

Notes:

[a] It was assumed that a Twin Medium helicopter type would be used to complete the reconductoring work.

[b] Emission factors taken from Table 6-12 of the *Year 2011 Gulfwide Emissions Inventory Study* , which was prepared by the U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM), Gulf of Mexico OCS Region (BOEM, 2014).

Appendix 3.3-D, Table 1R
Demolition, Construction, and Reconductoring HRA Emission Rates
Lightspeed SJC02
Revised September 2020

Emission Rates for HRA Modeling of Demolition, Construction, and Reconductoring DPM Emissions

Source Grouping	Diesel Particulate Matter	
	(g/s)	(lb/yr average) [b]
Demolition, Construction, and Reconductoring Total	0.005	374
Demolition/Construction/Reconductoring Point (per source) [a]	0.00001	0.85

Notes:
[a] Modeled emissions only include onsite and offsite exhaust from equipment and offroad vehicles, assuming PM_{10} is representative of diesel particulate matter (DPM). Helicopter emissions from reconductoring activities are excluded as they would not be diesel fueled.
[b] Number of point sources modeled: 437

Appendix 3.3-D, Table 2R
AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_01	HORIZONTAL	594,724.27	4,142,350.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_02	HORIZONTAL	594,749.27	4,142,350.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_03	HORIZONTAL	594,774.27	4,142,350.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_04	HORIZONTAL	594,799.01	4,142,352.84	7.00	4.6	533	18	0.127	1.230E-05
CPS_05	HORIZONTAL	594,822.90	4,142,356.75	7.00	4.6	533	18	0.127	1.230E-05
CPS_06	HORIZONTAL	594,724.27	4,142,375.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_07	HORIZONTAL	594,749.27	4,142,375.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_08	HORIZONTAL	594,774.27	4,142,375.70	6.47	4.6	533	18	0.127	1.230E-05
CPS_09	HORIZONTAL	594,799.27	4,142,375.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_10	HORIZONTAL	594,824.27	4,142,375.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_11	HORIZONTAL	594,849.27	4,142,375.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_12	HORIZONTAL	594,874.27	4,142,375.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_13	HORIZONTAL	594,899.27	4,142,375.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_14	HORIZONTAL	594,924.95	4,142,378.40	7.00	4.6	533	18	0.127	1.230E-05
CPS_15	HORIZONTAL	594,953.30	4,142,379.79	6.16	4.6	533	18	0.127	1.230E-05
CPS_16	HORIZONTAL	594,724.27	4,142,400.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_17	HORIZONTAL	594,749.27	4,142,400.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_18	HORIZONTAL	594,774.27	4,142,400.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_19	HORIZONTAL	594,799.27	4,142,400.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_20	HORIZONTAL	594,824.27	4,142,400.70	6.53	4.6	533	18	0.127	1.230E-05
CPS_21	HORIZONTAL	594,849.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_22	HORIZONTAL	594,874.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_23	HORIZONTAL	594,899.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_24	HORIZONTAL	594,924.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_25	HORIZONTAL	594,949.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_26	HORIZONTAL	594,974.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_27	HORIZONTAL	594,999.27	4,142,400.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_28	HORIZONTAL	594,713.04	4,142,425.34	6.00	4.6	533	18	0.127	1.230E-05
CPS_29	HORIZONTAL	594,749.27	4,142,425.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_30	HORIZONTAL	594,774.27	4,142,425.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_31	HORIZONTAL	594,799.27	4,142,425.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_32	HORIZONTAL	594,824.27	4,142,425.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_33	HORIZONTAL	594,849.27	4,142,425.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_34	HORIZONTAL	594,874.27	4,142,425.70	6.20	4.6	533	18	0.127	1.230E-05
CPS_35	HORIZONTAL	594,899.27	4,142,425.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_36	HORIZONTAL	594,924.27	4,142,425.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_37	HORIZONTAL	594,949.27	4,142,425.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_38	HORIZONTAL	594,974.27	4,142,425.70	7.00	4.6	533	18	0.127	1.230E-05
CPS_39	HORIZONTAL	594,999.27	4,142,425.70	6.29	4.6	533	18	0.127	1.230E-05
CPS_40	HORIZONTAL	595,024.27	4,142,425.70	6.11	4.6	533	18	0.127	1.230E-05
CPS_41	HORIZONTAL	594,699.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_42	HORIZONTAL	594,724.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_43	HORIZONTAL	594,749.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_44	HORIZONTAL	594,774.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_45	HORIZONTAL	594,799.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_46	HORIZONTAL	594,824.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_47	HORIZONTAL	594,849.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_48	HORIZONTAL	594,874.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_49	HORIZONTAL	594,899.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_50	HORIZONTAL	594,924.27	4,142,450.70	6.62	4.6	533	18	0.127	1.230E-05
CPS_51	HORIZONTAL	594,949.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_52	HORIZONTAL	594,974.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_53	HORIZONTAL	594,999.27	4,142,450.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_54	HORIZONTAL	595,024.27	4,142,450.70	5.28	4.6	533	18	0.127	1.230E-05
CPS_55	HORIZONTAL	595,043.66	4,142,455.07	5.00	4.6	533	18	0.127	1.230E-05
CPS_56	HORIZONTAL	594,699.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_57	HORIZONTAL	594,724.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_58	HORIZONTAL	594,749.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_59	HORIZONTAL	594,774.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_60	HORIZONTAL	594,799.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_61	HORIZONTAL	594,824.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_62	HORIZONTAL	594,849.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_63	HORIZONTAL	594,874.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_64	HORIZONTAL	594,899.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_65	HORIZONTAL	594,924.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_66	HORIZONTAL	594,949.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_67	HORIZONTAL	594,974.27	4,142,475.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_68	HORIZONTAL	594,999.27	4,142,475.70	5.01	4.6	533	18	0.127	1.230E-05
CPS_69	HORIZONTAL	595,024.27	4,142,475.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_70	HORIZONTAL	595,049.27	4,142,475.70	4.01	4.6	533	18	0.127	1.230E-05
CPS_71	HORIZONTAL	594,694.91	4,142,500.62	6.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_72	HORIZONTAL	594,724.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_73	HORIZONTAL	594,749.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_74	HORIZONTAL	594,774.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_75	HORIZONTAL	594,799.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_76	HORIZONTAL	594,824.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_77	HORIZONTAL	594,849.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_78	HORIZONTAL	594,874.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_79	HORIZONTAL	594,899.27	4,142,500.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_80	HORIZONTAL	594,924.27	4,142,500.70	5.95	4.6	533	18	0.127	1.230E-05
CPS_81	HORIZONTAL	594,949.27	4,142,500.70	5.39	4.6	533	18	0.127	1.230E-05
CPS_82	HORIZONTAL	594,974.27	4,142,500.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_83	HORIZONTAL	594,999.27	4,142,500.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_84	HORIZONTAL	595,024.27	4,142,500.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_85	HORIZONTAL	595,049.27	4,142,500.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_86	HORIZONTAL	594,674.27	4,142,525.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_87	HORIZONTAL	594,699.27	4,142,525.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_88	HORIZONTAL	594,724.27	4,142,525.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_89	HORIZONTAL	594,749.27	4,142,525.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_90	HORIZONTAL	594,774.27	4,142,525.70	5.91	4.6	533	18	0.127	1.230E-05
CPS_91	HORIZONTAL	594,799.27	4,142,525.70	5.77	4.6	533	18	0.127	1.230E-05
CPS_92	HORIZONTAL	594,824.27	4,142,525.70	5.77	4.6	533	18	0.127	1.230E-05
CPS_93	HORIZONTAL	594,849.27	4,142,525.70	5.77	4.6	533	18	0.127	1.230E-05
CPS_94	HORIZONTAL	594,874.27	4,142,525.70	5.77	4.6	533	18	0.127	1.230E-05
CPS_95	HORIZONTAL	594,899.27	4,142,525.70	5.41	4.6	533	18	0.127	1.230E-05
CPS_96	HORIZONTAL	594,924.27	4,142,525.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_97	HORIZONTAL	594,949.27	4,142,525.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_98	HORIZONTAL	594,974.27	4,142,525.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_99	HORIZONTAL	594,999.27	4,142,525.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_100	HORIZONTAL	595,024.27	4,142,525.70	4.45	4.6	533	18	0.127	1.230E-05
CPS_101	HORIZONTAL	595,044.85	4,142,533.15	4.00	4.6	533	18	0.127	1.230E-05
CPS_102	HORIZONTAL	594,674.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_103	HORIZONTAL	594,699.27	4,142,550.70	5.61	4.6	533	18	0.127	1.230E-05
CPS_104	HORIZONTAL	594,724.27	4,142,550.70	6.00	4.6	533	18	0.127	1.230E-05
CPS_105	HORIZONTAL	594,749.27	4,142,550.70	5.35	4.6	533	18	0.127	1.230E-05
CPS_106	HORIZONTAL	594,774.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_107	HORIZONTAL	594,799.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_108	HORIZONTAL	594,824.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_109	HORIZONTAL	594,849.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_110	HORIZONTAL	594,874.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_111	HORIZONTAL	594,899.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_112	HORIZONTAL	594,924.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_113	HORIZONTAL	594,949.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_114	HORIZONTAL	594,974.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_115	HORIZONTAL	594,999.27	4,142,550.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_116	HORIZONTAL	595,024.27	4,142,550.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_117	HORIZONTAL	594,666.10	4,142,575.90	5.00	4.6	533	18	0.127	1.230E-05
CPS_118	HORIZONTAL	594,699.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_119	HORIZONTAL	594,724.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_120	HORIZONTAL	594,749.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_121	HORIZONTAL	594,774.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_122	HORIZONTAL	594,799.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_123	HORIZONTAL	594,824.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_124	HORIZONTAL	594,849.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_125	HORIZONTAL	594,874.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_126	HORIZONTAL	594,899.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_127	HORIZONTAL	594,924.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_128	HORIZONTAL	594,949.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_129	HORIZONTAL	594,974.27	4,142,575.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_130	HORIZONTAL	594,999.27	4,142,575.70	4.03	4.6	533	18	0.127	1.230E-05
CPS_131	HORIZONTAL	595,021.15	4,142,571.26	4.00	4.6	533	18	0.127	1.230E-05
CPS_132	HORIZONTAL	594,652.16	4,142,601.47	5.00	4.6	533	18	0.127	1.230E-05
CPS_133	HORIZONTAL	594,674.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_134	HORIZONTAL	594,699.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_135	HORIZONTAL	594,724.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_136	HORIZONTAL	594,749.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_137	HORIZONTAL	594,774.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_138	HORIZONTAL	594,799.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_139	HORIZONTAL	594,824.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_140	HORIZONTAL	594,849.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_141	HORIZONTAL	594,874.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_142	HORIZONTAL	594,899.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_143	HORIZONTAL	594,924.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_144	HORIZONTAL	594,949.27	4,142,600.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_145	HORIZONTAL	594,974.27	4,142,600.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_146	HORIZONTAL	594,996.05	4,142,596.35	4.00	4.6	533	18	0.127	1.230E-05
CPS_147	HORIZONTAL	594,649.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_148	HORIZONTAL	594,674.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_149	HORIZONTAL	594,699.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_150	HORIZONTAL	594,724.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_151	HORIZONTAL	594,749.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_152	HORIZONTAL	594,774.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_153	HORIZONTAL	594,799.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_154	HORIZONTAL	594,824.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_155	HORIZONTAL	594,849.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_156	HORIZONTAL	594,874.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_157	HORIZONTAL	594,899.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_158	HORIZONTAL	594,924.27	4,142,625.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_159	HORIZONTAL	594,949.27	4,142,625.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_160	HORIZONTAL	594,974.27	4,142,625.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_161	HORIZONTAL	594,649.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_162	HORIZONTAL	594,674.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_163	HORIZONTAL	594,699.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_164	HORIZONTAL	594,724.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_165	HORIZONTAL	594,749.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_166	HORIZONTAL	594,774.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_167	HORIZONTAL	594,799.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_168	HORIZONTAL	594,824.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_169	HORIZONTAL	594,849.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_170	HORIZONTAL	594,874.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_171	HORIZONTAL	594,899.27	4,142,650.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_172	HORIZONTAL	594,924.27	4,142,650.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_173	HORIZONTAL	594,949.27	4,142,650.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_174	HORIZONTAL	594,649.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_175	HORIZONTAL	594,674.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_176	HORIZONTAL	594,699.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_177	HORIZONTAL	594,724.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_178	HORIZONTAL	594,749.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_179	HORIZONTAL	594,774.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_180	HORIZONTAL	594,799.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_181	HORIZONTAL	594,824.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_182	HORIZONTAL	594,849.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_183	HORIZONTAL	594,874.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_184	HORIZONTAL	594,899.27	4,142,675.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_185	HORIZONTAL	594,924.27	4,142,675.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_186	HORIZONTAL	594,624.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_187	HORIZONTAL	594,649.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_188	HORIZONTAL	594,674.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_189	HORIZONTAL	594,699.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_190	HORIZONTAL	594,724.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_191	HORIZONTAL	594,749.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_192	HORIZONTAL	594,774.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_193	HORIZONTAL	594,799.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_194	HORIZONTAL	594,824.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_195	HORIZONTAL	594,849.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_196	HORIZONTAL	594,874.27	4,142,700.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_197	HORIZONTAL	594,899.27	4,142,700.70	4.75	4.6	533	18	0.127	1.230E-05
CPS_198	HORIZONTAL	594,624.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_199	HORIZONTAL	594,649.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_200	HORIZONTAL	594,674.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_201	HORIZONTAL	594,699.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_202	HORIZONTAL	594,724.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_203	HORIZONTAL	594,749.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_204	HORIZONTAL	594,774.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_205	HORIZONTAL	594,799.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_206	HORIZONTAL	594,824.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_207	HORIZONTAL	594,849.27	4,142,725.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_208	HORIZONTAL	594,869.65	4,142,719.97	5.00	4.6	533	18	0.127	1.230E-05
CPS_209	HORIZONTAL	594,624.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_210	HORIZONTAL	594,649.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_211	HORIZONTAL	594,674.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_212	HORIZONTAL	594,699.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_213	HORIZONTAL	594,724.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_214	HORIZONTAL	594,749.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_215	HORIZONTAL	594,774.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_216	HORIZONTAL	594,799.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_217	HORIZONTAL	594,824.27	4,142,750.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_218	HORIZONTAL	594,604.61	4,142,777.34	5.00	4.6	533	18	0.127	1.230E-05
CPS_219	HORIZONTAL	594,624.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_220	HORIZONTAL	594,649.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_221	HORIZONTAL	594,674.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_222	HORIZONTAL	594,699.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_223	HORIZONTAL	594,724.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_224	HORIZONTAL	594,749.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_225	HORIZONTAL	594,774.27	4,142,775.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_226	HORIZONTAL	594,797.61	4,142,772.02	5.00	4.6	533	18	0.127	1.230E-05
CPS_227	HORIZONTAL	594,599.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_228	HORIZONTAL	594,624.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_229	HORIZONTAL	594,649.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_230	HORIZONTAL	594,674.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_231	HORIZONTAL	594,699.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_232	HORIZONTAL	594,724.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_233	HORIZONTAL	594,749.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_234	HORIZONTAL	594,774.27	4,142,800.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_235	HORIZONTAL	594,599.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_236	HORIZONTAL	594,624.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_237	HORIZONTAL	594,649.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_238	HORIZONTAL	594,674.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_239	HORIZONTAL	594,699.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_240	HORIZONTAL	594,724.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_241	HORIZONTAL	594,749.27	4,142,825.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_242	HORIZONTAL	594,769.26	4,142,820.35	5.00	4.6	533	18	0.127	1.230E-05
CPS_243	HORIZONTAL	594,588.49	4,142,849.62	5.00	4.6	533	18	0.127	1.230E-05
CPS_244	HORIZONTAL	594,624.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_245	HORIZONTAL	594,649.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_246	HORIZONTAL	594,674.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_247	HORIZONTAL	594,699.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_248	HORIZONTAL	594,724.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_249	HORIZONTAL	594,749.27	4,142,850.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_250	HORIZONTAL	594,574.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_251	HORIZONTAL	594,599.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_252	HORIZONTAL	594,624.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_253	HORIZONTAL	594,649.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_254	HORIZONTAL	594,674.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_255	HORIZONTAL	594,699.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_256	HORIZONTAL	594,724.27	4,142,875.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_257	HORIZONTAL	594,744.64	4,142,871.00	5.00	4.6	533	18	0.127	1.230E-05
CPS_258	HORIZONTAL	594,574.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_259	HORIZONTAL	594,599.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_260	HORIZONTAL	594,624.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_261	HORIZONTAL	594,649.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_262	HORIZONTAL	594,674.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_263	HORIZONTAL	594,699.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_264	HORIZONTAL	594,724.27	4,142,900.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_265	HORIZONTAL	594,240.81	4,142,923.57	4.00	4.6	533	18	0.127	1.230E-05
CPS_266	HORIZONTAL	594,266.90	4,142,929.56	4.00	4.6	533	18	0.127	1.230E-05
CPS_267	HORIZONTAL	594,574.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_268	HORIZONTAL	594,599.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_269	HORIZONTAL	594,624.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_270	HORIZONTAL	594,649.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_271	HORIZONTAL	594,674.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_272	HORIZONTAL	594,699.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_273	HORIZONTAL	594,724.27	4,142,925.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_274	HORIZONTAL	594,228.33	4,142,952.33	4.00	4.6	533	18	0.127	1.230E-05
CPS_275	HORIZONTAL	594,249.27	4,142,950.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_276	HORIZONTAL	594,274.27	4,142,950.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_277	HORIZONTAL	594,299.27	4,142,950.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_278	HORIZONTAL	594,324.27	4,142,950.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_279	HORIZONTAL	594,352.41	4,142,956.98	4.00	4.6	533	18	0.127	1.230E-05
CPS_280	HORIZONTAL	594,568.04	4,142,950.47	5.00	4.6	533	18	0.127	1.230E-05
CPS_281	HORIZONTAL	594,599.27	4,142,950.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_282	HORIZONTAL	594,624.27	4,142,950.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_283	HORIZONTAL	594,649.27	4,142,950.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_284	HORIZONTAL	594,674.27	4,142,950.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_285	HORIZONTAL	594,699.27	4,142,950.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_286	HORIZONTAL	594,718.90	4,142,948.42	5.00	4.6	533	18	0.127	1.230E-05
CPS_287	HORIZONTAL	594,224.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_288	HORIZONTAL	594,249.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_289	HORIZONTAL	594,274.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_290	HORIZONTAL	594,299.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_291	HORIZONTAL	594,324.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_292	HORIZONTAL	594,349.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_293	HORIZONTAL	594,374.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_294	HORIZONTAL	594,399.27	4,142,975.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_295	HORIZONTAL	594,425.84	4,142,979.28	4.00	4.6	533	18	0.127	1.230E-05
CPS_296	HORIZONTAL	594,549.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_297	HORIZONTAL	594,574.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_298	HORIZONTAL	594,599.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_299	HORIZONTAL	594,624.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_300	HORIZONTAL	594,649.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_301	HORIZONTAL	594,674.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_302	HORIZONTAL	594,699.27	4,142,975.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_303	HORIZONTAL	594,224.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_304	HORIZONTAL	594,249.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_305	HORIZONTAL	594,274.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_306	HORIZONTAL	594,299.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_307	HORIZONTAL	594,324.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_308	HORIZONTAL	594,349.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_309	HORIZONTAL	594,374.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_310	HORIZONTAL	594,399.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_311	HORIZONTAL	594,424.27	4,143,000.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_312	HORIZONTAL	594,449.27	4,143,000.70	4.41	4.6	533	18	0.127	1.230E-05
CPS_313	HORIZONTAL	594,474.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_314	HORIZONTAL	594,499.73	4,143,005.77	5.00	4.6	533	18	0.127	1.230E-05
CPS_315	HORIZONTAL	594,549.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_316	HORIZONTAL	594,574.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_317	HORIZONTAL	594,599.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_318	HORIZONTAL	594,624.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_319	HORIZONTAL	594,649.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_320	HORIZONTAL	594,674.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_321	HORIZONTAL	594,699.27	4,143,000.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_322	HORIZONTAL	594,204.17	4,143,024.36	4.00	4.6	533	18	0.127	1.230E-05
CPS_323	HORIZONTAL	594,224.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_324	HORIZONTAL	594,249.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_325	HORIZONTAL	594,274.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_326	HORIZONTAL	594,299.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_327	HORIZONTAL	594,324.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_328	HORIZONTAL	594,349.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_329	HORIZONTAL	594,374.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_330	HORIZONTAL	594,399.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_331	HORIZONTAL	594,424.27	4,143,025.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_332	HORIZONTAL	594,449.27	4,143,025.70	4.37	4.6	533	18	0.127	1.230E-05
CPS_333	HORIZONTAL	594,474.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_334	HORIZONTAL	594,499.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_335	HORIZONTAL	594,524.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_336	HORIZONTAL	594,549.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_337	HORIZONTAL	594,574.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_338	HORIZONTAL	594,599.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_339	HORIZONTAL	594,624.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_340	HORIZONTAL	594,649.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_341	HORIZONTAL	594,674.27	4,143,025.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_342	HORIZONTAL	594,693.52	4,143,037.84	5.00	4.6	533	18	0.127	1.230E-05
CPS_343	HORIZONTAL	594,199.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_344	HORIZONTAL	594,224.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_345	HORIZONTAL	594,249.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_346	HORIZONTAL	594,274.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_347	HORIZONTAL	594,299.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_348	HORIZONTAL	594,324.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_349	HORIZONTAL	594,349.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_350	HORIZONTAL	594,374.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_351	HORIZONTAL	594,399.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_352	HORIZONTAL	594,424.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_353	HORIZONTAL	594,449.27	4,143,050.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_354	HORIZONTAL	594,474.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_355	HORIZONTAL	594,499.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_356	HORIZONTAL	594,524.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_357	HORIZONTAL	594,549.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_358	HORIZONTAL	594,574.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_359	HORIZONTAL	594,599.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a] (m)	Northing (Y) [a] (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)	DPM Emission Rate [b] (g/s)
CPS_360	HORIZONTAL	594,624.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_361	HORIZONTAL	594,649.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_362	HORIZONTAL	594,674.27	4,143,050.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_363	HORIZONTAL	594,199.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_364	HORIZONTAL	594,224.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_365	HORIZONTAL	594,249.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_366	HORIZONTAL	594,274.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_367	HORIZONTAL	594,299.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_368	HORIZONTAL	594,324.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_369	HORIZONTAL	594,349.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_370	HORIZONTAL	594,374.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_371	HORIZONTAL	594,399.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_372	HORIZONTAL	594,424.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_373	HORIZONTAL	594,449.27	4,143,075.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_374	HORIZONTAL	594,474.27	4,143,075.70	4.21	4.6	533	18	0.127	1.230E-05
CPS_375	HORIZONTAL	594,499.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_376	HORIZONTAL	594,524.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_377	HORIZONTAL	594,549.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_378	HORIZONTAL	594,574.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_379	HORIZONTAL	594,599.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_380	HORIZONTAL	594,624.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_381	HORIZONTAL	594,649.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_382	HORIZONTAL	594,674.27	4,143,075.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_383	HORIZONTAL	594,274.34	4,143,097.32	4.00	4.6	533	18	0.127	1.230E-05
CPS_384	HORIZONTAL	594,299.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_385	HORIZONTAL	594,324.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_386	HORIZONTAL	594,349.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_387	HORIZONTAL	594,374.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_388	HORIZONTAL	594,399.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_389	HORIZONTAL	594,424.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_390	HORIZONTAL	594,449.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_391	HORIZONTAL	594,474.27	4,143,100.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_392	HORIZONTAL	594,499.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_393	HORIZONTAL	594,524.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_394	HORIZONTAL	594,549.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_395	HORIZONTAL	594,574.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_396	HORIZONTAL	594,599.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_397	HORIZONTAL	594,624.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_398	HORIZONTAL	594,649.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_399	HORIZONTAL	594,674.27	4,143,100.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_400	HORIZONTAL	594,350.09	4,143,121.02	4.00	4.6	533	18	0.127	1.230E-05
CPS_401	HORIZONTAL	594,374.27	4,143,125.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_402	HORIZONTAL	594,399.27	4,143,125.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_403	HORIZONTAL	594,424.27	4,143,125.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_404	HORIZONTAL	594,449.27	4,143,125.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_405	HORIZONTAL	594,474.27	4,143,125.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_406	HORIZONTAL	594,499.27	4,143,125.70	4.98	4.6	533	18	0.127	1.230E-05
CPS_407	HORIZONTAL	594,524.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_408	HORIZONTAL	594,549.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_409	HORIZONTAL	594,574.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_410	HORIZONTAL	594,599.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_411	HORIZONTAL	594,624.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_412	HORIZONTAL	594,649.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_413	HORIZONTAL	594,674.27	4,143,125.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_414	HORIZONTAL	594,424.91	4,143,146.58	4.00	4.6	533	18	0.127	1.230E-05
CPS_415	HORIZONTAL	594,449.27	4,143,150.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_416	HORIZONTAL	594,474.27	4,143,150.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_417	HORIZONTAL	594,499.27	4,143,150.70	4.00	4.6	533	18	0.127	1.230E-05
CPS_418	HORIZONTAL	594,524.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_419	HORIZONTAL	594,549.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_420	HORIZONTAL	594,574.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_421	HORIZONTAL	594,599.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_422	HORIZONTAL	594,624.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_423	HORIZONTAL	594,649.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_424	HORIZONTAL	594,674.27	4,143,150.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_425	HORIZONTAL	594,499.26	4,143,171.21	4.00	4.6	533	18	0.127	1.230E-05
CPS_426	HORIZONTAL	594,524.27	4,143,175.70	4.80	4.6	533	18	0.127	1.230E-05
CPS_427	HORIZONTAL	594,549.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_428	HORIZONTAL	594,574.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_429	HORIZONTAL	594,599.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_430	HORIZONTAL	594,624.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_431	HORIZONTAL	594,649.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05

AERMOD Source Inputs for Demolition, Construction, and Reconductoring HRA
Lightspeed SJC02
Revised September 2020

Source ID	Stack Release Type	Easting (X) [a]	Northing (Y) [a]	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	DPM Emission Rate [b]
		(m)	(m)	(m)	(m)	(K)	(m/s)	(m)	(g/s)
CPS_432	HORIZONTAL	594,674.27	4,143,175.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_433	HORIZONTAL	594,599.27	4,143,200.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_434	HORIZONTAL	594,624.27	4,143,200.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_435	HORIZONTAL	594,649.27	4,143,200.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_436	HORIZONTAL	594,674.27	4,143,200.70	5.00	4.6	533	18	0.127	1.230E-05
CPS_437	HORIZONTAL	594,674.00	4,143,220.01	5.00	4.6	533	18	0.127	1.230E-05

Note:
[a] Coordinates are provided in NAD83 UTM Projection, Zone 10.
[b] DPM emission rates from demolition, construction, and reconductoring taken from Appendix 3.3-D, Table 1R, assuming even distribution amongst the onsite modeled sources within the demolition and construction area.

Appendix 3.3-D, Table 3R
Cancer Impacts due to Demolition, Construction, and Reconductoring Diesel Particulate Matter
Lightspeed SJC02
Revised September 2020

Modeled Concentrations
Maximum annual impact of annualized project emissions

PMI	0.06534	μg/m^3	Diesel PM
MEIR	0.01244	μg/m^3	Diesel PM
Sensitive	0.00144	μg/m^3	Diesel PM
MEIW	0.06534	μg/m^3	Diesel PM

Demolition, Construction, and Reconductoring HRA per the 2015 OEHHA Guidance
Residential Calculation Procedure for Cancer Risks

PMI

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	2.26E-05	6.84E-05	6.84E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	5.40E-05	4.67E-05	4.67E-05	4.67E-05	4.67E-05	4.67E-05	4.67E-05	4.67E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05	2.10E-05
Risk	7.56E-07	9.13E-06	9.13E-06	1.83E-06	1.83E-06	1.83E-06	1.83E-06	1.83E-06	1.83E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06	1.59E-06	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07	2.41E-07
Rolling 2-yr Risk [a]			1.90E-05	1.10E-05	3.67E-06	3.67E-06	3.67E-06	3.67E-06	3.67E-06	3.42E-06	3.17E-06	3.17E-06	3.17E-06	3.17E-06	3.17E-06	3.17E-06	1.83E-06	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07	4.82E-07
Risk per Million			19.02	10.97	3.67	3.67	3.67	3.67	3.67	3.42	3.17	3.17	3.17	3.17	3.17	3.17	1.83	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48	0.48

MEIR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	4.31E-06	1.30E-05	1.30E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	1.03E-05	8.90E-06	8.90E-06	8.90E-06	8.90E-06	8.90E-06	8.90E-06	8.90E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06	4.00E-06
Risk	1.44E-07	1.74E-06	1.74E-06	3.49E-07	3.49E-07	3.49E-07	3.49E-07	3.49E-07	3.49E-07	3.02E-07	3.02E-07	3.02E-07	3.02E-07	3.02E-07	3.02E-07	3.02E-07	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08	4.59E-08
Rolling 2-yr Risk [a]			3.62E-06	2.09E-06	6.98E-07	6.98E-07	6.98E-07	6.98E-07	6.98E-07	6.51E-07	6.04E-07	6.04E-07	6.04E-07	6.04E-07	6.04E-07	6.04E-07	3.48E-07	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08	9.18E-08
Risk per Million			3.62	2.09	0.70	0.70	0.70	0.70	0.70	0.65	0.60	0.60	0.60	0.60	0.60	0.60	0.35	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09

MESR

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Dose (mg/kg/day)	4.99E-07	1.51E-06	1.51E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.19E-06	1.03E-06	1.03E-06	1.03E-06	1.03E-06	1.03E-06	1.03E-06	1.03E-06	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07	4.63E-07
Risk	1.67E-08	2.01E-07	2.01E-07	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	4.04E-08	3.50E-08	3.50E-08	3.50E-08	3.50E-08	3.50E-08	3.50E-08	3.50E-08	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09	5.31E-09
Rolling 2-yr Risk [a]			4.19E-07	2.42E-07	8.08E-08	8.08E-08	8.08E-08	8.08E-08	8.08E-08	7.54E-08	6.99E-08	6.99E-08	6.99E-08	6.99E-08	6.99E-08	6.99E-08	4.03E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08	1.06E-08
Risk per Million			0.42	0.24	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Worker Calculation Procedure for Cancer Risks

MEIW

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Dose (mg/kg/day)	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05	1.02E-05
Risk	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07	1.61E-07
Rolling 2-yr Risk [a]		3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07	3.21E-07
Risk per Million		0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32

Note:
[a] Cancer risk was summed on a 2-year rolling basis to conservatively mirror the 17-month duration of project construction, of which the first month includes demolition activities. Reconductoring activities will occur concurrently with the 17-month construction period.

Appendix 3.3-D, Table 4R
Chronic Impacts due to Demolition, Construction, and Reconductoring Diesel Particulate Matter
Lightspeed SJC02
Revised September 2020

Demolition, Construction, and Reconductoring HRA per the 2015 OEHHA Guidance
Calculation Procedure for Chronic Hazard Index

Receptor Type	Pollutant	Maximum Annual Modeled Concentration (μg/m^3) [a]	REL (μg/m^3) [b]	Chronic Hazard Index
PMI	Diesel PM	0.0653	5	0.0131
MEIR	Diesel PM	0.01244	5	0.0025
MESR	Diesel PM	0.00144	5	0.0003
MEIW	Diesel PM	0.0653	5	0.0131

Notes:
[a] Maximum Annual Modeled Concentrations taken from Appendix 3.3-D, Table 3R.
[b] REL taken from the *Consolidated Table of OEHHA/ARB Approved Risk Assessment Health Values* (OEHHA & ARB, 2018).

Appendix 3.3-D, Table 5
Residential Constants for Cancer Risk
Lightspeed SJC02
November 2019

Dose Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BR/BW	361	1090	1090	861	861	861	861	861	861	745	745	745	745	745	745	745
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
BR/BW	335	335	335	335	335	335	335	335	335	335	335	335	335	335	335
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	0 (3rd tri)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	10	10	10	3	3	3	3	3	3	3	3	3	3	3	3	3
ED	0.25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
FAH	0.85	0.85	0.85	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
FAH	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73	0.73

A. Equation 5.4.1.1: $\text{Dose-air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Concentration in air ($\mu g/m^3$)
3. {BR/BW} = Daily Breathing rate normalized to body weight (L/kg body weight - day)
4. A = Inhalation absorption factor (unitless)
5. EF = Exposure frequency (unitless), days/365 days
6. 10^{-6} = Micrograms to milligrams conversion, liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.1:

1. {BR/BW} = Daily breathing rates by age groupings, see As supplemental information, the assessor may wish to evaluate the inhalation dose by using the mean point estimates in Table 5.6 to provide a range of breathing rates for cancer risk assessment to the risk manager.
2. Table (point estimates) and Table 5.7 (parametric model distributions for Tier III stochastic risk assessment). For Tier 1 residential estimates, use 95th percentile breathing rates in Table 5.6.
3. A = 1
4. EF = 0.96 (350 days/365 days in a year for a resident)

A. Equation 8.2.4 A: $RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$

7. $RISK_{inh\text{-}res}$ = Residential inhalation cancer risk
8. $DOSE_{air}$ = Daily inhalation dose (mg/kg-day)
9. CPF = Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
10. ASF = Age sensitivity factor for a specified age group (unitless)
11. ED = Exposure duration (in years) for a specified age group
12. AT = Averaging time for lifetime cancer risk (years)
13. FAH = Fraction of time spent at home (unitless)

a: Recommended default values for EQ 8.2.4 A:

5. $DOSE_{air}$ = Calculated for each age group from Eq. 5.4.1
6. CPF = Substance-specific (see Table 7.1)
7. ASF = See Section 8.2.1
8. ED = 0.25 years for 3rd trimester, 2 years for 0<2, 7 years for 2<9, 14 years for 2<16, 14 years for 16<30, 54 years for 16-70
9. AT = 70 years*
10. FAH = See Table 8.4

Appendix 3.3-D, Table 6
Worker Constants for Cancer Risk
Lightspeed SJC02
November 2019

Dose Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
WAF [a]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
BR/BW	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230	230
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EF	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Conversion	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001

Risk Constants

Year	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
CPF (Diesel PM)	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
ASF	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ED	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
AT	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70

Notes:

[a] Conservatively assumes construction activities occur 24 hours per day, 7 days per week.

A. Equation 5.4.1.2 A: $\boxed{\textbf{Dose-air} = (C_{air} \times WAF) \times \{BR/BW\} \times A \times EF \times 10^{-6}}$

1. Dose-air = Dose through inhalation (mg/kg/d)
2. C_{air} = Annual average concentration in air (μg/m^3)
3. WAF = Worker air concentration adjustment factor (unitless)
4. {BR/BW} = Eight-hour breathing rate normalized to body weight (L/kg body weight - day)
5. A = Inhalation absorption factor (unitless)
6. EF = Exposure frequency (unitless), days/365 days)
7. 10^{-6} = Micrograms to milligrams conversion, Liters to cubic meters conversion

a: Recommended default values for EQ 5.4.1.2 A:

1. WAF = See EQ. 5.4.1.2 B for formula to calculate WAF, or App. M for refined post-processing modeling to calculate WAF.
2. {BR/BW} = For workers, use age16-70 year, 95th percentile, moderate intensity 8-hour point estimate breathing rates (see Table 5.8). No worker breathing rate distributions exist for stochastic risk assessment.
3. A = 1
4. EF = 0.68 (250 days / 365 days). Equivalent to working 5 days/week, 50 weeks/year.

b: Assumption for EQ 5.4.1.2 A:

1. The fraction of chemical absorbed (A) through the lungs is the same fraction absorbed in the study on which the cancer potency factor is based.
2. The source emits during the daylight hours. Calculate WAF (EQ 5.4.1.2 B) if a special post-processing modeling run described in App. M was not completed. For nighttime emissions and exposure scenarios, see Appendix N.

B. Equation 5.4.1.2 B: $\boxed{\mathbf{WAF = (H_{res} / H_{source}) \times (D_{res} / D_{source}) \times DF}}$

1. WAF = Worker adjustment factor (unitless)
2. H_{res} = Number of hours per day the annual average residential air concentration is based on (always 24 hours)
3. H_{source} = Number of hours the source operates per day
4. D_{res} = Number of days per week the annual average residential air concentration is based on (always 7 days)
5. D_{source} = Number of days the emitting source operates per week
6. DF = Discount factor, for when the offsite worker's schedule partially overlaps the source's emission schedule

b: Recommended default values for EQ 5.4.1.2 B:

1. DF = 1 for offsite worker's schedule occurring within the source's emission schedule. A site-specific survey may be used to adjust the DF using EQ 5.4.1.2 C.

C. Equation 5.4.1.2 C: $\boxed{\mathbf{DF = (H_{coincident} / H_{worker}) \times (D_{coincident} / D_{worker})}}$

1. $H_{coincident}$ = Number of hours per day the offsite worker's schedule and the source's emission schedule coincide
2. H_{worker} = Number of hours the offsite worker works per day
3. $D_{coincident}$ = Number of days per week the offsite worker's schedule and the source's emission schedule coincide
4. D_{worker} = Number of days the offsite worker works per week

B. Equation 8.2.4 B: $\boxed{\mathbf{RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT}}$

1. $RISK_{inh\text{-}work}$ = Worker inhalation cancer risk

a: Recommended default values for EQ 8.2.4 B:

1. $DOSE_{air}$ = Calculated for workers in Eq. 5.4.1.2
2. CPF = Substance specific (see Table 7.1)
3. ASF = 1 for working age 16-70 yrs (See Section 8.2.1)
4. ED = 25 years
5. AT = 70 yrs for lifetime cancer risk

Attachment B
Biological Resources Reconductored Transmission Line Route Addendum

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Memorandum

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Subject	**Supplemental Biological Resources Assessment for the Reconductored Transmission Line Alignment for the SJC02 Project**
Project Name	San Jose City Data Center (SJC02)
From	Kevin Fisher/Jacobs
Date	October 5, 2020
Copies to	J. Salamy/Jacobs, S. Madams/Jacobs, P. Witter/Microsoft

This section supplements the Biological Resources evaluation previously submitted in the SJC02 SPPE application, submitted November 15, 2019, by evaluating the potential impacts of reconductoring the existing Pacific Gas and Electric (PG&E) approximately 8.76-mile-long Newark-North Receiving Station #1 115 kV transmission line. This assessment provides an overview of biological resources (vegetation, fish, wildlife, habitat, and wetlands) within the reconductored transmission line corridor; identifies any potential impacts on sensitive habitats and species that could result from the implementation of reconducting activities; and concludes that impacts on biological resources will be less than significant. The potential effects of the reconductoring activities on biological resources were evaluated using the significance criteria set forth in Appendix G of the California Environmental Quality Act (CEQA) Guidelines. The conclusions are summarized in the table below and are discussed in more detail in Section 1.3, Potential Impacts.

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on state or Federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal,	☐	☐	☒	☐

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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.

1.1 Regulatory Background and Methodology

1.1.1 Regulatory Background

Please refer to Section 3.4.2.1 of the SJC02 SPPE Application, Biological Resources for a full description of applicable federal, state, and local laws, policies, and regulations that pertain to biological resources, which are also relevant to the reconductoring activities.

As explained more fully below, the reconductoring study area is within the area covered by the PG&E Bay Area Operations and Maintenance Habitat Conservation Plan (HCP), and reconductoring is a covered activity in the HCP (ICF 2017). Discussion of the relevant provisions of this HCP and relevant measures from the HCP have been included in this document as project design features (PDFs) in Section 1.4.

1.1.2 Methodology

This section summarizes the methods used to identify and analyze potential impacts on special-status species that may occur in the reconductoring study area. As used here, the term “special-status species” is defined as including plants and animals meeting the criteria defined below.

- Species that are listed as threatened or endangered under federal Endangered Species Act (ESA) (50 CFR 17.11);
- Species that are candidates for possible future listing as threatened or endangered under ESA (76 FR 66370);
- Species that are listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 CCR 670.5);
- Species listed as Species of Special Concern or a Fully Protected Species by the California Department of Fish and Wildlife (CDFW);
- Species that meet the definitions of rare or endangered under California Environmental Quality Act (CEQA) (CEQA Guidelines, § 15380), as determined by the project biologist;

- Animals fully protected in California (Fish & Game Code, § 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
- Designated as rare under the Native Plant Protection Act; or
- Species listed by California Native Plant Society (CNPS) in the online version of its *Inventory of Rare and Endangered Plants of California* (CNPS, 2020) as List 1A, 1B, 2A, or 2B.

The reconductoring study area as defined here is an existing approximately 8.76-mile-long transmission line which runs from the Newark-North Receiving Station in the south to the Newark Substation in the north, plus a 250-foot radius buffer around the transmission line as well as the five proposed laydown and staging areas. As described in the following paragraphs, qualified biologists began their research with database searches and literature reviews to determine which special-status plants, natural communities, and wildlife might have potential to occur in the reconductoring study area.

1.1.2.1 Database Searches

The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the reconductoring study area:

- USFWS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat (USFWS 2020)
- CNPS online Inventory of Rare and Endangered Vascular Plants of California (CNPS 2020)
- California Natural Diversity Database (CNDDB; CDFW 2020)
- Species List of NOAA Fisheries Resources in California (NOAA 2020)

A CNDDB search for special-status species was conducted for a 2-mile buffer around the reconductoring study area (CDFW 2020). The 2-mile buffer encompasses estuarine habitat, ecotones, and uplands along the San Francisco Bay shoreline where the transmission line is located. The USFWS database was queried for federally-listed species and critical habitat using the USFWS Information Planning and Consultation (IPaC) tool for the reconductoring study area (USFWS 2020). The CNPS database was queried for Milpitas U.S. Geological Survey (USGS) 7.5-minute quadrangle in which the reconductoring study area occurs, and for the eight surrounding quadrangles (Newark, Niles, La Costa Valley, Mountain View, Calaveras Reservoir, Cupertino, San José West, and San José East) (CNPS 2020). The list of sensitive species was screened by biologists with extensive knowledge of the local flora and fauna to confirm that all special-status species with the potential to occur in the reconductoring study area were included in the database queries.

Other information sources consulted as part of conducting this analysis included the following:

- Natural Resources Conservation Service (NRCS) Web Soil Survey was utilized to obtain information about soils in the reconductoring study area (NRCS, 2020)
- PG&E Bay Area HCP (ICF, 2017)
- Aerial photographs (Google 2020)

1.1.2.2 Field Surveys

Biological reconnaissance-level surveys were conducted on August 3 and 5, 2020 by qualified biologists, Kevin Fisher and Stephanie Owens (Jacobs). Surveys entailed windshield surveys in developed areas and walking meandering surveys in publicly accessible non-developed portions of the reconductoring study area, and surveying areas that appeared to support potential habitat for special-status species as identified in desktop-level reviews.

1.1.2.3 Likelihood of Presence for Special-Status Species

Using the information generated from literature reviews and field surveys, the list of special-status species with the potential to occur within the reconductoring study area was further refined to reflect the species that may occur within the reconductoring study area more generally. The likelihood of special-status species occurrence was determined based on natural history parameters, including, but not limited to, the species' range, habitat, foraging needs, migration routes, and reproductive requirements, using the following general categories:

- *Present* – Reconnaissance-level, focused, or protocol-level surveys documented the occurrence or observation of a species in the study area.
- *Likely to occur (onsite)* – The species has a strong likelihood to be found in the study area prior to or during construction but has not been directly observed to date during project surveys. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present on or near the study area; migration routes or corridors are near or within the study area; records of sighting are documented on or near the study area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that records of occurrence have been documented within or near the study area, the study area falls within the range of the species, and suitable habitat is present; however, it is undetermined whether the habitat is currently occupied.
- *Potential to occur* – There is a possibility that the species can be found in the study area prior to or during construction but has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present on or near the study area; migration routes or corridors are near or within the study area; and there is an absence of invasive predators (e.g., bullfrogs). The main assumption is that the study area falls within the range of the species and suitable habitat is present, but that no records of sighting are located within or near the study area and it is undetermined whether the habitat is currently occupied.
- *Unlikely to occur* – The species is not likely to occur in the study area based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas, and lack of sheltering areas); presence of barriers to migration and dispersal; presence of predators or invasive species that inhibit survival or occupation (e.g., the presence of bullfrogs or invasive fishes); and lack of hibernacula, hibernation areas, or estivation areas onsite.
- *Absent* – Suitable habitat does not exist in the study area, the species is restricted to or known to be present only within a specific area outside of the study area, or focused or protocol-level surveys did not detect the species.

Unless otherwise noted, the likelihood of presence and environmental information presented in this section are summarized in Appendix A.

1.2 Environmental Setting

1.2.1 Regional Setting

The approximately 534-acre reconductoring study area stretches approximately 8.76 miles in length and is located in the South San Francisco Bay Area within Santa Clara and Alameda counties (Figure 1). The reconductoring study area is within the Milpitas 7.5-minute USGS topographic quadrangle. The reconductoring study area is bordered by the San Francisco Bay to the northwest and primarily developed lands to the north, south, and east. Open space is present in the vicinity to the east. The reconductoring study area lies within the Bay Flats, East Bay Terraces and Alluvium, and Santa Clara Valley subsections of the Central California Coast section (Miles and Goudey, 1998). Regionally, these subsections consist of parts of the plain at the south end of San Francisco Bay that are less than 10 feet above mean tide level and alluvial plain that is between the East Bay Hills and San Francisco Bay.

1.2.2 Local Setting

The majority of the reconductoring study area is less than approximately 10 feet above mean sea-level. Mean annual precipitation is about 12 to 15 inches and the mean annual temperature is about 58° to 60° Fahrenheit. Portions of the reconductoring study area are intertidal, and some areas have been diked. The deltas of Coyote Creek, which drains the Santa Clara Valley, and Guadalupe River are in the reconductoring study area. Areas more than approximately 10 feet above mean sea-level consist mostly of developed, residential, ruderal, and grassland areas.

1.2.2.1 Landcover, Vegetation, and Wildlife Habitats

Figure 2, Maps 1 to 15 shows the landcover types in the reconductoring study area. The existing transmission towers in the reconductoring study area have been assigned a number sequentially from north to south. The numbers are used in this section to communicate the locations of various landcover types and habitats. The tower numbering does not correspond to a formal tower designation assigned by PG&E.

The reconductoring study area consists of a variety of landcover, vegetation, and wildlife habitats, including; developed, mesic grassland, annual grassland, ruderal, vernal pool, salt panne, salt pond, freshwater marsh/emergent wetland, brackish marsh, salt marsh, landscaped, and seasonal wetland, as described in the following sections.

Developed

Developed landcover types including roads, parking lots, hotels, and residential areas cover approximately 141 acres of the reconductoring study area. Developed areas are located mostly in the northernmost and southernmost portions of the reconductoring study area. Towers 1, 8, 9, 28, 47 through 51, 54, 55, and 58 through 62 are located in developed areas (Figure 2, Maps 1, 2, 7, 12, 13, 14, and 15). Laydown and Staging Areas A and E are located in developed areas (Figure 2 Maps 16 and 19).

Mesic Grassland

There are approximately 25 acres of mesic grassland habitat within the northern portion of the reconductoring study area between Towers 2 through 7 (Figure 2, Map 1). This mesic grassland consists mostly of wild radish (*Raphanus raphanistrum*), prickly lettuce (*Lactuca serriola*), Bermuda grass (*Cynodon dactylon*), curly dock (*Rumex crispus*), perennial pepperweed (*Lepidium latifolium*), wall barley (*Hordeum murinum*), panic veldtgrass (*Ehrharta erecta*), and wild oats (*Avena spp.*).

Annual Grassland

There are approximately 42 acres of annual grassland habitat in the reconductoring study area. The annual grassland consists mostly of wild oats, common mallow (*Malva neglecta*), Bermuda grass, black mustard (*Brassica nigra*), and wall barley. The annual grasslands near Tower 55 also have eucalyptus (*Eucalyptus globulus*) and cottonwood (*Populus sp.*) trees. The annual grasslands throughout the reconductoring study area have heavy ground squirrel (*Otospermophilus beecheyi*) use and provide suitable burrowing owl (*Athene cunicularia*) habitat. Towers 10, 11, 44 through 46, and 55 are located in annual grassland (Figure 2 Maps 2, 12, and 14).

Ruderal/Disturbed

There are approximately 34 acres of ruderal and disturbed habitat throughout the reconductoring study area. Ruderal vegetation consists mostly of fennel (*Foeniculum vulgare*), bromes (*Bromus sp.*), yellow star-thistle (*Centaurea solstitialis*), black mustard, plantain (*Plantago sp.*), and stinkwort (*Dittrichia graveolens*). Towers 56 and 57 are located in a large stretch of ruderal habitat that is located in the southern portion of the reconductoring study area and was previously a golf course (Figure 2 Map 14). Laydown and Staging Areas B, C, and D are located in ruderal and disturbed habitat (Figure 2 Maps 10, 17, and 18). There is also approximately 4 acres of mesic ruderal habitat within the northern portion of the reconductoring study area (Figure 2 Map 1). This mesic ruderal habitat consists mostly of perennial

Pepperweed and alkali mallow (*Malvella leprosa*). The mapping of this habitat type also includes barren areas with recently disturbed soils.

Vernal Pool

There are approximately 34 acres of vernal pool habitat throughout the reconductoring study area. Vegetation within the vernal pool complex in the reconductoring study area is similar to the vegetation described in the annual grassland section above; however, this area has seasonal pools of water. Towers 12 through 15 (Figure 2 Map 3) are located in vernal pool habitat.

Salt Panne

There are approximately 52 acres of salt panne habitat within the reconductoring study area. Salt panne habitat consists of shallow depressions that trap saline water during very high tides for weeks and unvegetated flats in diked marshes or seasonally dry salt ponds. The edges of salt pannes consist mostly of alkali heath (*Frankenia salina*) and pickleweed (*Sarcocornia pacifica*). Salt pannes provide suitable nesting habitat for western snowy plover (*Charadrius alexandrinus nivosus*) in the spring and summer. Towers 16 through 19 are located in salt panne habitat (Figure 2 Maps 3 and 4).

Salt Pond

There are approximately 46 acres of salt pond habitat throughout the reconductoring study area. Salt ponds are characterized by shallow areas of high salinity open water. The extensive levee systems surrounding salt ponds provide potential roosting and nesting habitat for a variety of birds, including the western snowy plover. Towers 30 through 34 are located in salt pond habitat (Figure 2 Maps 8 and 9).

Freshwater Marsh/Emergent Wetland

There are approximately 3 acres of freshwater marsh/emergent wetland in the reconductoring study area. Freshwater marsh is located at a constructed emergent wetland in the northern portion of the reconductoring study area between Towers 7 and 8 (Figure 2 Map 2) and adjacent to a major road near Tower 52 (Figure 2 Map 13). The freshwater marsh is dominated by California bulrush (*Schoeneoplectus californicus*) and cattail (*Typha sp.*). At Tower 54 (Figure 2 Map 14) the surrounding vegetation consists mostly of rushes (*Juncus spp.*), sedges (*Carex spp.*), mule fat (*Baccharis salicifolia*) curly dock, cattail, and purple star thistle (*Centaurea calcitrapa*). No towers are located directly in freshwater marsh/emergent wetland.

Brackish Marsh

There are approximately 74 acres of brackish marsh in the reconductoring study area. This area receives freshwater discharge from the San Jose/Santa Clara Water Pollution Control Pant and Coyote Creek. Brackish marsh in the reconductoring study area is dominated by alkali bulrush (*Bolboschoenus maritimus*). Other plant species abundant in the brackish marsh include bulrush (*Schoenoplectus acutus*), common reed (*Phragmites australis*), peppergrass (*Lepidium latifolium*), spearscale (*Atriplex prostrata*), and western marsh-rosemary (*Limonium californicum*). Towers 20 through 27 and 29 are surrounded by brackish marsh habitat, but these towers have been constructed on small islands of fill material (Figure 2 Maps 5 through 8).

Salt Marsh

There are approximately 62 acres of salt marsh habitat within the reconductoring study area. Salt marsh habitat consists primarily of areas completely open to tidal influence including tidal channels. They also include areas of muted salt marsh, which are areas where culverts or other obstructions reduce the range of tides but still allow frequent inundation. Vegetation consists primarily of pickleweed. By Tower 39, salt marsh habitat transitions to coyote brush scrub (*Baccharis pilularis*) and common tarweed (*Madia sp.*) in the upland area. Salt marsh habitat has the potential to provide suitable habitat for salt marsh harvest mouse (*Reithrodontomys raviventris*) and California Ridgway's rail (*Rallus obsoletus*). Towers 35 through 42 are located in salt marsh habitat (Figure 2 Maps 9, 10, and 11).

Landscaped

There are approximately 2 acres of landscaped areas within the reconductoring study area consisting of a mixture of maintained and ornamental vegetation. Towers 52 and 53 (Figure 2 Map 13) are located in landscaped landcover.

Seasonal Wetland

There are approximately 5 acres of seasonal wetland within the reconductoring study area. This area was likely a former salt marsh that has been closed off from the Bay's tidal action and is now inundated for part of the year due to rainfall. Vegetation consists mostly of salt grass, curly dock (*Rumex crispus*), and black mustard. This area is designated as burrowing owl habitat. Tower 43 is located in this seasonal wetland (Figure 2 Map 11).

Special-Status Species

This section describes special-status species observed (present) during project reconnaissance-level field surveys and any species considered to be likely to occur, have potential to occur, or that are seasonally present. Special-status species that are unlikely to be found in the reconductoring study area are not discussed in this section.

The CNDDB, USFWS, CNPS, and NOAA database searches identified 75 special-status species within the vicinity of the transmission line, as described in Section 1.2.2, Methodology (Appendix A). CNDDB records of plants, wildlife, and critical habitat are illustrated on Figures 3a and 3b and 4. These database searches identified 35 special-status plant species, and 40 special-status wildlife species. Table 1 and 2 (Special-Status Plant Species and Special-Status Wildlife Species, respectively) only include those species that were identified as having some potential to occur in the reconductoring study area. A full list of the species identified in the database reviews and their likelihood of presence is provided in Appendix A.

Special-Status Plant Species

Thirty-five special-status plant species were identified in the CNDDB, USFWS, and CNPS records searches. However, only 10 species; alkali milk-vetch (*Astragalus tener var. tener*), brittlescale (*Atriplex depressa*), lesser saltscale (*Atriplex minuscule*), Congdon’s tarplant (*Centromadia parryi*), Hoover’s button-celery (*Eryngium aristulatum var. hooveri*), San Joaquin Spearscale (*Extriplex joaquiniana*), Contra Costa goldfields (*Lasthenia conjugens*), prostrate vernal pool navarretia (*Navarretia prostrata*), California alkali grass (*Puccinellia simplex*), and saline clover (*Trifolium hydrophilum*), have the potential to occur in and adjacent to the reconductoring study area due to the presence of potentially suitable habitat and known occurrences. These species are described in further detail in Table 1. The table provides an assessment of the potential for the species to occur in the reconductoring study area. The remaining species identified from the database queries were determined absent because the reconductoring study area, and adjacent potentially indirectly impacted areas, lack suitable habitat and known occurrences.

Table 1. Special-Status Plant Species

Scientific Name/ Common Name	Status[a] Federal	State	CNPS	Habitat	Potential for Occurrence in Reconductoring Study Area
Astragalus tener var. tener/ alkali milk-vetch	-	-	1B.2	Occurs in alkaline soils in valley and foothill grassland and in vernal pools. Blooms March through June.	**Potential to occur. Potentially** suitable habitat is present in the reconductoring study area in mesic grassland and vernal pool habitat. There are three CNDDB occurrences within 2 miles of the reconductoring study area; however, one is considered extirpated and one is considered possibly extirpated. The occurrence presumed extant is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat and was last updated in 2008. In 2002, 130 plants were observed at this location. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Atriplex depressa/ brittlescale	-	-	1B.2	Occurs on alkaline clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools. Blooms April through October.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the reconductoring study area located approximately 0.2 miles southwest of Tower 14 in vernal pool habitat. Approximately 700 plants were observed at this location in 2003. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15.
Atriplex minuscule/ Lesser saltscale	-	-	1B.1	Occurs in alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grasslands. Blooms May through October.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the reconductoring study area located approximately 150 feet southwest of Tower 10 in vernal pool habitat, which was last seen in 2003. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15.
Centromadia parryi ssp. congdonii/ Congdon's tarplant	-	-	1B.1	Occurs on valley and foothill grasslands on alkaline soils; species is highly tolerant of disturbed habitats. Blooms May through November.	**Likely to occur.** Suitable habitat is present in the reconductoring study area in grassland, ruderal, and vernal pool habitat. There are 5 CNDDB occurrences within 2 miles of the reconductoring study area, although one is considered possibly extirpated. One of the CNDDB occurrences is located directly under the transmission line near Tower 43 where 822 plants were observed in 2016. Another occurrence is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat, where 16,000 plants were observed in 2001 and seen in 2019. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15 and Tower 43.

Table 1. Special-Status Plant Species

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence in Reconductoring Study Area
	Federal	State	CNPS		
Eryngium aristulatum var. hooveri/ Hoover's button-celery	-	-	1B.1	Occurs in vernal pools. Blooms July through August.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in vernal pool habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area; however, two occurrences are considered possibly extirpated. One of the extant occurrences is located approximately 0.5 miles southwest of Tower 10 in vernal pool habitat, where 20 plants were observed in 2009. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Extriplex joaquiniana/ San Joaquin Spearscale	-	-	1B.2	Occurs in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands on alkaline soils. Blooms April through October.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the reconductoring study area, which is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat, where 300 plants were observed in 2001. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Lasthenia conjugens/ Contra Costa goldfields	E	-	1B.1	Vernal pools and mesic soils within cismontane woodland, playas (alkaline), and valley and foothill grassland. Blooms March through June.	**Likely to occur.** Suitable habitat is present in the reconductoring study area in mesic grassland and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located approximately 0.2 miles southwest of Tower 10 in vernal pool habitat where 4 colonies are mapped. The other occurrence is located approximately 0.4 miles northeast of Tower 15 10 in vernal pool habitat, where 1,485 plants were seen in 2009 and 3 colonies are mapped. Locations of potentially suitable habitat for this species includes the area surrounding Towers 2 through 7 and Towers 12 through 15.
Navarretia prostrata/ prostrate vernal pool navarretia	-	-	1B.1	Vernal pools and mesic soils in coastal scrub, meadows and seeps, and valley and foothill grassland (alkaline). Blooms April through July.	**Likely to occur.** Suitable habitat is present in the reconductoring study area in mesic grassland and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located approximately 0.5 miles northeast of Tower 13 in vernal pool habitat and another is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat. In total, 950 plants seen at both occurrences in 2001. Locations of potentially suitable habitat for this species includes the area surrounding Towers 2 through 7 and Towers 12 through 15.
Puccinellia simplex/ California alkali grass	-	-	1B.2	Vernal pools in chenopod scrub, meadows and seeps, and valley	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in vernal pool habitat. There is one CNDDB occurrence within 2 miles of the reconductoring study area

Table 1. Special-Status Plant Species

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence in Reconductoring Study Area
	Federal	State	CNPS		
				and foothill grassland. Blooms March through May.	located approximately 0.4 miles southwest of Tower 13 in vernal pool habitat that was observed in 2003. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Trifolium hydrophilum/ Saline clover	-	-	1B.2	Marshes and swamps, valley and foothill grasslands on mesic or alkaline soils, and vernal pools. Blooms April through June.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in salt marsh, grassland, and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the reconductoring study area. Once occurrence is located approximately 0.5 miles southwest of Tower 12 in vernal pool habitat and was observed in 2019. The other occurrence is within the vicinity of Alviso. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15 and Towers 35 through 42.

[a]Status designations are as follows:
CNPS California Rare Plant Rank (CRPR):
(1B) Rare, threatened, or endangered in California and elsewhere

Threat Rank:
0.1 Seriously threatened in California (more than 80% of occurrences threatened/high degree and immediacy of threat)
0.2 Fairly threatened in California (20 to 80% of occurrences threatened/moderate degree and immediacy of threat)

Sources:
USFWS, 2020; CDFW, 2020; CNPS, 2020

Special-Status Wildlife Species

Forty special-status wildlife species were identified in the CNDDB, USFWS, CNPS, and NOAA records searches. However, only 23 species have the potential to occur in and adjacent to the reconductoring study area due to the presence of potentially suitable habitat and known occurrences. These species are described in further detail in Table 2 with respect to the reconductoring study area. The remaining species identified from the database queries were determined absent because the reconductoring study area and adjacent potentially indirectly impacted areas, lack suitable habitat and known occurrences.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence in Reconductoring Study Area
	Federal	State	CDFW		
Invertebrates					
Branchinecta conservation/ Conservancy fairy shrimp	E	-	-	Endemic to the grasslands of the northern two-thirds of the central valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**Potential to occur.** Potentially suitable habitat is present within the reconductoring study area in vernal pools. There are no CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Bombus occidentalis/ western bumble bee	-	CE	-	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease. Eusocial generalist pollinator, visiting a wide range of plant species that provide nectar and pollen during the colony's life cycle of February to November.	**Potential to occur.** A variety of flowering plants grow within the reconductoring study area; species could forage and nest in the reconductoring study area. There is one CNDDB occurrence within 2 miles of the reconductoring study area located in the vicinity of the city of San Jose. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 44 through 46, 52, 53, and 55.
Branchinecta lynchi/ vernal pool fairy shrimp	T	-	-	Endemic to the grasslands of the central valley, central coast mountains and south coast mountains in rain-filled vernal pools and swales.	**Potential to occur.** Potentially suitable habitat is present in the reconductoring study area in vernal pool habitat. There are no CNDDB occurrence within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.
Lepidurus packardi/ vernal pool tadpole shrimp	E	-	-	Occurs in vernal pools of California; vernal pools and swales in the Sacramento Valley containing clear to highly turbid water.	**Likely to occur.** Suitable habitat is present in the reconductoring study area in vernal pool habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area, with one occurrence located approximately 0.2 miles southwest of Tower 12 in vernal pool habitat. In 2004, 22 species were found in 3 vernal pools in the area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Fish					
Acipenser medirostris/ green sturgeon	T	-	-	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento River. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	**Potential to occur.** Potentially suitable foraging habitat is present within open water and intertidal mudflats (during high tide) of the reconductoring study area. Portions of the reconductoring study area are within designated critical habitat. Sturgeon have the potential to be present within the reconductoring study area year-round. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.
Oncorhynchus mykiss irideus/ steelhead, central California coast distinct population segment (DPS)	T	-	-	Spawn in freshwater rivers or streams in the spring and spend the remainder of their life in the ocean.	**Seasonally Present.** Suitable habitat is present within open water of the reconductoring study area; however, this species is unlikely to occur between July and October. There is one CNDDB occurrence within 2 miles of the reconductoring study area, which is directly in the project footprint in Guadalupe River/Alviso Slough between Tower 48 and 49. According to this occurrence, three juveniles were observed in 2017 in this area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.
Spirinchus thaleichthys/ Longfin smelt	CT	-	SSC	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column and more recently in marshes and sloughs.	**Seasonally Present**. Suitable habitat is present within the marshes and sloughs of the Coyote Creek watershed within the reconductoring study area, where recent studies have documented longfin smelt (adults and postlarval recruits) from October through May (Lewis et al. 2019). Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Reptiles					
Actinemys marmorata/ western pond turtle	-	-	SSC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes. Open slow-moving water of rivers and creeks of central California with rocks and logs for basking.	**Potential to occur**. Waterways within the reconductoring study area lack rocks and logs and are likely too saline; however, they could potentially occur. There is one CNDDB occurrence within 2 miles of the reconductoring study area located approximately 0.4 miles southwest of Tower 55 in Saratoga Creek recorded in 2017. Locations of potentially suitable habitat for this species includes the area between Towers 7 and 8 and surrounding Tower 52.
Amphibians					
Ambystoma californiense/ California tiger salamander	T	T	-	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites.	**Likely to occur**. Suitable habitat is present within the reconductoring study area in vernal pools and adjacent grasslands. There are five CNDDB occurrences within 2 miles of the reconductoring study area, with some occurring directly in the reconductoring study area. One of the occurrences is considered extirpated but the other four are located both directly in the project footprint and within 0.4 miles of the project footprint within the vernal pool complex near Towers 12 through 15 and were last observed in 2004. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15.
Birds					
Agelaius tricolor/Tricolored blackbird	-	T	SSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets Forages in grassland and cropland habitats	**Potential to Occur**. Potentially suitable foraging habitat is present within the reconductoring study area in grasslands. Potentially suitable nesting habitat is present within wetlands in the reconductoring study area. There are four CNDDB occurrences within 2 miles of the reconductoring study area with one occurrence located directly within the project footprint between Towers 37 to 49. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 29 and 35 through 42.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Athene cunicularia/ burrowing owl	-	-	SSC	Open, dry annual or perennial grasslands with low-growing vegetation and on the margins of disturbed/developed habitats Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel	**Likely to occur.** Suitable foraging and nesting habitat is present throughout much of the reconductoring study area in ruderal and grassland habitats that have heavy ground squirrel use. There are 30 CNDDB occurrences within 2 miles of the reconductoring study area with many occurring directly in the project footprint and reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding the three of the five proposed laydown and staging areas (C, D, and E), Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.
Charadrius alexandrinus nivosus/ western snowy plover	T	-	SSC	Sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly, or friable soils for nesting	**Potential to Occur**. Potentially suitable habitat is present within the reconductoring study area in salt pannes and salt ponds. There are two CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located approximately 0.1 and 0.5 miles north from Tower 50 in salt pond habitat. The other occurrence is located directly within the project footprint and reconductoring study area between Towers 15 through 20 within salt panne and salt pond habitat, where birds have been observed overwintering and 13 nests were observed in 2017. Locations of potentially suitable habitat for this species includes the area surrounding Towers 15 through 20, 30 through 42, and 48 to 49.
Coturnicops noveboracensis/ yellow rail	-	-	SSC	Freshwater marshlands. Summer resident in eastern Sierra Nevada in Mono County.	**Potential to Occur**. Potentially suitable habitat is present within the reconductoring study area in wetlands and marshes. There are two CNDDB occurrences within 2 miles of the reconductoring study area with one occurrence located directly within the project footprint between Towers 37 to 49 and last observed in 2013 near wildlife refuge in the vicinity of Alviso. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 29 and 35 through 42.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Circus cyaneus/ Northern harrier	-	-	SSC	Coastal saltwater and freshwater marshes, nesting and foraging habitats in grasslands and agricultural fields; nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas	**Present**. Suitable foraging habitat is present within the reconductoring study area in grassland, ruderal, wetland, and marsh habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. Species observed flying over brackish marsh near Tower 22 during reconnaissance level surveys. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 20 through 29, 35 through 46, and 55 through 57.
Elanus leucurus/ white-tailed kite	-	-	CFP	Rolling foothills and valley margins with scattered oaks, and river bottomlands or marshes next to deciduous woodland; open grasslands, meadows for foraging close to isolated, dense-topped trees for nesting and perching	**Potential to Occur**. Potentially suitable foraging habitat is present within the reconductoring study area in grassland and ruderal habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.
Falco peregrinus anatum/ American peregrine falcon	-	-	CFP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds, and human-made structures Nest consists of a scrape or a depression or ledge in an open site	**Potential to Occur**. Potentially suitable foraging habitat is present within the reconductoring study area. This species is known from the San José area. There is one CNDDB occurrence within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.
Geothlypis trichas sinuosa/ Salt marsh common yellowthroat	-	-	SSC	Resident of the San Francisco Bay region, in freshwater and saltwater marshes; requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting	**Potential to Occur**. Potentially suitable foraging and nesting habitat is present within the reconductoring study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area located within Coyote Creek watershed and Alviso Slough. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 29, 35 through 42, and 48 to 49.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Laterallus jamaicensis coturniculus/ California Black Rail	CT	-	CFP	Occurs in coastal and freshwater marshes, estuaries, and tidal slough areas	**Potential to Occur**. Potentially suitable foraging and nesting habitat is present within the reconductoring study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located in Alviso Slough and another is located in salt marsh and salt pond habitat within the project footprint between Towers 33 and 39. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 42, and 48 to 49.
Melospiza melodia pusillula/ Alameda song sparrow	-	-	SSC	Resident of salt marshes bordering south arm of San Francisco Bay; inhabits *Salicornia* marshes Nests low in *Grindelia* bushes (high enough to escape high tides) and in *Salicornia*	**Potential to Occur**. Potentially suitable foraging and nesting habitat is present within the reconductoring study area in marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area located in Alviso Slough, salt marsh habitat adjacent to Towers 33 to 38, and salt pond habitat north of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 30 through 42 and 48 to 49.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a]			Habitat	Potential for Occurrence in Reconductoring Study Area
	Federal	State	CDFW		
Rallus longirostris obsoletus/ California Ridgway's rail	E	E	CFP	Occurs in tidal salt and brackish marshes of the San Francisco Bay and historically in tidal estuaries from Marin to San Luis Obispo Counties, CA	**Potential to Occur**. Potentially suitable foraging and nesting habitat is present within the reconductoring study area in salt and brackish marsh habitat. There are three CNDDB occurrences within 2 miles of the reconductoring study area. Occurrences are located in Guadalupe Slough approximately 1.6 miles northwest from Tower 50, the marshes fringing Coyote Creek and Mud Slough approximately 1.4 miles west of Tower 28, and in Alviso Slough approximately 1.4 miles northwest from Tower 47. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 30, 35 through 42, and 48 to 49.
Mammals					
Antrozous pallidus/ Pallid bat	-	-	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Potential to occur** (foraging). Potentially suitable foraging habitat is present within grasslands in the reconductoring study area; however, there are no suitable roosting sites. No CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 44 to 46, and 55 to 57.
Reithrodontomys raviventris/ salt marsh harvest mouse	E	E	CFP	Occurs in the salt and brackish marshes of Corte Madera, Richmond, and South San Francisco Bay, especially those with pickleweed and saltgrass	**Potential to Occur**. Potentially suitable habitat is present within the reconductoring study area in marsh habitat. There are 13 CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located directly in the project footprint in salt marsh habitat between Towers 39 to 42. Another occurrence directly in the project footprint is located in brackish marsh near Tower 28. Another occurrence is located approximately 0.1 miles northeast of Tower 21 in brackish marsh. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 30, 35 through 42, and 48 to 49.

Table 2. Special-Status Wildlife Species

Scientific Name/ Common Name	Status[a] Federal	State	CDFW	Habitat	Potential for Occurrence in Reconductoring Study Area
Sorex vagrans halicoetes/ salt marsh wandering shrew	-	-	SSC	Found in salt marshes along the San Francisco Bay	**Potential to Occur**. Potentially suitable habitat is present within the reconductoring study area in salt marsh habitat and marginally suitable habitat is present in brackish marsh habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located directly in the project footprint in salt marsh habitat between Towers 39 to 42. The other occurrence is considered extirpated to due development. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20 through 30, 35 through 42, and 48 to 49.

[a]Status designations are as follows:
Federal Designations:
(E) Federally Endangered, (T) Federally Threatened, (CT) Candidate Threatened
State Designations:
(E) State Endangered, (T) State Threatened, (CE) Candidate Endangered
California Department of Fish and Wildlife (CDFW) Designations:
(SSC) Species of Special Concern (CFP) California Fully Protected
Sources:
CDFW, 2020; NOAA, 2020; USFWS, 2020

Invertebrates

Conservancy Fairy Shrimp

Conservancy fairy shrimp (*Branchinecta conservatio*) is listed as Endangered under the ESA. This species is endemic to the grasslands of the northern two-thirds of the central valley and is found in large, turbid pools. Conservancy fairy shrimp inhabit astatic pools located in swales formed by old, braided alluvium that are filled by winter/spring rains that last until June. There is potential for this species to occur within the reconductoring study area as there is suitable habitat present within the reconductoring study area in vernal pools. There are no CNDDB occurrences within 2 miles of the study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.

Western Bumble Bee

Western bumble bee (*Bombus occidentalis*) is listed as Candidate Endangered under the CESA. This species was once common and widespread but has declined precipitously from central California to southern British Columbia, perhaps from disease. Western bumble bee is an eusocial generalist pollinator, visiting a wide range of plant species that provide nectar and pollen during the colony's life cycle of February to November. There is potential for this species to occur within the reconductoring study area as there is a variety of flowering plants that grow within the reconductoring study area; species could forage and nest in the reconductoring study area. There is one CNDDB occurrence within 2 miles of the reconductoring study area located in the vicinity of the city of San Jose. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15, 44 through 46, 52, 53, and 55.

Vernal Pool Fairy Shrimp

Vernal pool fairy shrimp (*Branchinecta lynchi*) is listed as Threatened under the ESA. This species is endemic to the grasslands of the central valley, central coast mountains and south coast mountains in rain-filled vernal pools and swales. There is potential for this species to occur within the reconductoring study area as there is suitable habitat present in the vernal pool habitat. There are no CNDDB occurrence within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.

Vernal Pool Tadpole Shrimp

Vernal pool tadpole shrimp (*Lepidurus packardi*) is listed as Endangered under the ESA. This species occurs in vernal pools of California and vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Vernal pool tadpole shrimp is likely to occur within the reconductoring study area as there is suitable habitat present in the vernal pool habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area, with one occurrence located approximately 0.2 miles southwest of Tower 12 in vernal pool habitat. In 2004, 22 species were found in 3 vernal pools in the area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 12 through 15.

Fish

Green Sturgeon

Green sturgeon (*Acipenser medirostris*) is listed as Threatened under the ESA and is the most marine species of sturgeon. Their abundance increases northward of Point Conception. Green sturgeon spawn in the Sacramento River at temperatures between 8 to 14 Celsius. There is potential for this species to occur as there is suitable foraging habitat present within open water and intertidal mudflats (during high tide) of the reconductoring study area. Portions of the reconductoring study area are within designated critical habitat. Sturgeon have the potential to be present within the reconductoring study area year-round. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39, and between Towers 48 and 49.Steelhead, central California coast distinct population segment

The Central California coast DPS steelhead (*Oncorhynchus mykiss irideus*) is listed as Threatened under the ESA. This species moves through Coyote Creek during migration between estuarine and oceanic habitat downstream and spawning or rearing habitat upstream. This species is seasonally present as suitable habitat is present within open water of the reconductoring study area; however, this species is unlikely to occur between July and October. There is one CNDDB occurrence within 2 miles of the reconductoring study area, which is directly in the project footprint in Guadalupe River/Alviso Slough between Towers 48 and 49. According to this occurrence, three juveniles were observed in 2017 in this area. Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39, and between 48 and 49.

Longfin Smelt

Longfin smelt (*Spirinchus thaleichthys*) is listed as Candidate Threatened under the ESA and is a CDFW Species of Special Concern (SSC). This species is euryhaline, nektonic, and anadromous and found in open waters of estuaries, mostly in middle or bottom of water column and more recently in marshes and sloughs. This species is seasonally present as suitable habitat is present within the marshes and sloughs of the Coyote Creek watershed within the reconductoring study area, where recent studies have documented longfin smelt (adults and post larval recruits) from October through May (Lewis et al. 2019).

Locations of potentially suitable habitat for this species includes the area surrounding Towers 20, 21, 24 through 27, 29, 35 through 39, and between 48 and 49.

Reptiles

Western Pond Turtle

Western pond turtle (*Actinemys marmorata*) is a CDFW SSC. This species inhabits intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes. Western pond turtle prefer open slow-moving water of rivers and creeks of central California with rocks and logs for basking. There is potential for this species to occur as there is potentially suitable waterways within the reconductoring study area; however, they lack rocks and logs and are likely too saline. There is one CNDDB occurrence within 2 miles of the reconductoring study area located approximately 0.4 miles southwest of Tower 55 in Saratoga Creek recorded in 2017. Locations of potentially suitable habitat for this species includes the area between Towers 48 and 49.

Amphibians

California Tiger Salamander

California tiger salamander (*Ambystoma californiense*) is listed as Threatened under the ESA and CESA. This species breeds in vernal pools and stock ponds of central California. Adults aestivate in grassland habitats adjacent to the breeding sites. This species is likely to occur as there is suitable habitat present within the reconductoring study area in vernal pools and adjacent grasslands. There are five CNDDB occurrences within 2 miles of the reconductoring study area, with some occurring directly in the reconductoring study area. One of the occurrences is considered extirpated but the other four are located both directly in the project footprint and within 0.4 miles of the footprint within the vernal pool complex near towers 12 through 15 and were last observed in 2004. Locations of potentially suitable habitat for this species includes the area surrounding Towers 10 through 15.

Birds

Tricolored Blackbird

Tricolored blackbird (*Agelaius tricolor*) is listed as Threatened under the ESA and is also a CDFW SSC. This colonial bird species breeds near fresh water, primarily emergent wetlands, with tall thickets. It especially prefers emergent vegetation and blackberry bushes for nesting habitat. It forages in grassland and cropland habitats. This species has potential to occur as suitable foraging habitat is present within the reconductoring study area in grasslands. Potentially suitable nesting habitat is also present within the reconductoring study area in wetlands. There are four CNDDB occurrences within 2 miles of the reconductoring study area with one occurrence located directly within the project footprint between Towers 37 to 49. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 29 and 35 through 42.

Burrowing Owl

The burrowing owl (*Athene cunicularia*) is a CDFW SSC that is primarily a grassland species, but it is known to persist and occasionally thrive in some landscapes that are highly altered by human activity (Rosenberg and Haley 2004). Suitable habitat characteristics are burrows for roosting and nesting, relatively short vegetation with only sparse shrubs, and taller vegetation (Haug et al. 1993). Nest and roost burrows are most commonly dug by ground squirrels (*Spermophilus beecheyi*) (Trulio 1997), but burrowing owls may use other mammal burrows or structures such as culverts, piles of concrete rubble, and pipes (Ronan 2002). Most California populations are nonmigratory, and these habitat types serve for breeding, foraging, and overwintering.

Burrowing owl is likely to occur as there is suitable foraging and nesting habitat present throughout much of the reconductoring study area in ruderal and grassland habitats that have heavy ground squirrel use. There are 30 CNDDB occurrences within 2 miles of the reconductoring study area with many occurring directly in the footprint and reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding three of the five proposed laydown and staging areas (C, D, and E), Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.

Western Snowy Plover

The western snowy plover (*Charadrius alexandrines nivosus*) is listed as Threatened under ESA and is also a CDFW SSC. Along the western coast of the United States, the nesting season of the western snowy plover extends from early March through late September. The earliest nests on the California coast occur during the first week of March in some years, and by the third week of March in most years (Page et al. 1995). Peak initiation of nesting is from mid-April to mid-June (Powell et al. 1997). Breeding generally occurs above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitat includes bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. In winter, western snowy plovers are found on nesting beaches, man-made salt ponds, and on estuarine sand and mud flats.

This species has potential to occur as suitable habitat is present within the reconductoring study area in salt pannes and salt ponds. There are two CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located approximately 0.1 and 0.5 miles north from Tower 50 in salt pond habitat. The other occurrence is located directly within the project footprint and reconductoring study area between Towers 15 through 20 within salt panne and salt pond habitat, where birds have been observed overwintering and 13 nests were observed in 2017. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 15 through 20, 30 through 42, and 48 to 49.

Yellow Rail

The yellow rail (*Coturnicops noveboracensis*) is a CDFW SSC that inhabits freshwater marshlands and is a summer resident in eastern Sierra Nevada in Mono County. This species has potential to occur as suitable habitat is present within the reconductoring study area in wetlands and marshes. There are two CNDDB occurrences within 2 miles of the reconductoring study area with one occurrence located directly within the project footprint between Towers 37 to 49, which was observed in 2013 near the Don Edwards National Wildlife Refuge in the vicinity of Alviso. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 29 and 35 through 42.

Northern Harrier

The northern harrier (*Circus cyaneus*) is a CDFW SSC. Harriers breed and forage in a variety of open habitats that provide adequate vegetative cover, an abundance of suitable prey, and scattered perches, such as shrubs or fence posts. These habitats may include freshwater marshes; brackish and saltwater marshes; wet meadows; weedy borders of lakes, rivers and streams; grasslands; weed fields; pastures; and some croplands. Harriers nest on the ground, mostly within patches of dense, often tall, vegetation in undisturbed areas (MacWhirter and Bildstein 1996).

Northern harrier is considered to be present within the reconductoring study area because this species was observed flying over brackish marsh near Tower 22 during reconnaissance level surveys. There is suitable foraging habitat present within the reconductoring study area in grassland, ruderal, wetland, and marsh habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 10 through 15, 20 through 29, 35 through 46, and 55 through 57.

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) is a CDFW Fully Protected species. Kites inhabit open lowland valleys and low, rolling foothills, but are also known to occur in urban areas. This species forages in grasslands, marshes, riparian edges, and cultivated fields where prey species (mainly small mammals) are relatively abundant (Kaufman 1996). Kites typically nest on the tops of trees close to good foraging locations. This species has potential to occur as there is suitable foraging habitat present within the reconductoring study area in grassland and ruderal habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.

American Peregrine Falcon

The American peregrine falcon (*Falco peregrines anatum*) was delisted from ESA and CESA but remains a CDFW Fully Protected species. The habitat of the American peregrine falcon includes many terrestrial biomes, which may include urban and developed areas. Most often, breeding peregrine falcons use habitats containing cliffs and almost always nest near water (Wheeler 2003; White et al. 2002). Peregrine falcons generally use open habitats for foraging but are also known to forage and occur in densely populated areas. Many artificial habitats (such as towers, bridges, and buildings) are also used by this species (White et al. 2002). Prey mainly consists of birds ranging from small passerines to mid-sized waterfowl, and juveniles primarily feed on large flying insects (Wheeler 2003).

This species has potential to occur as there is suitable foraging habitat present within the reconductoring study area. This species is known from the San José area. There is one CNDDB occurrence within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.

Salt Marsh Common Yellowthroat

The salt marsh common yellowthroat (*Geothlypis trichas sinuosa*) is a CDFW SSC. Breeding habitat includes woody swamps, brackish marsh, and freshwater marsh (Foster 1977). This species typically occupies the ecotone between moist and upland habitats and can also use small and relatively isolated patches of habitat, including swales and seeps where groundwater is close to the surface; however, this species also occasionally nests in drier environments (Hobson et al. 1986). In brackish and saline tidal marsh habitat, abundance was positively associated with a high percent cover of rushes (*Scirpus* spp. and *Juncus* spp.) and peppergrass (*Lepidium latifolium*), and with a height of the highest herbaceous plant over 1 foot. They build open-cup nests that are well concealed and are typically located near the ground in grasses and herbaceous vegetation, such as poison hemlock *(Conium maculatum*), cattails (*Typha* spp.), tules (*Schoenoplectus* spp.), and some shrubs (e.g., coyote brush [*Baccharis pilularis*]).

This species has potential to occur as there is suitable foraging and nesting habitat present within the reconductoring study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area located within Coyote Creek watershed and Alviso Slough. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 29, 35 through 42, and 48 to 49.

California Black Rail

California black rail (*Laterallus jamaicensis coturniculus*) is federally listed as a candidate threatened and is a CDFW Fully Protected species. This species occurs in coastal and freshwater marshes, estuaries, and tidal slough areas. This species has potential to occur as there is suitable foraging and nesting habitat present within the reconductoring study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located in Alviso Slough and another is located in salt marsh and salt pond habitat within the footprint between Towers 33 and 39. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 42, and 48 to 49.

Alameda Song Sparrow

The Alameda song sparrow (*Melospiza melodia pusillula*) is a CDFW SSC. The Alameda song sparrow inhabits tidal salt marshes that have an appropriate configuration of vegetation, water, and exposed ground (Marshall 1948). Vegetation is required for nesting sites, perches, and concealment from predators. Height of vegetation may also be limiting for song sparrows, because tides may flood low-lying nests. Marshall (1948) noted that song sparrows were either absent or occurred at lower densities when cordgrass was less than 1.5 feet high, and that song sparrows were missing from areas of pickleweed that were less than 1 foot high. Exposed ground for foraging is required for the species.

This species has potential to occur as there is suitable foraging and nesting habitat present within the reconductoring study area in marsh habitat. There are four CNDDB occurrences within 2 miles of the reconductoring study area located in Alviso Slough, salt marsh habitat adjacent to Towers 33 to 38, and salt pond habitat north of the reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 30 through 42 and 48 to 49.

California Ridgway's Rail

The California Ridgway's rail is listed as endangered under the ESA and CESA and is a CDFW Fully Protected species. California Ridgway's rail occurs in tidal salt and brackish marshes of the San Francisco Bay. This species has potential to occur as there is suitable foraging and nesting habitat present within the reconductoring study area in salt and brackish marsh habitat. There are three CNDDB occurrences within 2 miles of the reconductoring study area. Occurrences are located in Guadalupe Slough approximately 1.6 miles northwest from Tower 50, the marshes fringing Coyote Creek and Mud Slough approximately 1.4 miles west of Tower 28, and in Alviso Slough approximately 1.4 miles northwest from Tower 47. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 30, 35 through 42, and 48 to 49.

Mammals

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a CDFW SSC. This species inhabits deserts, grasslands, shrublands, woodlands and forests. It is most common in open, dry habitats with rocky areas for roosting. They typically use three types of roosts – day roosts may be a warm, horizontal opening in attics or crevices; night roosts are in the open (such as open porches or under bridges) with nearby foliage, usually near foraging grounds; hibernation roosts may be in canyon wall crevices, caves, buildings, or cracks in rocks. Pallid bats feed on a wide variety of insects and arachnids.

This species has potential to occur as there is potentially suitable foraging habitat present within grasslands in the reconductoring study area; however, there are no suitable roosting sites. No CNDDB occurrences within 2 miles of the reconductoring study area. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 10 through 15, 44 to 46, and 55 to 57.

Salt Marsh Harvest Mouse

The salt marsh harvest mouse (*Reithrodontomys raviventris*) is listed as endangered under the ESA and CESA and is a CDFW Fully Protected species. This species inhabits salt and brackish marshes of Corte Madera, Richmond, and south San Francisco Bay, especially those with pickleweed and salt grass. This species has potential to occur as there is suitable habitat present within the reconductoring study area in marsh habitat. There are 13 CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located directly in the project footprint in salt marsh habitat between Towers 39 to 42. Another occurrence directly in the footprint is located in brackish marsh near Tower 28. Another occurrence is located approximately 0.1 miles northeast of Tower 21 in brackish marsh. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 30, 35 through 42, and 48 to 49.

Salt Marsh Wandering Shrew

The salt marsh wandering shrew (*Sorex vagrans halicoetes*) is a CDFW SSC that is found in salt marshes along the San Francisco Bay. This species has potential to occur as there is suitable habitat present within the reconductoring study area in salt marsh habitat and marginally suitable habitat present in brackish marsh habitat. There are two CNDDB occurrences within 2 miles of the reconductoring study area. One occurrence is located directly in the project footprint in salt marsh habitat between Towers 39 to 42. The other occurrence is considered extirpated to due development. Locations of potentially suitable habitat for this species includes the habitat surrounding Towers 20 through 30, 35 through 42, and 48 to 49.

1.3 Potential Impacts

e) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant.

As described below, the reconductoring activities will have a less than significant impact to any candidate, sensitive, or special-status species populations with incorporation of project design features (PDFs). The PDFs, alternatively referred to as Applicant Proposed Measures (APMs), include the avoidance and minimization measures identified in the original SJC02 SPPE Application biological resource evaluation inclusive of commitments specified in the SCVHCP; measures identified in PG&E’s Bay Area Operations and Maintenance HCP; and measures specific to the reconductoring activity. PDFs applicable to each potential impact are referenced in the discussion below. A complete description of each PDFs is provided in Section 1.4 below.

Special-status Plant Species

Special-status plants can be damaged or destroyed as a result of vegetation removal or trimming activities to clear work areas, by project vehicles accessing work areas, and/or by staging vehicles and equipment in work areas. Special-status plants also can be indirectly affected by soil compaction and the spread of nonnative invasive species from project equipment.

Alkali milk-vetch, Brittlescale, lesser saltscale, Congdon’s tarplant, Hoover’s button-celery, San Joaquin spearscale, Contra Costa goldfields, prostrate vernal pool navarretia, California alkali grass, and saline clover were determined to have potential to occur within portions of the reconductoring study area (Table 1). Potential direct impacts to special-status plant species will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and implementation of a Worker Environmental Awareness Program**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-Reconductoring-1.1: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**
- **BIO-Reconductoring-1.3: Special-Status Plant Impact Avoidance and Protection.**

Special-status Wildlife Species

Western bumble bee:

Although the western bumble bee's distribution has been drastically reduced (CDFW 2019) there is potential for the species to forage and nest in the reconductoring study area. Ground-disturbance for establishing helicopter and laydown/staging areas (collectively identified as reconductoring laydown and staging areas), access routes, and pull and tension locations could directly impact western bumble bee nests. Disturbance of nest sites will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-Reconductoring-1.1: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

Non-ground disturbing activities (such as driving to the pull and tension locations) could harm individual western bumble bees through inadvertent human or equipment contact with bees, but these interactions are unpredictable. This potential impact type will be minimized through implementation of BIO-5.1.

Conservancy fairy shrimp, vernal pool fairy shrimp, vernal pool tadpole shrimp, California tiger salamander:

These species all have the potential to occur within the vernal pool complex between Towers 12 and 15 (Figure 2 Maps 2 and 3). The use of equipment or presence of workers within and near vernal pools and adjacent uplands could injure or crush these species and potentially cause habitat degradation. Potential direct impacts to these species will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites.**
- **BIO-FP-06: Inspect Pipes and Culverts for Species.**
- **BIO-FP-11: Erosion and Sediment Control.**
- **BIO-FP-12: Stockpiled Soil.**
- **BIO-FP-13: Open Trenches and Steep-Walled Holes.**
- **BIO-FP-15: Refueling Buffer.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-Wetland-1: Vernal Pools Buffer.**
- **BIO-Wetland-2: Wetlands, Ponds, and Riparian Areas Buffer.**
- **BIO-Hot Zone-6: Minimization of Impacts to Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.1: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

These measures include pre-construction surveys and avoiding suitable habitat to the extent feasible, measures to minimize potential impacts to these species and their habitats during wet weather, installation of exclusion fencing, biological monitoring, measures to prevent runoff from entering waterways, measures to prevent entrapment, measures that require refueling not occur within 250 feet from the edge of vernal pools and 100 feet from the edge of other wetlands, streams, or waterways, and establishment of buffers around vernal pools, wetlands, and ponds. These measures will minimize the potential for impacts to these species in both aquatic and upland dispersal habitats through habitat avoidance, minimizing the potential for individuals to enter work areas through exclusion fencing, and educating workers on these species and measures that will be implemented to minimize the potential to impact them and ensure that impacts are less than significant.

Green sturgeon, steelhead, and longfin smelt:

Green sturgeon, steelhead, and longfin smelt have the potential to occur in open water and intertidal mudflats (during high tide) surrounding Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49 (Figure 2 Maps 4 through 7, 9, 10, and 12). However, there will be no significant impact to these species because any tower located directly in open water or intertidal mudflat habitat will be accessed by helicopter, and thus the habitat will not be significantly affected by any reconductoring activities.

Western Pond Turtle:

Western pond turtle has the potential to occur in freshwater marsh between Towers 7 and 8 and surrounding Tower 52 (Figure 2 Maps 1 and 13). The use of equipment or presence of workers within and freshwater marsh and adjacent uplands could injure or crush this species and potentially cause habitat degradation. Potential direct impacts to this species will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites.**
- **BIO-FP-06: Inspect Pipes and Culverts for Species.**
- **BIO-FP-11: Erosion and Sediment Control.**
- **BIO-FP-12: Stockpiled Soil.**
- **BIO-FP-13: Open Trenches and Steep-Walled Holes.**
- **BIO-FP-15: Refueling Buffer.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-Wetland-2: Wetlands, Ponds, and Riparian Areas Buffer.**
- **BIO-Hot Zone-6: Minimization of Impacts to Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

California Ridgway's rail, salt marsh harvest mouse, and salt marsh wandering shrew:

These species all have the potential to occur within the reconductoring study area in salt marsh and brackish marsh habitat surrounding Towers 20 through 30, 35 through 42, and 48 to 49 (Figure 2 Maps 4 through 12). The use of equipment or presence of workers within and near marsh habitat could injure or crush these species or their nests; disturb nesting and foraging via noise, vibratory, or visual disturbance; and potentially cause nest abandonment and habitat degradation. Potential direct impacts to these species will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-FP-02: Parking in Designated Areas.**
- **BIO-FP-03: Use Existing Access Roads to Minimize Development.**
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites.**
- **BIO-FP-06: Inspect Pipes and Culverts for Species.**
- **BIO-FP-13: Open Trenches and Steep-Walled Holes.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-FP-18: Avoidance of Nests.**
- **BIO-Hot Zone-8: Minimization of Impacts to Salt Marsh Habitat and Species.**
- **BIO-Reconductoring-1.1: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

These measures include pre-construction surveys and avoiding suitable habitat to the extent feasible, installation of exclusion fencing, biological monitoring, measures to prevent entrapment, establishment of buffers around wetlands, flagging access routes for crews when working in pickleweed or smooth cordgrass, hand-carrying equipment and the use protection mats, flushing vegetation to force movement of salt marsh harvest mouse into adjacent tidal marsh areas, and conducting work within 700 feet of wetlands suitable for the Ridgway's rail September 1–January 15. These measures will minimize the potential for impacts to these species through habitat avoidance, ensuring special-status species are absent from work areas, minimizing the potential for individuals to enter work areas through exclusion fencing, and educating workers on these species and measures that would be implemented to minimize the potential to impact them and thus ensure impacts are less than significant.

Tricolored blackbird, burrowing owl, western snowy plover, yellow rail, northern harrier, white-tailed kite, American peregrine falcon, saltmarsh common yellowthroat, California black rail, Alameda song sparrow, and birds protected under the Migratory Bird Treaty Act and Fish and Game Code Section 3503:

These special-status bird species have potential to occur within and around the reconductoring study area as there is suitable foraging habitat for all these species. There is potentially suitable nesting habitat for tricolored blackbird, burrowing owl, western snowy plover, yellow rail, saltmarsh common yellowthroat, California black rail, and Alameda song. Reconductoring activities have the potential to impact nesting individuals of these and other species protected under the Migratory Bird Treaty Act. This could cause nest abandonment and may temporarily degrade foraging habitat. Potential direct impacts to these species will be avoided through implementation of the PDFs listed below

- **BIO-1.1: Nesting Bird Impact Avoidance and Protection.**
- **BIO-1.2: Preconstruction Tricolored Blackbird Surveys.**
- **BIO-2.1: Burrowing Owl Fees.**
- **BIO-2.2: Preconstruction Burrowing Owl Surveys.**
- **BIO-2.3: Burrowing Owl Buffer.**
- **BIO-2.4: Burrowing Owl Passive Relocation.**

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**

Given the limited size of the work areas relative to adjacent areas, and disturbed nature of these sites, the temporary loss of foraging habitat is not expected to adversely affect these or other bird species.

Pallid bat:

Pallid bat has potential to forage within the reconductoring study area; however, there is no suitable roosting habitat for this species. Any disturbance from reconductoring activities occurring near transmission towers, if any, will be equivalent to the existing ambient noise and vibration from traffic. In addition, with implementation of BIO-5.1: Development and implementation of a Worker Environmental Awareness Program, this species will not be expected to be significant impacted by project activities and thus impacts will be considered less than significant.

f) 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 Wildlife or U.S. Fish and Wildlife Service?

Less than Significant

The Northern Coastal Salt Marsh is a sensitive natural community within the reconductoring study area (Figure 4). Northern Coastal Salt Marsh is found wherever tidal action and elevation are adequate to support this community type.

Given the nature of the reconductoring work, permanent loss of Northern Coastal Salt Marsh habitat is not expected to result from the reconductoring activities. Temporary degradation or loss of Northern Coastal Salt Marsh habitat could inadvertently occur as a result of some of the reconductoring activities. The use of equipment on and near marsh habitat could cause damage to salt marsh if it is inadvertently crushed, removed, or buried. Spills of fluids such as oils and fuels from equipment could harm vegetation, soil, and water in marsh habitats. Habitat could also be damaged by foot traffic of crew members.

Potential direct impacts to Northern Coastal Salt Marsh will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-3.3: Wetland Vegetation Removal.**
- **BIO-3.4: Wetland Revegetation.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-FP-02: Parking in Designated Areas.**
- **BIO-FP-03: Use Existing Access Roads to Minimize Development.**
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites.**
- **BIO-FP-15: Refueling Buffer.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-FP-18: Avoidance of Nests.**
- **BIO-Wetland-2: Wetlands, Ponds, and Riparian Areas Buffer.**

- **BIO-Hot Zone-8: Minimization of Impacts to Salt Marsh Habitat and Species.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

These measures include installation of exclusion fencing, biological monitoring, wetland revegetation of impacted areas, establishment of buffers around wetlands, flagging access routes for crews when working in pickleweed or smooth cordgrass, and hand-carrying equipment and the use protection mats to the extent feasible.

No permanent loss of salt marsh habitat is expected to result from reconductoring activities, but there will be some temporary degradation of salt marsh habitat which could affect special-status species that reside in these areas. Potentially significant impacts include temporary disturbance of salt marsh habitat during reconductoring activities.

No riparian habitat or other sensitive natural habitats will be adversely affected during reconductoring activities and thus impacts are considered less than significant.

g) Would the project have a substantial adverse effect on state or federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant.

As discussed in Section 1.2, Environmental Setting, portions of the reconductoring study area are located in or adjacent to wetlands that are protected by federal (Clean Water Act) and state (Porter-Cologne Water Quality Control Act, McAteer-Petris Act, et al.) legislation. Potential direct impacts to wetlands will be avoided through implementation of the PDFs listed below.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.**
- **BIO-3.3: Wetland Vegetation Removal.**
- **BIO-3.4: Wetland Revegetation.**
- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.**
- **BIO-5.2: Aquatic Resources Delineation.**
- **BIO-FP-02: Parking in Designated Areas.**
- **BIO-FP-03: Use Existing Access Roads to Minimize Development.**
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites.**
- **BIO-FP-15: Refueling Buffer.**
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.**
- **BIO-FP-18: Avoidance of Nests.**
- **BIO-Wetland-1: Vernal Pools Buffer.**
- **BIO-Wetland-2: Wetlands, Ponds, and Riparian Areas Buffer.**
- **BIO-Hot Zone-6: Minimization of Impacts to Sensitive Biological Resource Areas.**
- **BIO-Hot Zone-8: Minimization of Impacts to Salt Marsh Habitat and Species.**
- **BIO-Reconductoring-1.2: Exclusion Fencing.**

As noted above, no significant impacts to wetlands as a result of reconductoring are anticipated. In any event, if it were the case that wetlands or other areas jurisdictional under Section 404 of the Clean Water Act will be impacted, any and all necessary permits from the United States Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB) will need to be obtained pursuant to applicable laws and regulations, and no work could occur within jurisdictional features (if any) until all such necessary permits were obtained.

h) 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 Impact.

Wildlife movement corridors are described as pathways or habitat linkages that connect discrete areas of natural open space otherwise fragmented by topography, changes in vegetation, and other natural or human inducted factors such as urbanization. Reconductoring activities have the potential to temporarily fragment habitats and disrupt wildlife movements, particularly for salt marsh harvest mouse and salt marsh wandering shrew. However, given the limited spatial scope of these activities and surrounding adjacent habitat that will remain open for wildlife movements, these impacts are anticipated to be less than significant.

San Francisco Bay is also an important stopover for migratory shorebirds along the Pacific Flyway (Stenzel et al. 2002). Open water within the Bay and the salt ponds provides congregation and foraging habitat for shorebirds, while larger stands of wetland vegetation such as that within Don Edwards National Wildlife Refuge provide habitat for many species. Reconductoring activities are similar in scope and duration to existing ongoing activities which birds are expected to be habituated to, so continuation of these activities is not expected to interfere with migratory shorebirds' use of the reconductoring study area.

The San Francisco Bay serves as a migration corridor for anadromous fish between the Pacific Ocean and spawning habitat, which occurs primarily within the Sacramento and San Joaquin River watersheds, but also in a handful of smaller tributaries to South San Francisco Bay including Coyote Creek and Guadalupe River. Fish species have potential to use the open water habitat in and around the reconductoring study area for migration, foraging, or rearing; however, any towers located within open water will be accessed only by helicopter and therefore impacts to fish species will be avoided.

With implementation of PDFs, impacts to wildlife movement, wildlife corridors, or wildlife nursery sites will be less than significant.

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

No Impact.

The City of San José has a Tree Ordinance (Chapter 13.32 of the Municipal Code), which regulates the removal of trees. An "ordinance-size tree" is defined as any native or non-native tree with a circumference of 56 inches (diameter of 18 inches) at 24 inches above the natural grade of slope. For multi-trunk trees, the circumference is measured as the sum of the circumferences of all trunks at 24 inches above the natural grade of slope. The ordinance covers both native and non-native species. A tree removal permit is required from the City prior to the removal of any trees covered under the ordinance. Prior to the issuance of a removal permit, the City requires that a formal tree survey be conducted which indicates the number, species, trunk circumference and location of all trees which will be removed or impacted by the project. The City of Fremont also has a Tree Preservation Ordinance (Chapter 5 of the Fremont Municipal Code), which regulates the removal, damage, or relocation of a private tree or any landmark tree, whether publicly or privately owned unless authorized by a permit, section 4-5104, or the City Council. The Santa Clara City Code (Chapter 12.35 of the Municipal Code) requires that 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.

The proposed reconductoring activities will not remove any trees within the reconductoring study area. As no trees will be removed along the transmission line as a result of the reconductoring activities, no impact related to conflicts with local policies or ordinances protecting biological resources will occur.

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

No Impact.

The reconductoring study area is within the area covered by the SCVHCP and PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan, and the project qualifies as a covered activity. The proposed project (including reconductoring activities) includes PDFs consistent with the HCPs, the General Plan, the Alviso Master Plan, the City of San José Riparian Corridor Policy and Bird-Safe Design, and the City of San José's General Plan and Municipal Code. For these reasons, the reconductoring activities will not conflict with any local policies or ordinances protecting biological resources, such as the provisions of an adopted HCP, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

1.4 Proposed Design Features

The PDFs described in this section include the avoidance and minimization measures identified in the SJC02 SPPE application biological resource evaluation inclusive of commitments specified in the SCVHCP; measures identified in PG&E's Bay Area Operations and Maintenance HCP applicable to the reconductoring activity; and additional PDFs specific to the reconductoring. These PDFs will be required to be implemented so that biological resource impacts will remain less than significant.

1.4.1 Measures from SJC02 SPPE Application Applicable to Reconductoring

1.4.1.1 General Measures

- **BIO-5.1: Development and Implementation of a Worker Environmental Awareness Program.** A worker environmental awareness program biological resources module will be conducted for onsite construction personnel prior to the start of construction activities. The module will explain the Applicant Proposed Measure (APM) and any other measures developed to prevent impacts on special-status species, including marsh species (salt marsh harvest mouse and rails) and nesting birds. The module will also include a description of special-status species and their habitat needs, as well as an explanation of the status of these species and their protection under ESA, CESA, and other statutes. A brochure will be provided with color photos of sensitive species, as well as a discussion of any permit measures. A copy of the program and brochure will be provided to California Public Utilities Commission at least 30 days prior to the start of construction for project files. This APM also includes the following measures:
  - Environmental Inspector: A qualified Environmental Inspector will verify implementation and compliance with all APMs. The Environmental Inspector will have the authority to stop work or determine alternative work practices where safe to do so, as appropriate, if construction activities are likely to affect sensitive biological resources.
  - Litter and Trash Management: Food scraps, wrappers, food containers, cans, bottles, and other trash from the project area will be deposited into closed trash containers. Trash containers will be removed from the project work areas at the end of each working day unless located in an existing substation, potential staging area, or the switching station site.
  - Parking: Vehicles and equipment will be parked on pavement, existing roads, and previously disturbed or developed areas, or work areas as identified in this document.

- Work Areas, Pull Sites, Staging Areas, Helicopter Landing Zones: Work, staging, vehicle parking, and equipment parking areas must be contained within the final areas that are negotiated with the relevant property owners, or as noted above.
- Wetland and Waters Avoidance: Wetlands and waters as identified in the Aquatic Resources Delineation Report must be avoided during all work activities.
- Pets and Firearms: No pets or firearms will be permitted at the project site.

1.4.1.2 Migratory Birds and Other Protected Bird Species

To verify that any active nests will not be disturbed and that individual birds will not be harmed by reconductoring activities, the following PDFs shall be implemented to ensure that impacts remain less than significant. In addition, although unlikely to occur within the reconductoring study area, the SCVHCP identifies the reconductoring study area to be within 250 feet of potentially suitable tricolored blackbird nesting habitat, thus requiring pre-construction surveys in accordance with the Condition 17 of the SCVHCP.

- **BIO-1.1: Nesting Bird Impact Avoidance and Protection.** If initial site disturbance activities, including tree, shrub, or vegetation removal, are to occur during the breeding season February 1st to August 31st inclusive, a qualified biologist shall conduct pre-construction surveys for nesting migratory birds onsite and within 250 feet (for raptors) of the site, where accessible. The survey shall occur within 7 days of the onset of ground disturbance if disturbances are to commence between February 1st and June 30th and within 30 days prior to the onset of ground disturbance between July 1st and August 31st. If a nesting migratory bird were to be detected, an appropriate construction-free buffer shall be established in consultation with the California Department of Fish and Wildlife (CDFW). The actual size of the buffer, which shall be determined by the project biologist, will depend on species, topography, and type of activity that will occur in the vicinity of the nest. The project buffer will be monitored periodically by the project biologist to verify compliance. After the nest is completed, as determined by the biologist, the buffer will no longer be required.
- **BIO-1.2: Preconstruction Tricolored Blackbird Surveys.** The SCVHCP identifies the reconductoring study area to be within 250 feet of potentially suitable tricolored blackbird nesting habitat occurring along Coyote Creek. The project applicant shall conduct surveys for tricolored blackbirds within 250 feet of this habitat, where visual access is possible, prior to start of construction following protocols in Condition 17 in Chapter 6 of the SCVHCP. Such protocols include the following:
  - Prior to any ground disturbance, a qualified biologist shall complete a background assessment to determine if there has been nesting at the site or near the site in the past 5 years. This includes checking the CNDDB, contacting local experts, and looking for evidence of historical nesting (i.e., old nests).
  - If nesting in the past 5 years is not evident, the qualified biologist shall conduct a preconstruction survey in areas identified in the habitat survey as supporting potential tricolored blackbird nesting habitat. Surveys shall be made at the appropriate times of year when nesting use is expected to occur and shall document the presence or absence of nesting colonies of tricolored blackbird. Surveys shall conclude no more than 2 calendar days prior to construction, per Condition 17 of Chapter 6 in the SCVHCP.
  - Should a nesting colony of tricolored blackbirds be located, a 250-foot construction-free buffer shall be established from the edge of all hydric vegetation associated with the nest site and the buffer shall be avoided, and the CDFW and USFWS shall be notified immediately.
  - If construction occurs in the project site during the nesting season and when the 250-foot buffer is in place around active nesting habitat, a qualified biologist shall conduct periodic monitoring of the site to confirm that the 250-foot buffer is enforced. The biologist shall have the authority to increase the buffer size if needed based on tricolored blackbird behavior at the active nesting area.

- If active tricolored blackbird nesting occurs within 250 feet of the project site and offsite utility alignment areas and construction occurs during the active nesting period resulting in the need for a buffer, the qualified biologist shall conduct training for construction personnel in avoidance procedures, buffer zones, and safety protocols to verify no impacts to the nest.

1.4.1.3 Western Burrowing Owls

The following PDFs will be required to be imposed, which will ensure that burrowing owls will not be harmed by construction activities and thus ensure no significant impacts will occur.

- **BIO-2.2: Preconstruction Burrowing Owl Surveys.** The project applicant shall conduct preconstruction surveys to ascertain whether burrowing owls occupy burrows on the site and along the utility alignments offsite prior to construction. The preconstruction surveys shall be performed by a qualified biologist and shall consist of a minimum of two surveys, with the first survey no more than 14 days prior to initial construction activities (i.e. vegetation removal, grading, excavation, etc.) and the second survey conducted no more than 2 days prior to initial construction activities. If no burrowing owls or fresh sign of burrowing owls are observed during preconstruction surveys, construction may continue. However, if a burrowing owl is observed during these surveys, occupied burrows shall be identified by the monitoring biologist and a buffer shall be established, as follows:
  - If an active nest is found, a qualified biologist shall establish a 250-foot non-disturbance buffer around all nest sites. If the biologist determines that the nest is vacant, the non-disturbance buffer zone may be removed, in accordance with measures described in the SCVHCP. The biologist shall supervise hand excavation of the burrow to prevent reoccupation only after receiving approval from the wildlife agencies (CDFW and USFWS) in accordance with Chapter 6, Condition 15 of the SCVHCP.
  - For permission to encroach within 250 feet of such burrows during the nesting season (February 1st through August 31st), an Avoidance, Minimization, and Monitoring Plan shall be prepared and approved by the City and the wildlife agencies prior to such encroachment in accordance with Chapter 6 of the SCVHCP.
- **BIO-2.3: Burrowing Owl Buffer.** Should a burrowing owl be located during the non-breeding season (September through January), a 250-foot buffer shall be established, and construction activities shall not be allowed within the 250-foot buffer of the active burrow(s) used by any burrowing owl unless the following avoidance measures are adhered to:
  - A qualified biologist shall monitor the owls for at least 3 days prior to construction to determine baseline foraging behavior (i.e., behavior without construction).
  - The same qualified biologist shall monitor the owls during construction. If the biologist determines there is a change in owl nesting and foraging behavior as a result of construction activities, these activities shall cease within the 250-foot buffer.
  - If the owls are gone from the burrows for at least 1 week, the project applicant may request approval from the habitat agency to excavate all usable burrows within the construction area to prevent owls from reoccupying the site. After all usable burrows are excavated, the buffer zone shall be removed, and construction may continue.

1.4.1.4 Riparian and Wetland Habitats

The following avoidance and minimization measures and compensation, consistent with the SCVHCP (Conditions 3, 4, and 12 from Chapter 6) are included to ensure impacts are less than significant.

- **BIO-3.1: Stormwater Pollution Prevention Plan.** Prior to the start of any grading or other soil disturbing activities, the project applicant shall be required to prepare a Stormwater Pollution Prevention Plan consistent with the City's National Pollutant Discharge Elimination System C3 provisions.

- **BIO-3.2: Biological Monitor On-Site during Construction Activities in Sensitive Biological Resource Areas.** A qualified biological monitor shall visit the project site daily during utility line construction in the vicinity of the wetland to verify that BIO-3.1 through -3.5 are being fully implemented and are effective.
- **BIO-3.3: Wetland Vegetation Removal.** Removal of wetland vegetation and/or trees for the installation of the utility line shall be limited to the minimum extent required.
- **BIO-3.4: Wetland Revegetation.** The project applicant shall verify that all seed mixtures used for revegetation of the impacted wetland area shall be locally native or sterile nonnative species only. No invasive non-native plant species shall be used for revegetation.
- **BIO-3.5: Compliance with Applicable Laws and Regulations.** The project applicant shall comply with all applicable laws and regulations regarding requirements of the CDFW, U.S. Army Corps of Engineers (USACE), and RWQCB for aspects of the project, if any, which fall within those agencies' respective purview, including obtaining any permits required for the construction of the utility lines in the offsite infrastructure alignment areas, as well as compliance with any additional conditions attached to any required permits and monitoring requirements (if any).

1.4.2 PG&E Bay Area HCP Required Measures Applicable to Reconductoring

- **BIO-FP-01: Annual Trainings.** Hold annual training on habitat conservation plan requirements for employees and contractors performing covered activities in the Plan Area that are applicable to their job duties and work.
- **BIO-FP-02: Parking in Designated Areas.** Park vehicles and equipment on pavement, existing roads, or other disturbed or designated areas (barren, gravel, and compacted dirt).
- **BIO-FP-03: Use Existing Access Roads to Minimize Development.** Use existing access and rights of way (ROW) roads. Minimize the development of new access and ROW roads, including clearing and blading for temporary vehicle access in areas of natural vegetation.
- **BIO-FP-04: Locate Off Road Access Roads and Work Sites**. Locate off road access roads and work sites to minimize impacts on plants, shrubs, and trees, small mammal burrows, and unique natural features (e.g., rock outcrops).
- **BIO-FP-06: Inspect Pipes and Culverts for Species.** Minimize potential for covered species to seek refuge or shelter in pipes and culverts. Inspect pipes and culverts, of diameter wide enough to be entered by a covered species that could inhabit the area where pipes are stored, for wildlife species prior to moving pipes and culverts. Immediately contact a biologist if a covered species is suspected or discovered.
- **BIO-FP-07: Speed Limit on Unpaved Roads:** Vehicle speeds on unpaved roads will not exceed 15 miles per hour.
- **BIO-FP-08: No Dumping, Firearms, Open Fires, Hunting, and Pets.** Prohibit trash dumping, firearms, open fires (such as barbecues), hunting, and pets (except for safety in remote locations) at work sites.
- **BIO-FP-09: Prevention of Fires.** Equip all motorized equipment with federally approved or state-approved spark arrestors. Use a backpack pump filled with water and a shovel and fire-resistant mats and/or windscreens when welding. During fire "red flag" conditions as determined by Cal Fire, curtail welding. Each fuel truck will carry a large fire extinguisher with a minimum rating of 40 B:C. Clear parking and storage areas of all flammable materials.
- **BIO-FP-10: Minimization of Footprint and Time.** Minimize the activity footprint and minimize the amount of time spent at a work location to reduce the potential for take of species.
- **BIO-FP-11: Erosion and Sediment Control.** Utilize standard erosion and sediment control BMPs (pursuant to the most current version of PG&E's Stormwater Field Manual for Construction Best Management Practices) to prevent construction site runoff into waterways. FP-12: Stockpile soil

within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.

- **BIO-FP-12: Stockpiled Soil.** Stockpile soil within established work area boundaries and locate stockpiles so as not to enter water bodies, stormwater inlets, other standing bodies of water. Cover stockpiled soil prior to precipitation events.
- **BIO-FP-13: Open Trenches and Steep-Walled Holes.** Fit open trenches or steep-walled holes with escape ramps of plywood boards or sloped earthen ramps at each end if left open overnight. Field crews will search open trenches or steep-walled holes every morning prior to initiating daily activities to ensure wildlife are not trapped. If any wildlife are found, a biologist will be notified and will relocate the species to adjacent habitat or the species will be allowed to naturally disperse, as determined by a biologist.
- **BIO-FP-14: Revegetation of Disturbed Habitat.** If the covered activity disturbs 0.1 acre or more of habitat for a covered species in grasslands, the field crew will revegetate the area with a commercial “weed free” seed mix.
- **BIO-FP-15: Refueling Buffer.** Prohibit vehicular and equipment refueling 250 feet from the edge of vernal pools, and 100 feet from the edge of other wetlands, streams, or waterways. If refueling must be conducted closer to wetlands, construct a secondary containment area subject to review by an environmental field specialist and/or biologist. Maintain spill prevention and cleanup equipment in refueling areas.
- **BIO-FP-16: Sensitive Biological Resource Areas Buffer.** Maintain a buffer of 250 feet from the edge of vernal pools and 50 feet from the edge of wetlands, ponds, or **riparian** areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the land planner, biologist, or HCP administrator to minimize impacts by flagging access, requiring foot access, restricting work until dry season, or requiring a biological monitor during the activity.
- **BIO-FP-17: Tree Protection and Removal.** Directionally fell trees away from an exclusion zone, if an exclusion zone has been defined. If this is not possible, remove the tree in sections. Avoid damage to adjacent trees to the extent possible. Avoid removal of snags and conifers with basal hollows, crown deformities, and/or limbs over 6 inches in diameter.
- **BIO-FP-18: Avoidance of Nests.** Nests with eggs and/or chicks will be avoided: contact a biologist, land planner or the Avian Protection Program manager for further guidance.
- **BIO-Hot Zone-6: Minimization of Impacts to Sensitive Biological Resource Areas.** Limit activities to foot access only when working off of established roadways unless a biological monitor flags off-road access roads for equipment that minimize impacts on habitat and species. This includes the identification and avoidance of vernal pools and stock ponds. Covered activities that cannot avoid vernal pool impacts will be completed when pools are clearly dry.
- **BIO-Hot Zone-8: Minimization of Impacts to Salt Marsh Habitat and Species.** For activities that will result in ground disturbance in tidal marsh or coastal wetland habitat, including the removal of marsh vegetation, a biologist will flag access routes for crews when working in pickleweed (*Salicornia*) or smooth cordgrass (*Spartina alterniflora*) dominated habitats in order to minimize impacts on these species. Crews will hand-carry equipment and use protection mats (landing pads, pallets) to minimize ground disturbance when working within pickleweed or smooth cordgrass. Small areas of healthy vegetation will be cleared by hand prior to placement of protective mats.

  To avoid take of salt marsh harvest mouse, the biologist will assess the site to determine if: vegetation protection mats are appropriate, use of helicopters is needed, vegetation removal by hand is needed, and an onsite biological monitor is needed. Prior to placement of mats or removal of vegetation, the vegetation will be disturbed (i.e., flushed) to force movement of salt marsh harvest mouse into adjacent tidal marsh areas. Immediately following flushing, the field crew will place a mat or manually remove vegetation with nonmotorized tools (e.g., hoe, rake, trowel, or shovel) to the bare ground.

Conduct work within 700 feet of wetlands suitable for the Ridgway's rail September 1–January 15.

- **BIO-Wetland-1: Vernal Pools Buffer.** Identify vernal pools and establish buffers. Maintain a buffer of 250 feet around vernal pools and vernal pool complexes. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the biologist or HCP administrator to minimize impacts. These measures include flagging access, requiring foot access, restricting work until the dry season, requiring a biological monitor during the activity, or excavating burrows in ROWs where trenching will occur. Activities must maintain the downstream hydrology to the vernal pool or complex. Additional minimization measures may be implemented with prior concurrence from USFWS.
- **BIO-Wetland-2: Wetlands, Ponds, and Riparian Areas Buffer.** Identify wetlands, ponds, and riparian areas and establish buffers. Maintain a buffer of 50 feet around wetlands, ponds, and riparian areas. If maintaining the buffer is not possible because the areas are either in or adjacent to facilities, the field crew will implement other measures as prescribed by the biologist or HCP administrator to minimize impacts. These measures include flagging access, requiring foot access, restricting work until the dry season, requiring a biological monitor during the activity, or excavating burrows in ROWs where trenching will occur. Activities must maintain the downstream hydrology to the wetland, pond, or riparian area. Additional minimization measures may be implemented with prior concurrence from USFWS.

1.4.3 Additional Reconductoring Measures

These PDFs have been added to ensure reconductoring activities will have a less than significant impact to biological resources.

- **BIO-Reconductoring- 1.1: Conduct Preconstruction Survey(s) for Special-Status Species and Sensitive Biological Resource Areas.** A qualified biologist will conduct pre-construction survey(s) in areas having habitat for special-status species and sensitive biological resource areas, either during the appropriate phenological period for plants or within 48 hours prior to construction activities for wildlife. If any special-status species is encountered during the pre-construction survey(s), biological resources will be clearly marked in the field and on project maps. Such areas will be avoided during construction.
- **BIO- Reconductoring-1.2: Exclusion Fencing.** At the discretion of the qualified biologist, prior to any ground-disturbing work in proximity to suitable habitat for special-status species or adjacent to wetlands or waters, exclusion fencing will be installed around workspaces as appropriate. Exclusion fencing will be routinely inspected during reconductoring activities; any damage, such as holes or gaps, will be promptly repaired.
- **BIO-Reconductoring-1.3: Special-Status Plant Impact Avoidance and Protection.** Prior to the start of reconductoring activities and in conjunction with BIO-Reconductoring-1.1, a qualified botanist will flag or otherwise mark (e.g., stake, fence) all special-status plant populations documented adjacent to construction work areas involved in reconductoring for avoidance. After reconductoring activities have been completed at a given worksite, all staking, fencing, or flagging will be removed.

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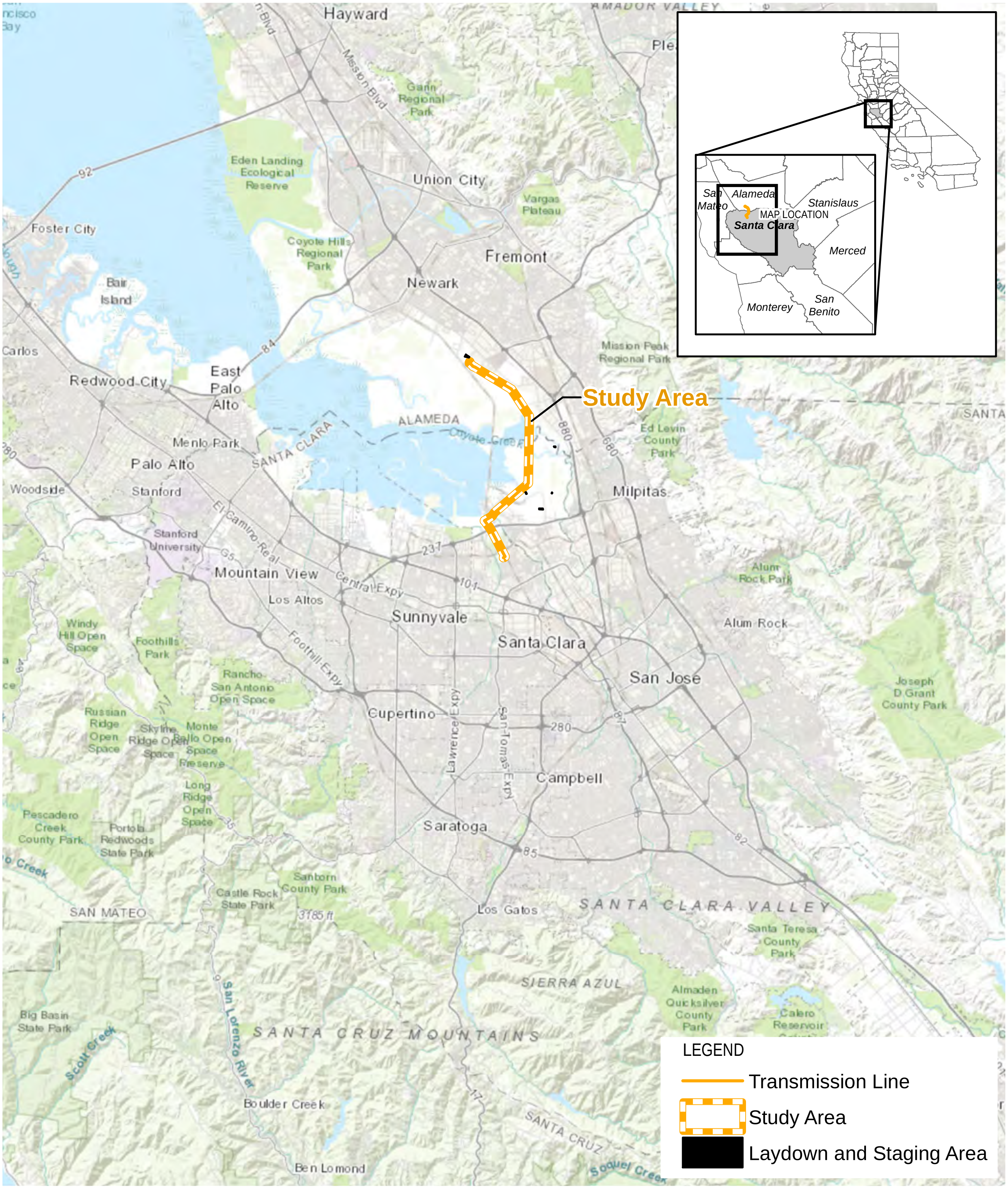
Figures



Source:
ESRI Service Layer

0 5 10
Approximate scale in miles

Figure 1
Vicinity Map for Transmission Line Reconductoring
San José Data Center (SJC02)
San José, California

JACOBS

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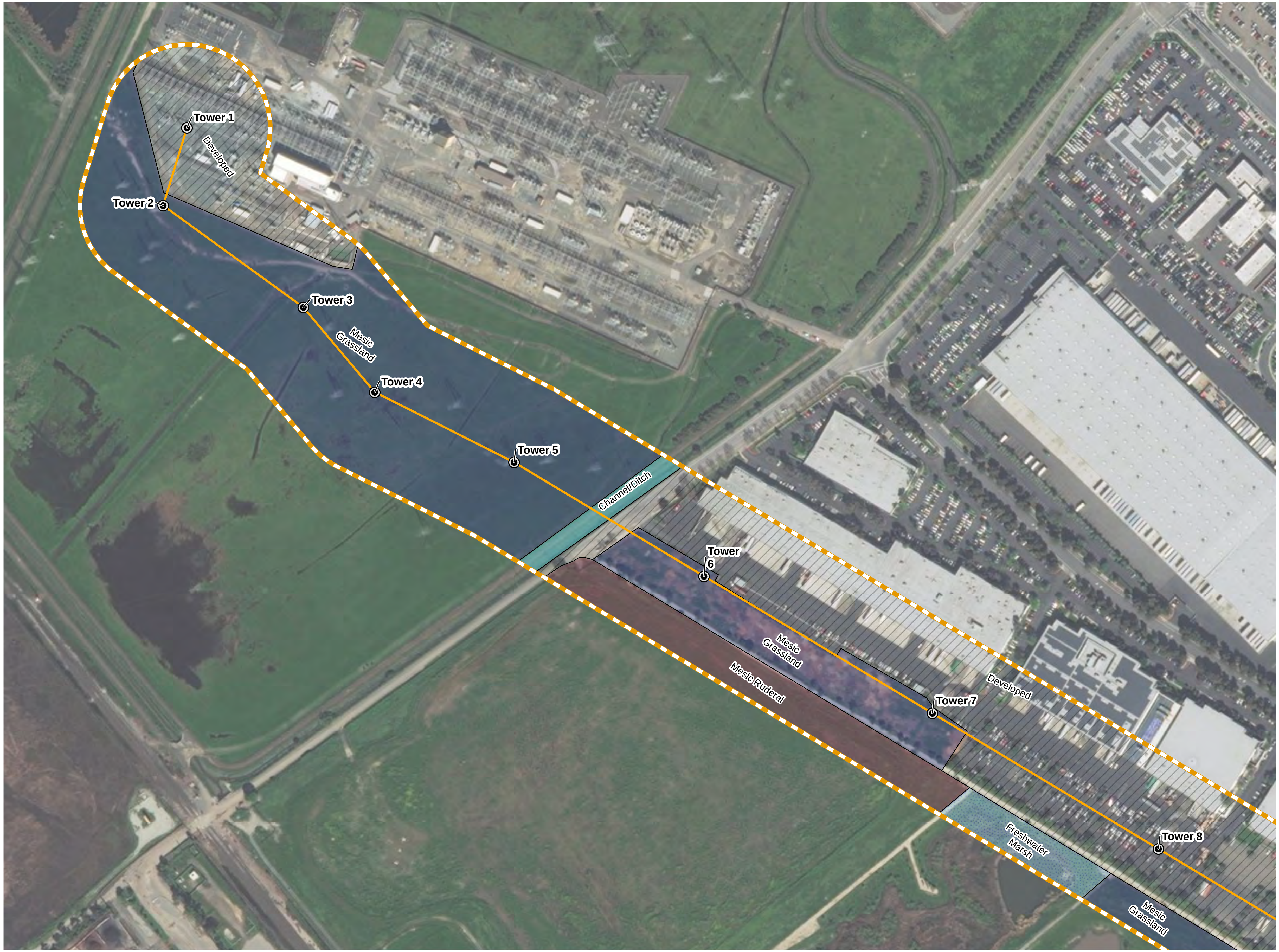

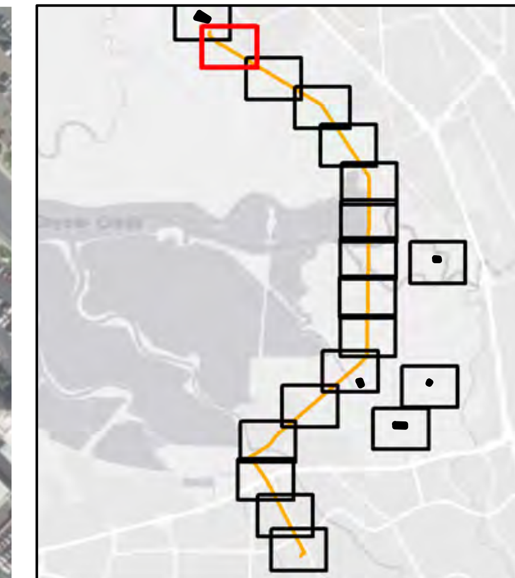

LEGEND
Transmission Line
Reconductoring Study Area
Laydown and Staging Area
Description
Channel/Ditch
Developed
Freshwater Marsh
Mesic Grassland
Mesic Ruderal

Image Date:
8/19/2017

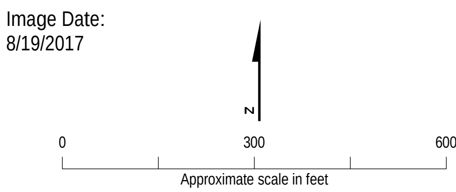

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 1 of 19
San José Data Center
San José, California

JACOBS

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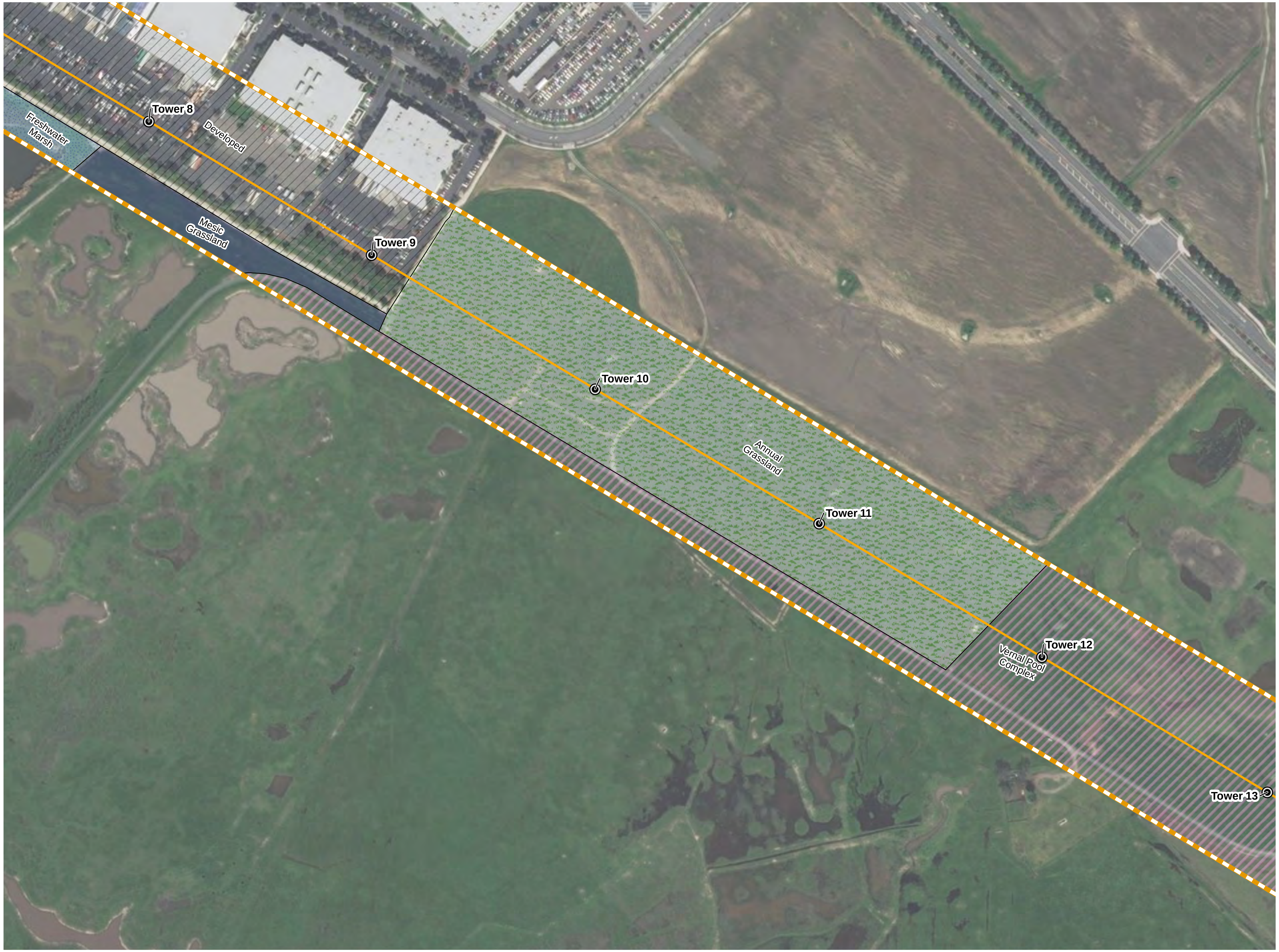
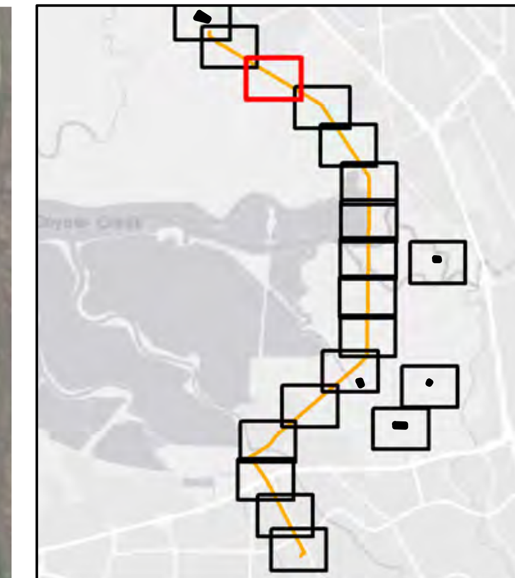




LEGEND

- Transmission Line
- Reconductoring Study Area
- Laydown and Staging Area

Description

- Annual Grassland
- Developed
- Freshwater Marsh
- Mesic Grassland
- Vernal Pool Complex

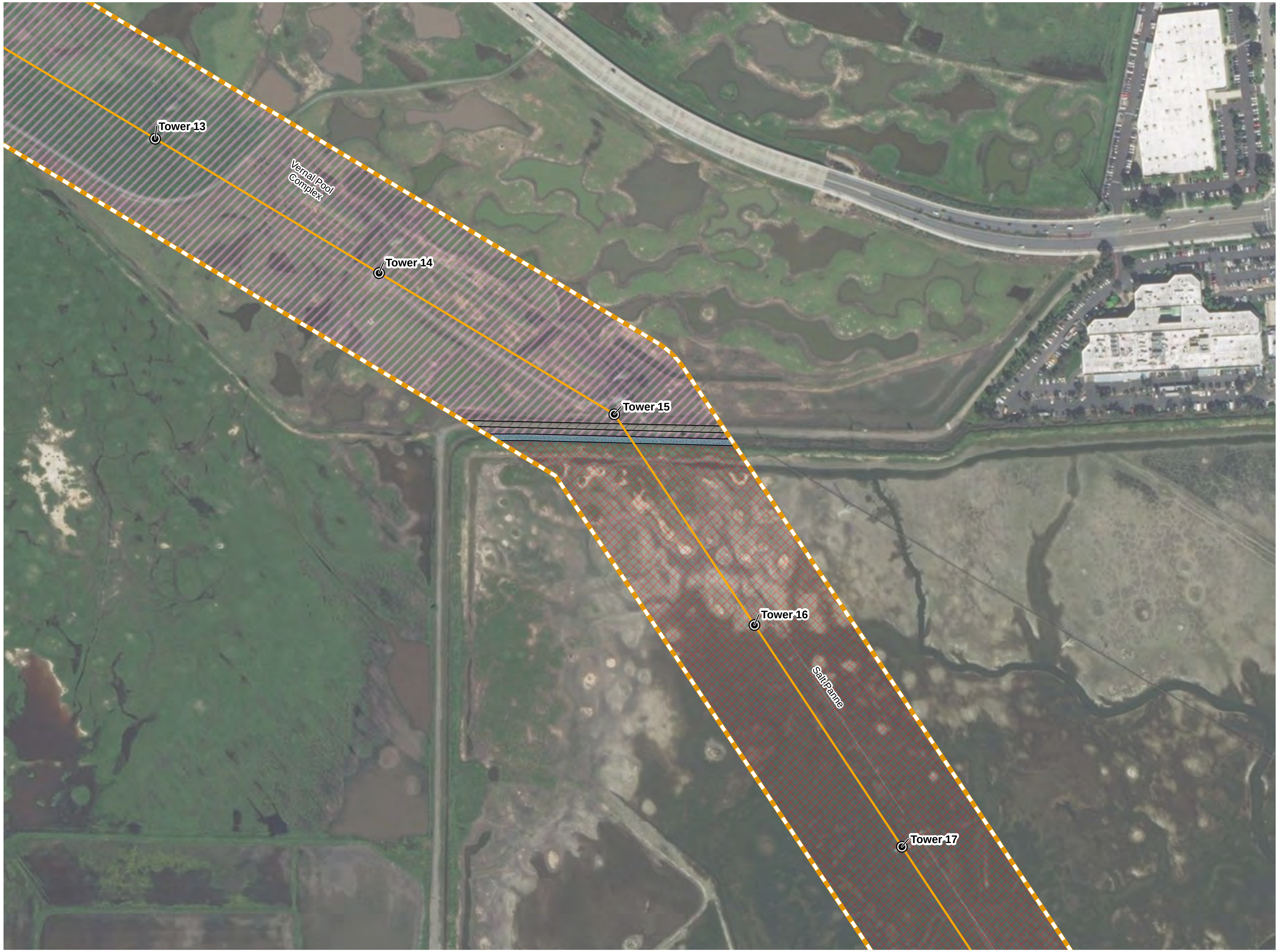
Image Date:
8/19/2017

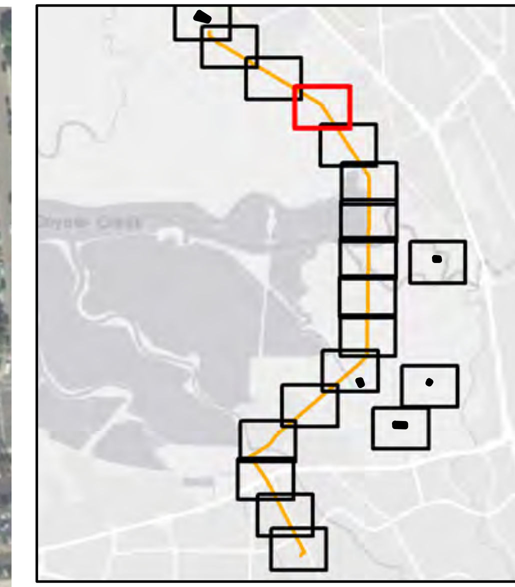
N

0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the Reconductoring Study Area
Page 2 of 19
San José Data Center
San José, California

JACOBS





LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Developed

Salt Panne

Vernal Pool Complex

Water

Image Date:
8/19/2017

N

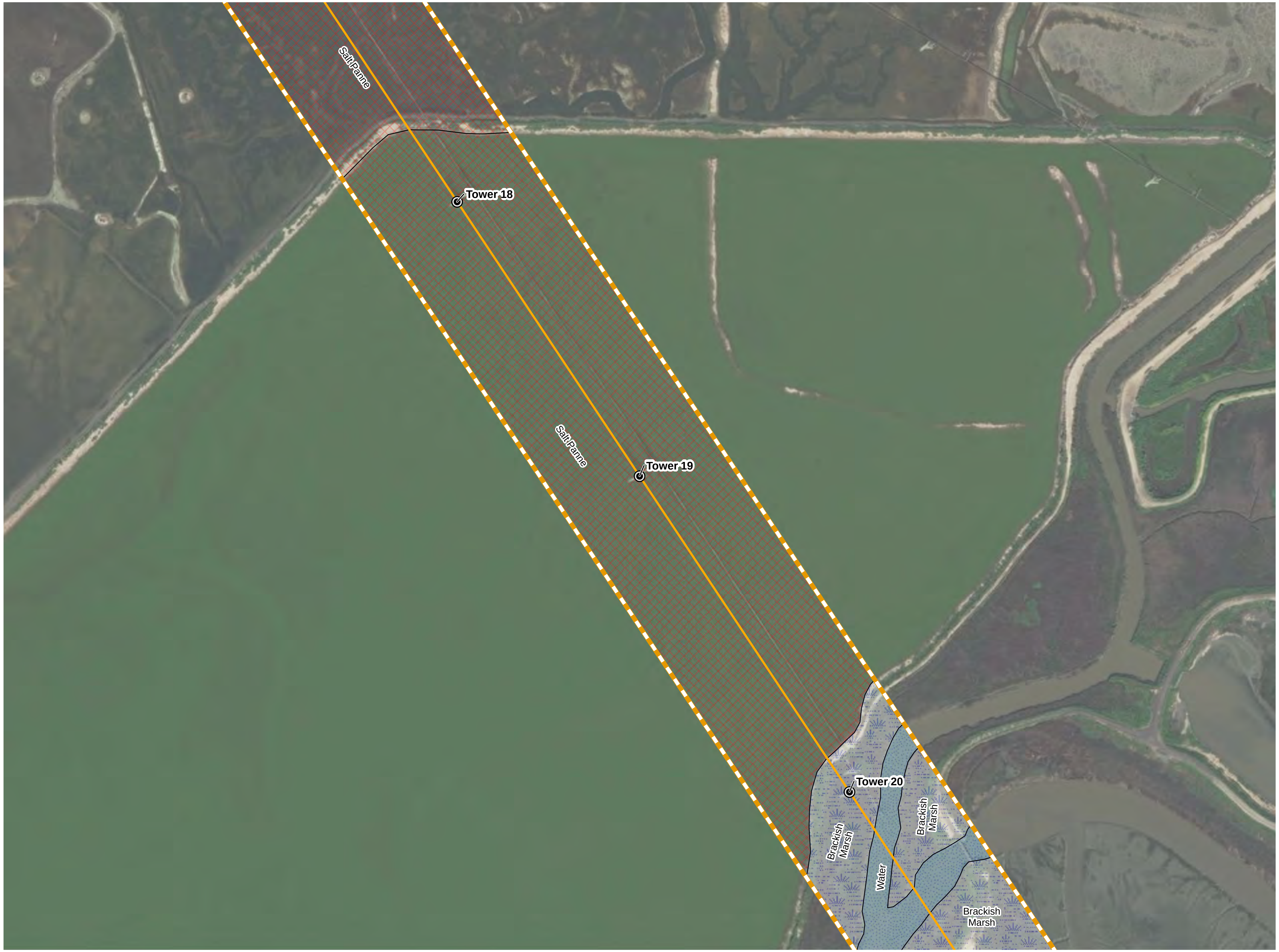
0 300 600

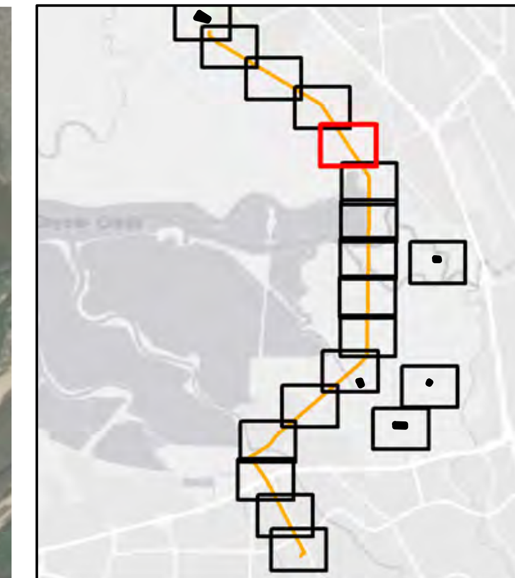
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 3 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM





LEGEND
- Transmission Line
- Reconductoring Study Area
- Laydown and Staging Area

Description
- Brackish Marsh
- Salt Panne
- Water

Image Date:
8/19/2017

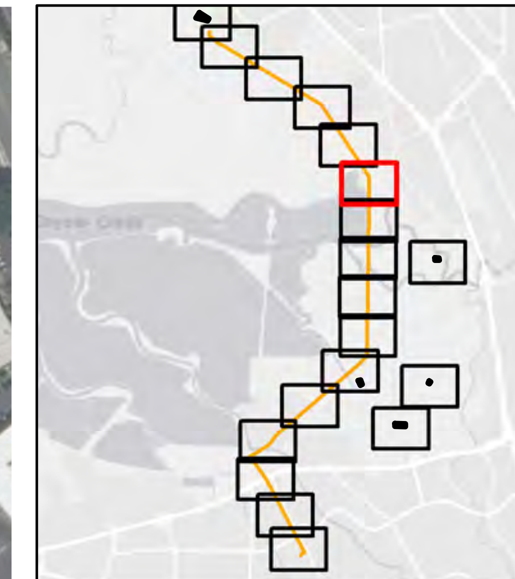
N

0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 4 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Brackish Marsh

Water

Image Date:
8/19/2017

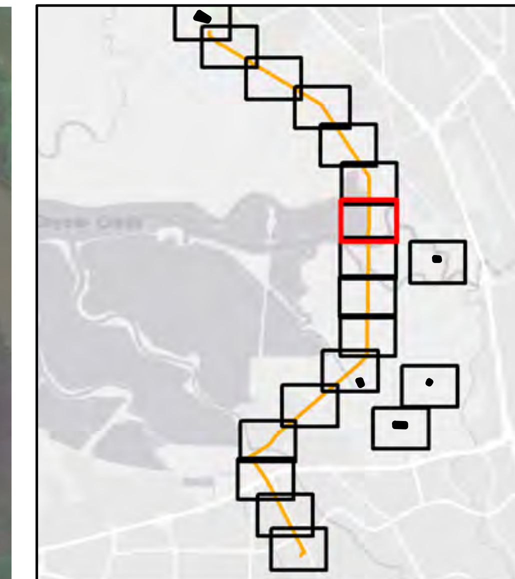
N

0 300 600

Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 5 of 19
San José Data Center
San José, California

JACOBS



LEGEND
Transmission Line
Reconductoring Study Area
Laydown and Staging Area
Description
Brackish Marsh
Water

Image Date:
8/19/2017

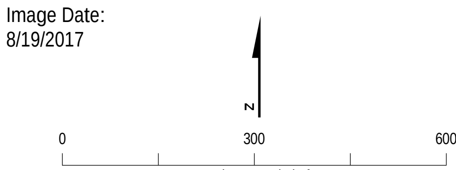
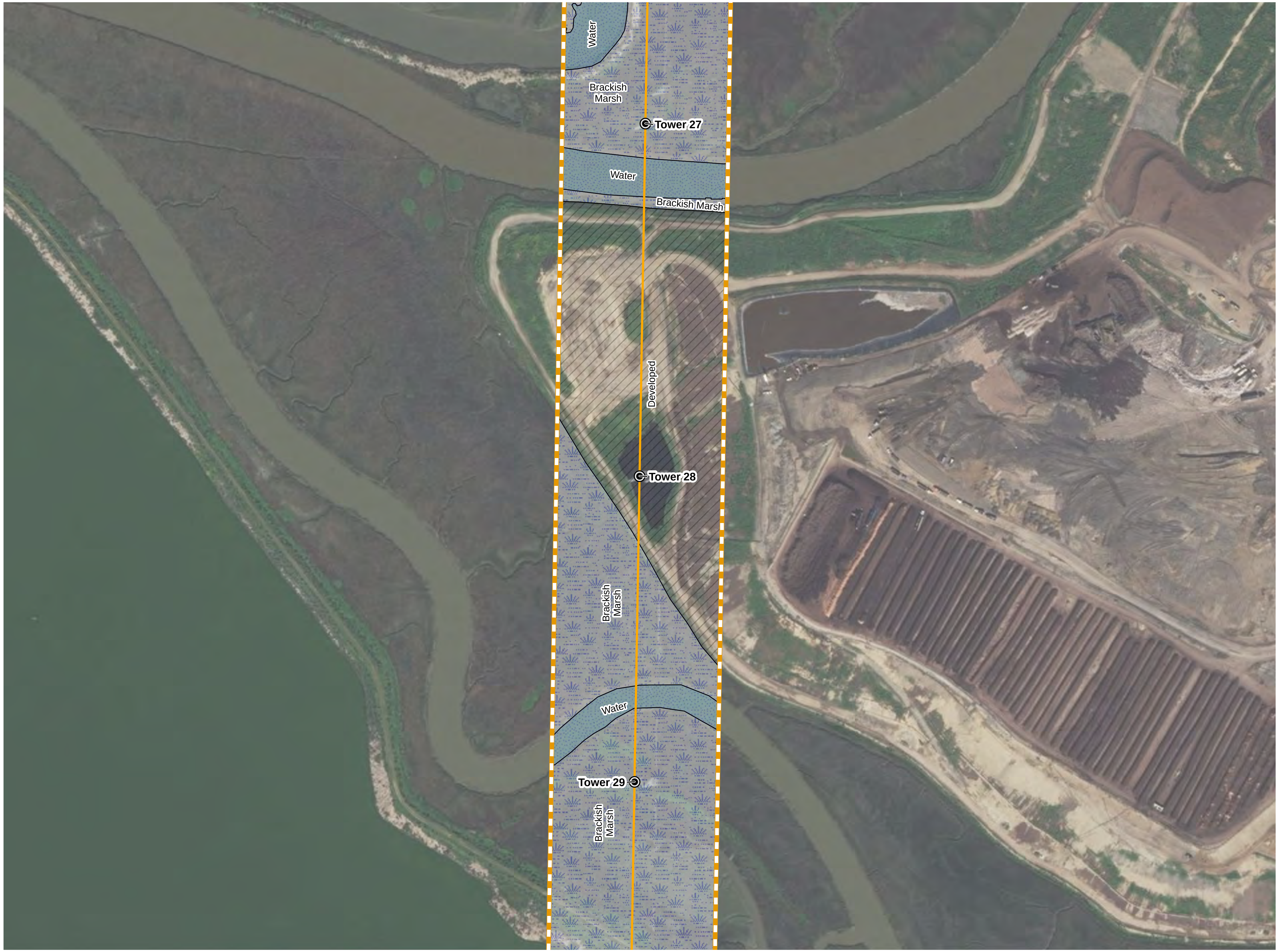


Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 6 of 19
San José Data Center
San José, California

JACOBS



LEGEND

- Transmission Line
- Reconductoring Study Area
- Laydown and Staging Area

Description

- Brackish Marsh
- Developed
- Salt Pond
- Water

Image Date:
8/19/2017

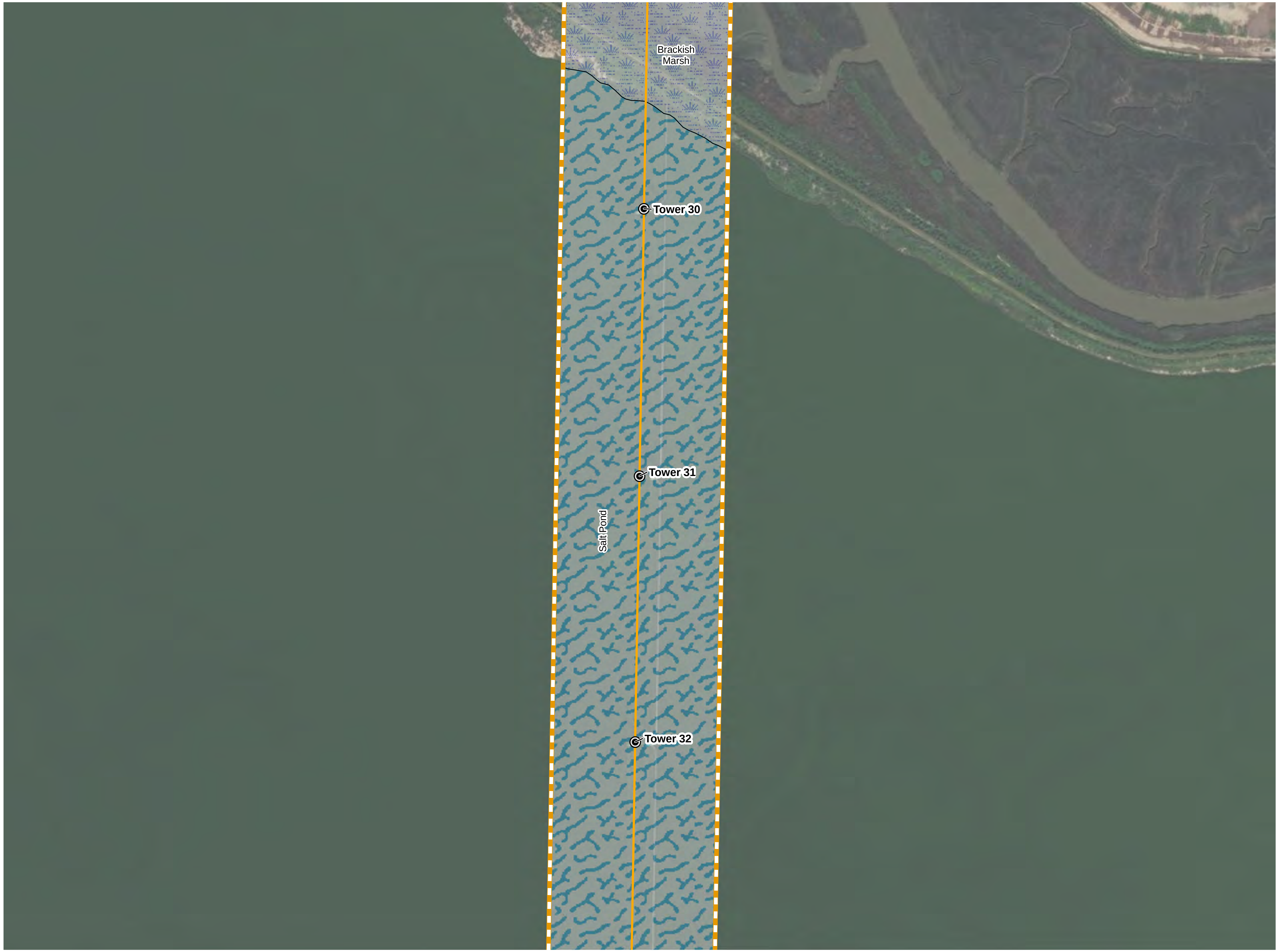
N

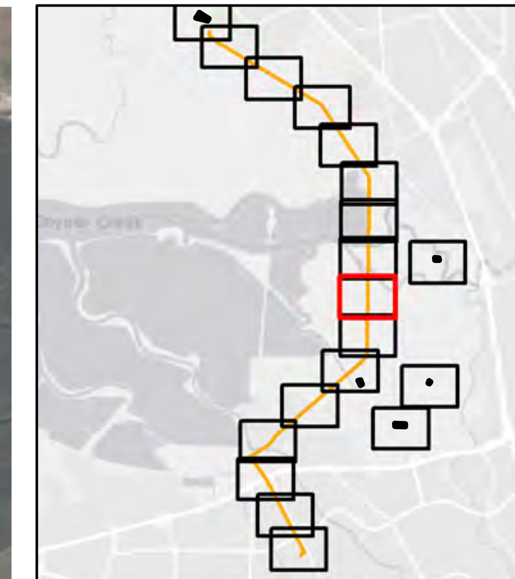
0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 7 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM





LEGEND
Transmission Line
Reconductoring Study Area
Laydown and Staging Area
Description
Brackish Marsh
Salt Pond

Image Date:
8/19/2017

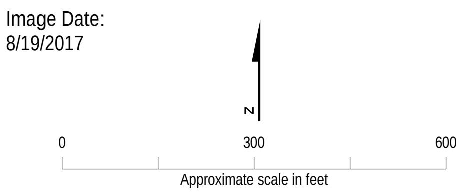


Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 8 of 19
San José Data Center
San José, California

JACOBS

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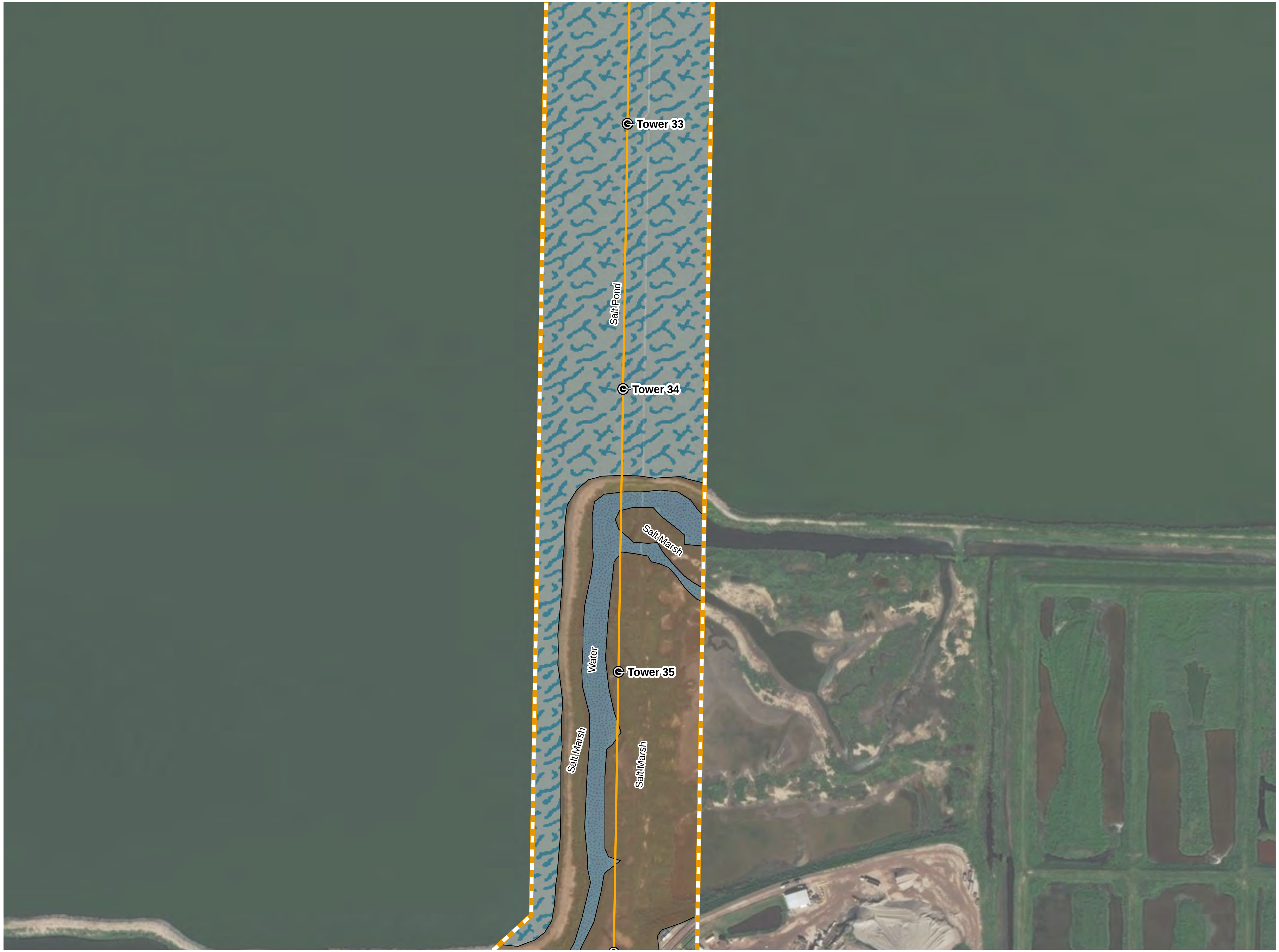
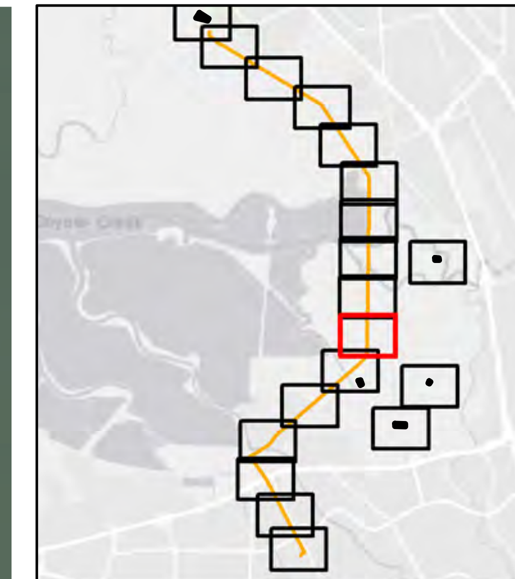




LEGEND
Transmission Line
Reconductoring Study Area
Laydown and Staging Area
Description
Developed
Salt Marsh
Salt Pond
Water

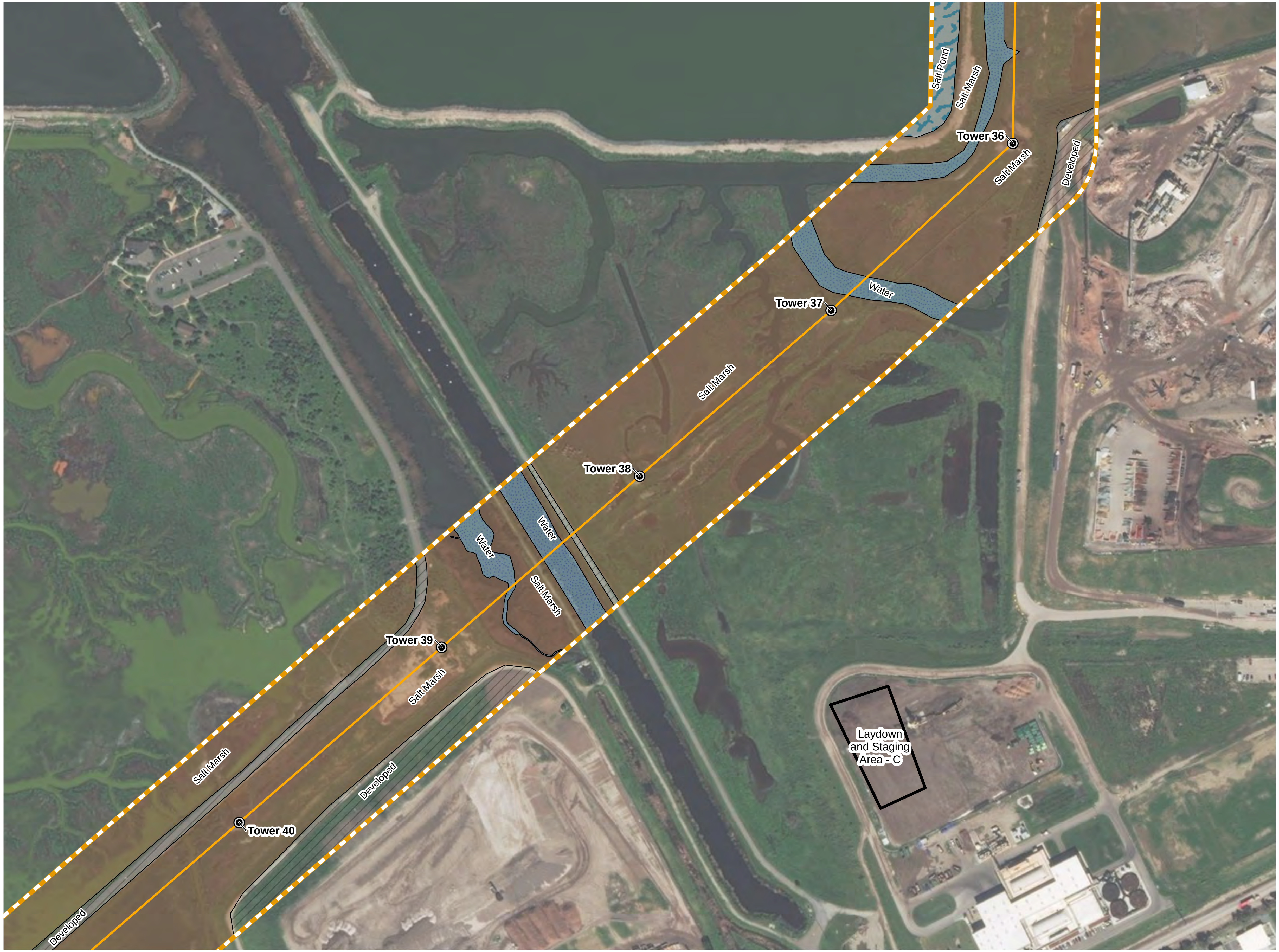
Image Date:
8/19/2017

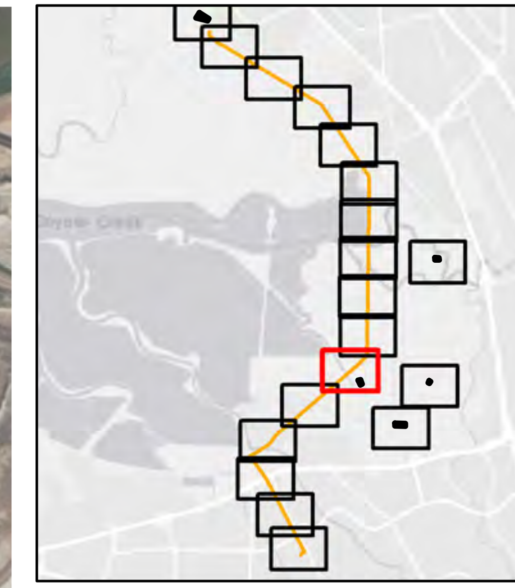
N
0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 9 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM





LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Developed

Salt Marsh

Salt Pond

Water

Image Date:
8/19/2017

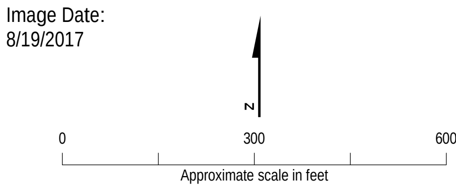


Figure 2
Land Cover Types in the
Reconductoring Study Area

San José Data Center
San José, California

JACOBS

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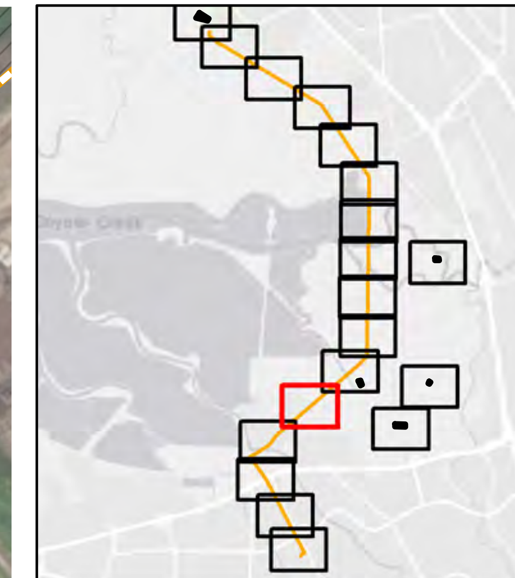


LEGEND
- Transmission Line
- Reconductoring Study Area
- Laydown and Staging Area

Description
- Annual Grassland
- Developed
- Salt Marsh
- Salt Panne
- Seasonal Wetland
- Water

Image Date:
8/19/2017

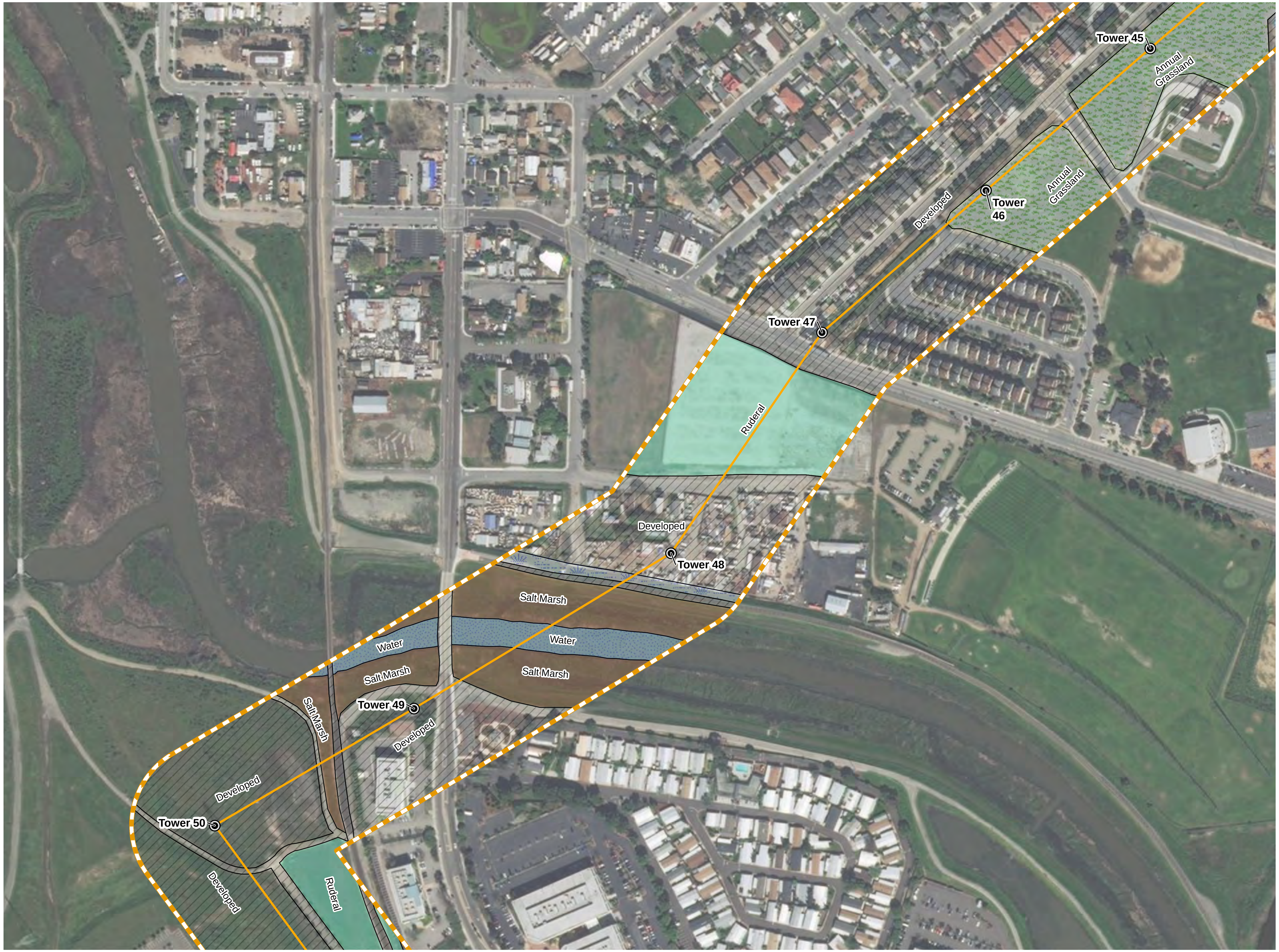
N

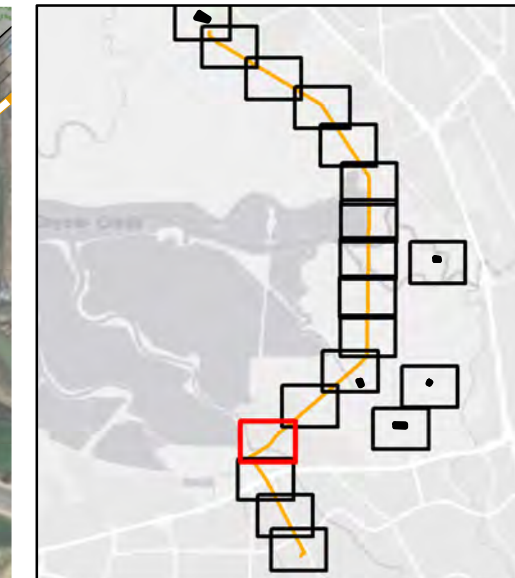
0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 11 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM





LEGEND
- Transmission Line
- Reconductoring Study Area
- Laydown and Staging Area

Description
- Annual Grassland
- Brackish Marsh
- Developed
- Ruderal
- Salt Marsh
- Water

Image Date: 8/19/2017

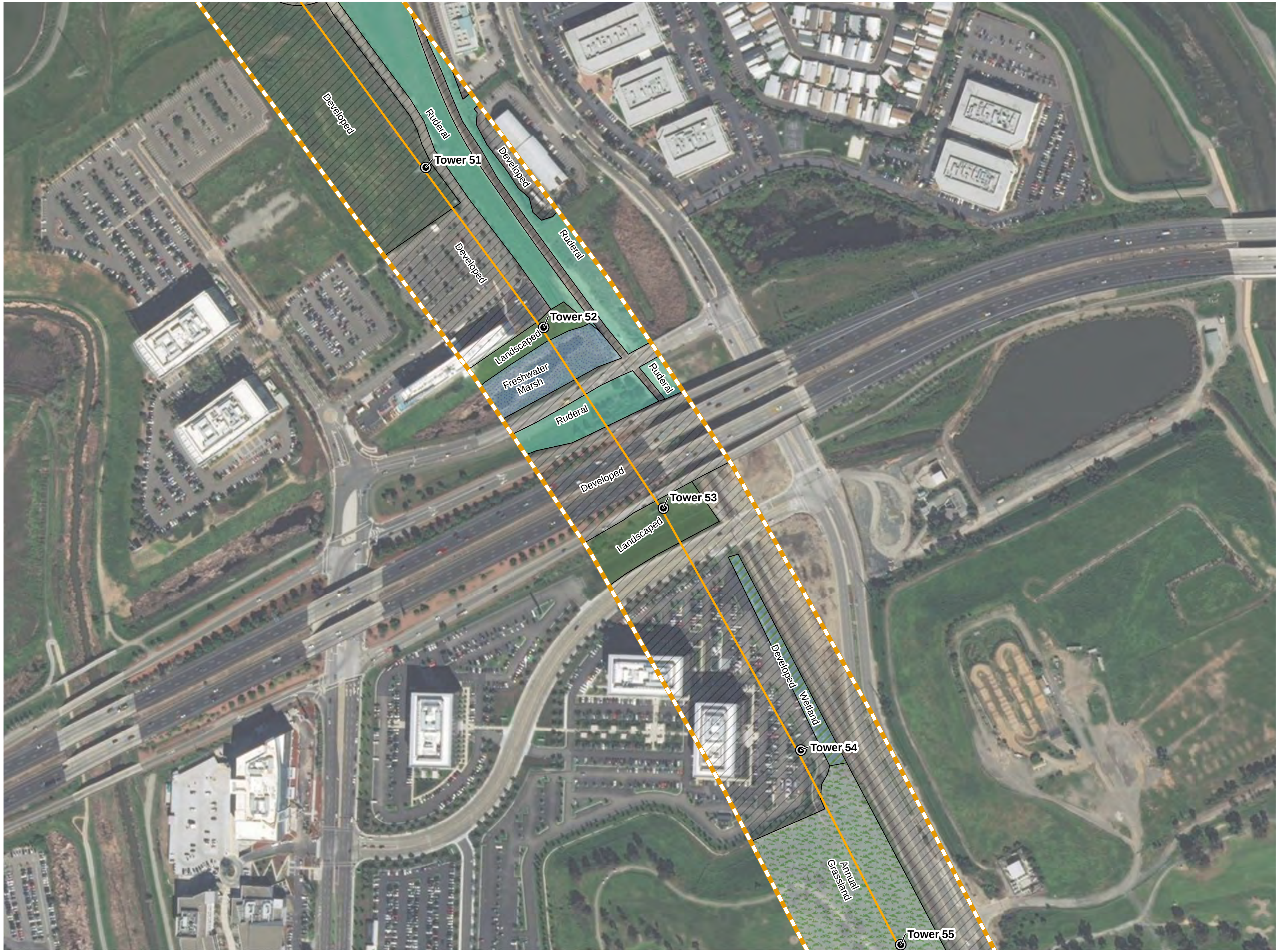
N

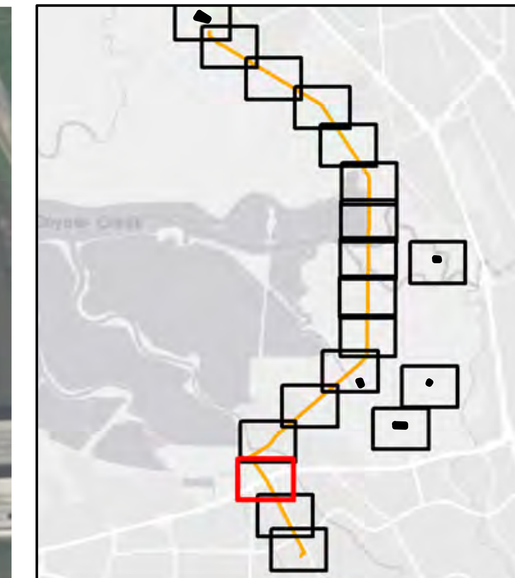
0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the Reconductoring Study Area
Page 12 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM





LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Annual Grassland

Developed

Freshwater Marsh

Landscaped

Ruderal

Wetland

Image Date:
8/19/2017

N

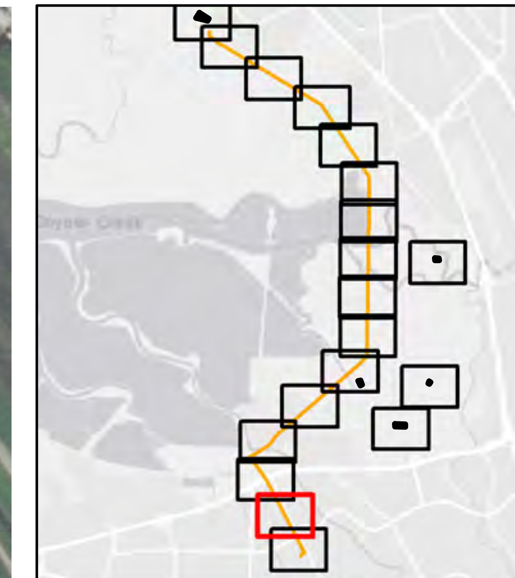
0 300 600

Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 13 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Annual Grassland

Developed

Ruderal

Image Date:
8/19/2017

N

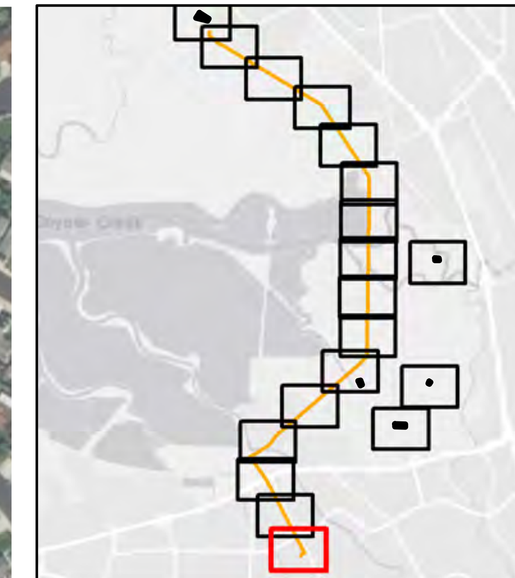
0 300 600

Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 14 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Developed

Ruderal

Image Date:
8/19/2017

N

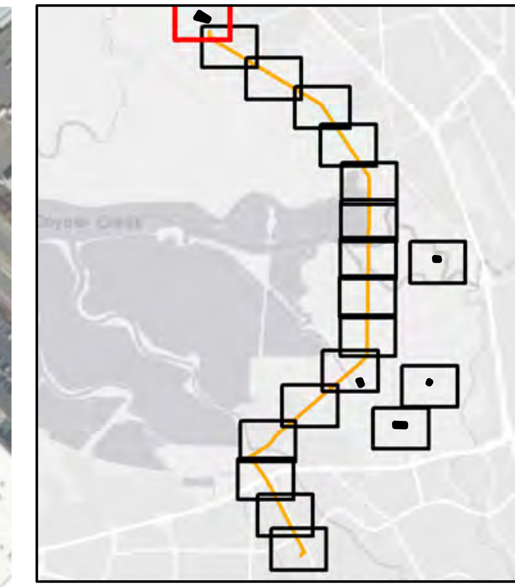
0 300 600

Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 15 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Transmission Line

Reconductoring Study Area

Laydown and Staging Area

Description

Developed

Mesic Grassland

Image Date:
8/19/2017

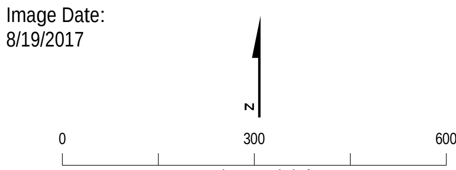
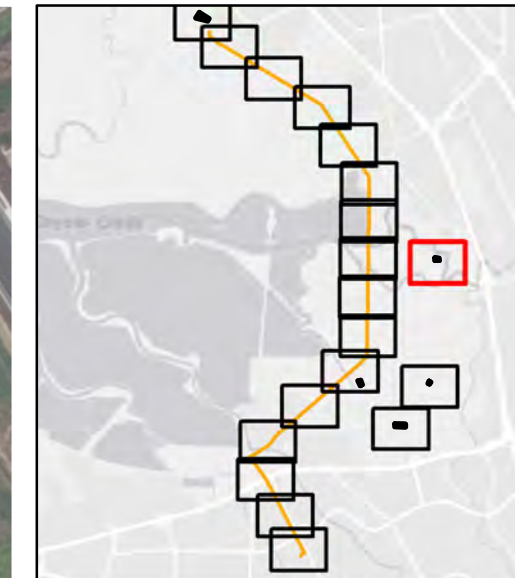


Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 16 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Laydown and Staging Area

Image Date:
8/19/2017

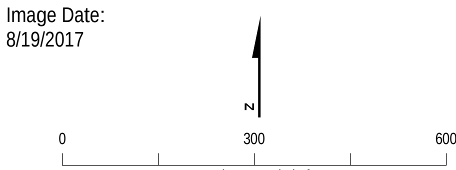
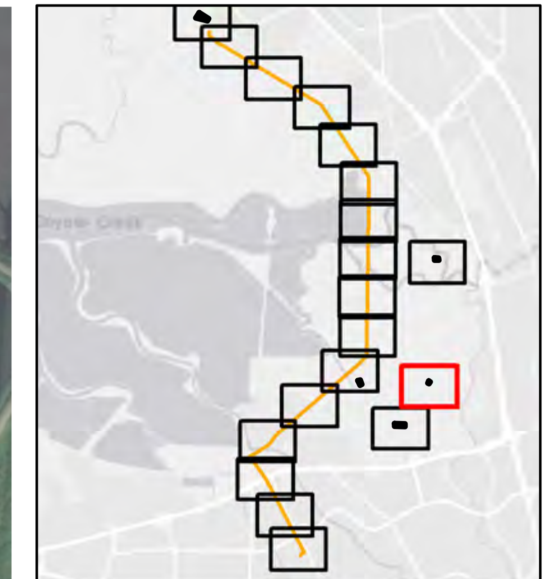


Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 17 of 19
San José Data Center
San José, California

JACOBS



LEGEND

Laydown and Staging

Image Date:
8/19/2017

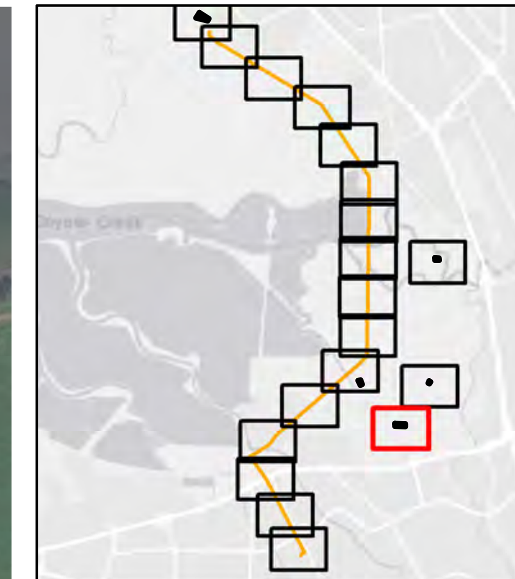
N

0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 18 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

Laydown and Staging

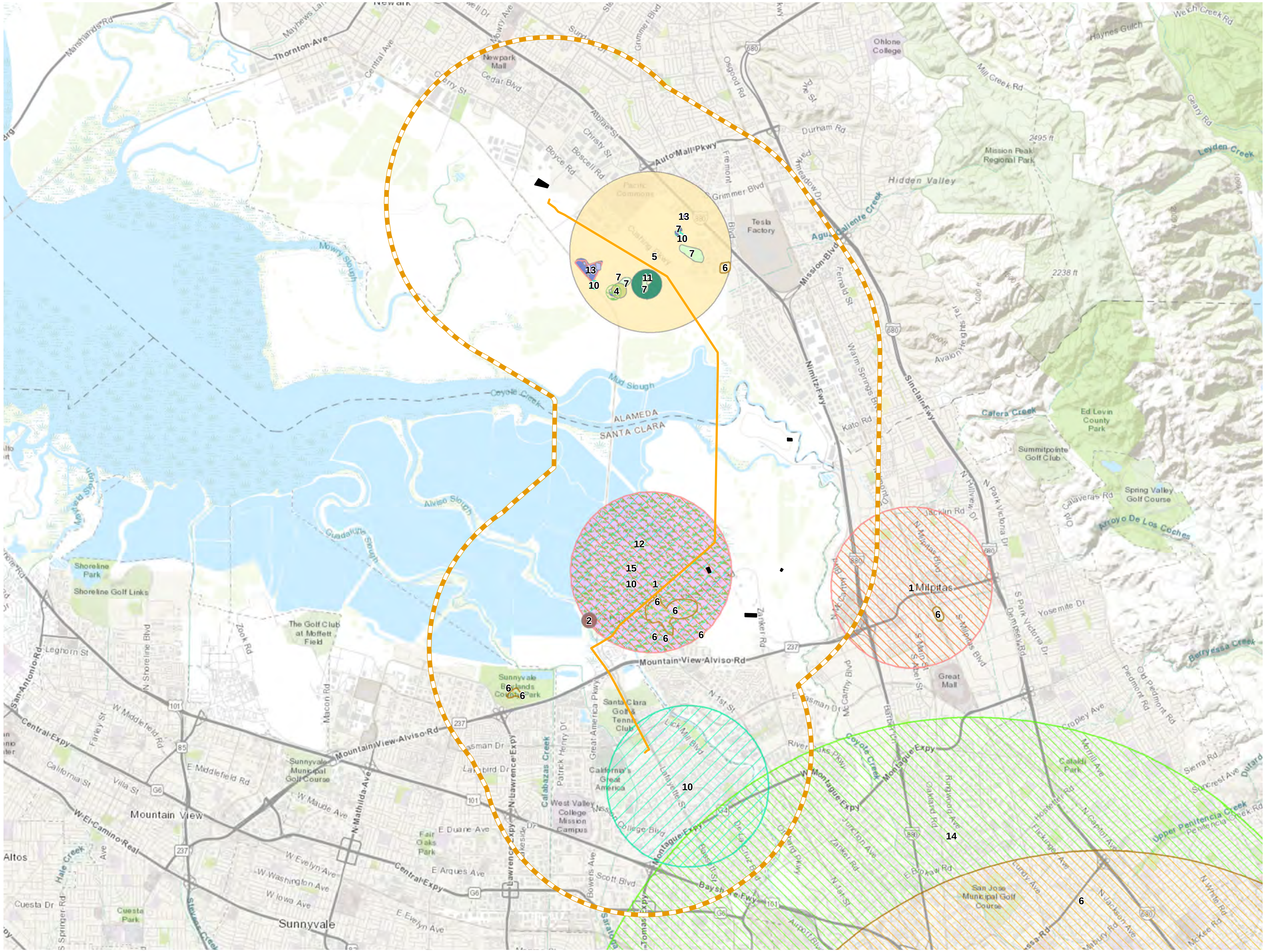
Image Date:
8/19/2017

0 300 600
Approximate scale in feet

Figure 2
Land Cover Types in the
Reconductoring Study Area
Page 19 of 19
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG2_BIOLOGY_HABITAT_DDP_JACOBS20200819.MXD 10/1/2020 1:48:50 PM



LEGEND

- Transmission Line
- Transmission Line 2-Mile Buffer
- Laydown and Staging Area

Plants

- 1 - alkali milk-vetch
- 2 - arcuate bush-mallow
- 3 - brittlescale
- 4 - California alkali grass
- 5 - California seablite
- 6 - Congdon's tarplant
- 7 - Contra Costa goldfields
- 10 - Hoover's button-celery
- 11 - lesser saltscale
- 12 - Point Reyes salty bird's-beak
- 13 - prostrate vernal pool navarretia
- 14 - robust spineflower
- 15 - saline clover
- 16 - San Joaquin spearscale

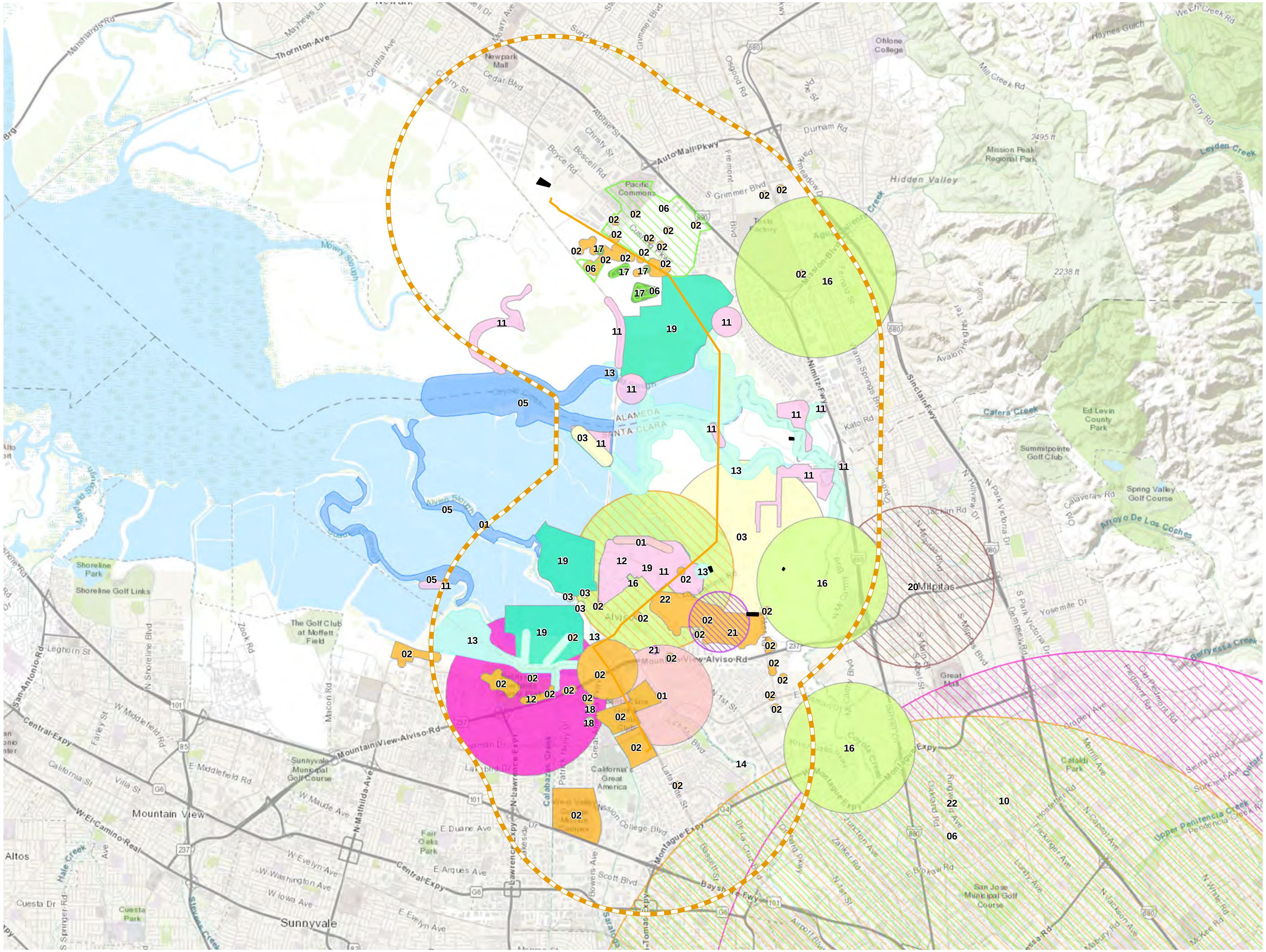
Note:
CNDDB version May 2020
ESRI Service Layer
Source:
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

0 6,500 13,000
Approximate scale in feet
N

Figure 3a
California Natural Diversity Database
Special Status Species (Plants)
within 2 miles of Transmission Line
Reconductoring
San José Data Center
San José, California

JACOBS

\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG3A_CNDDB_2MI_PLANTS.MXD 10/1/2020 1:54:14 PM



LEGEND

Transmission Line

Transmission Line 2-Mile Buffer

Laydown and Staging Area

Animals

01 - Alameda song sparrow

02 - burrowing owl

03 - California black rail

05 - California Ridgway's rail

06 - California tiger salamander

10 - northern California legless lizard

11 - salt-marsh harvest mouse

12 - salt-marsh wandering shrew

13 - saltmarsh common yellowthroat

16 - tricolored blackbird

17 - vernal pool tadpole shrimp

18 - western pond turtle

19 - western snowy plover

20 - western yellow-billed cuckoo

21 - white-tailed kite

22 - yellow rail

Note:
CNDDB version May 2020
ESRI Service Layer
Source:
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

0 6,500 13,000
Approximate scale in feet

N

Figure 3.4-3b
California Natural Diversity Database
Special Status Species (Animals)
within 2 miles of Transmission Line
Reconductoring
San José Data Center
San José, California

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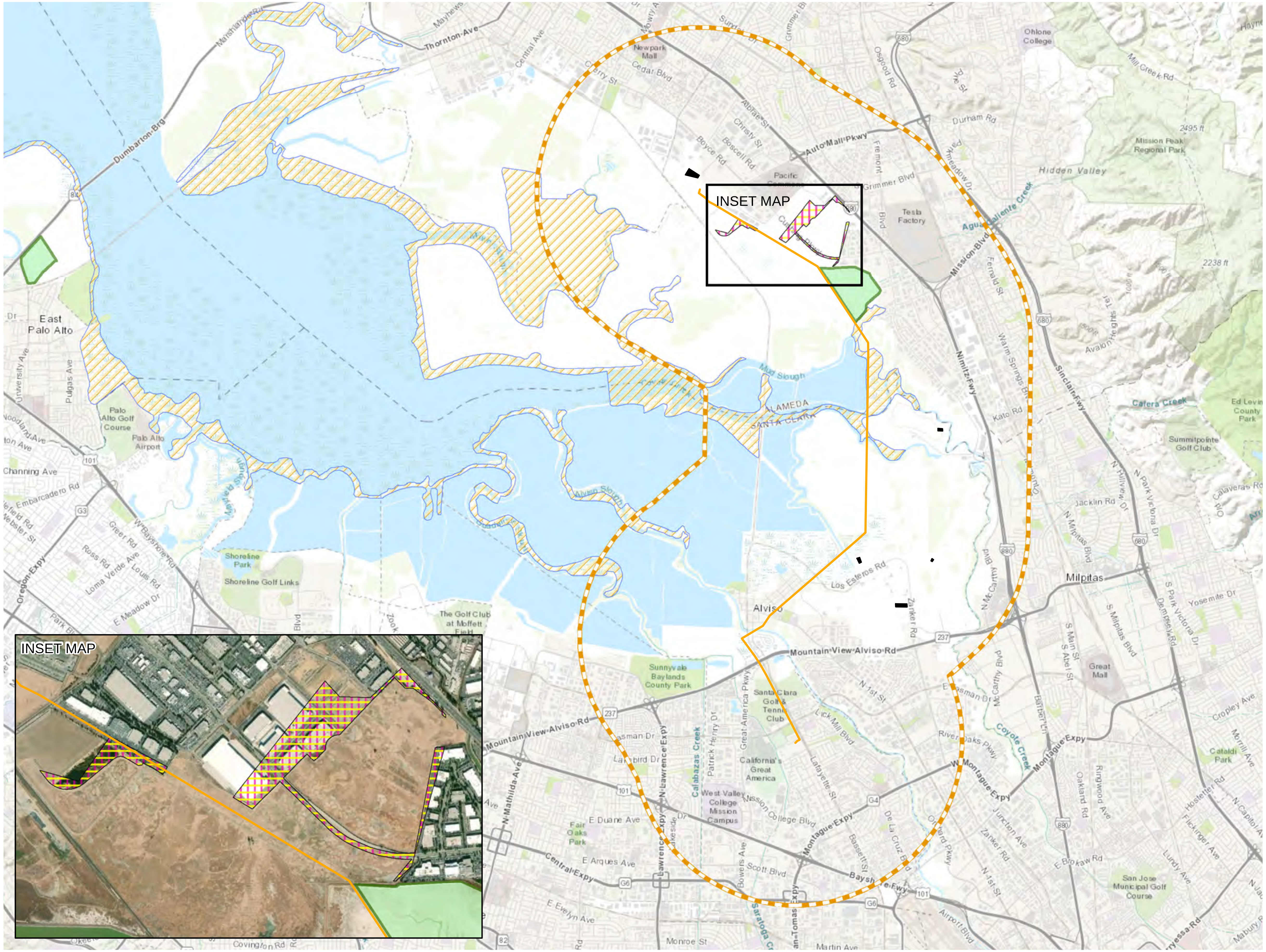
\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG3B_CNDDB_2MI_ANIMALS.MXD 10/1/2020 1:55:22 PM



LEGEND

- Transmission Line
- Transmission Line 2-Mile Buffer
- Laydown and Staging Area
- Contra Costa goldfields
- Vernal pool tadpole shrimp
- Western snowy plover
- Northern Coastal Salt Marsh

Note:
U.S. Fish & Wildlife Service 2020
CNDDB version May 2020
ESRI Service Layer
Source:
The occurrences shown on this map represent the known locations of the species listed here as of the date of this version. There may be additional occurrences or additional species within this area which have not yet been surveyed and/or mapped. Lack of information in the CNDDB about a species or an area can never be used as proof that no special status species occur in an area.

0 6,500 13,000
Approximate scale in feet

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Figure 4
Designated Critical Habitat and Sensitive Plant Communities
San José Data Center
San José, California

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\\DC1VS01\GISPROJ\L\LIGHTSPEED\SJDC\MAPS\REPORT\2020\FIG4_FWS_2MI_BOTH.MXD 10/1/2020 1:56:32 PM

Appendix A
Special Status Species Tables (Transmission Line)

The special-status species tables have been divided into plants (Table 1) and wildlife (Table 2).

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				
Astragalus tener var. tener	Alkali milk-vetch	-	-	1B.2	Occurs in alkaline soils in valley and foothill grassland and in vernal pools	March-Jun	**Potential to occur.** Suitable habitat is present in the study area in mesic grassland and vernal pool habitat. There are three CNDDB occurrences within 2 miles of the study area; however, one is considered extirpated and one is considered possibly extirpated. The occurrence presumed extant is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat and was last updated in 2008. In 2002, 130 plants were observed at this location.	Towers 2 through 7 and towers 12 through 15.
Atriplex depressa	Brittlescale	-	-	1B.2	Occurs on alkaline clay soils in chenopod scrub, meadows and seeps, playas, valley and foothill grasslands, and vernal pools	April- Oct	**Potential to occur.** Suitable habitat is present in the study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the study area located approximately 0.2 miles southwest of Tower 14 in vernal pool habitat. Approximately 700 plants were observed at this location in 2003.	Towers 10 through 15.
Atriplex minuscule	Lesser saltscale	-	-	1B.1	Occurs in alkaline and sandy soils in chenopod scrub, playas, and valley and foothill grasslands	May-Oct	**Potential to occur.** Suitable habitat is present in the study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the study area located approximately 150 feet southwest of Tower 10 in vernal pool habitat, which was last seen in 2003.	Towers 10 through 15.
Balsamorhiza macrolepis	Big-scale balsamroot	-	-	1B.2	Chaparral, cismontane woodland, and valley and foothill grasslands, often on serpentine soils	March-Jun	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Campanula exigua	chaparral harebell	-	-	1B.2	Chaparral (rocky, usually serpentinite)	May-Jun	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				
Centromadia parryi ssp. congdonii	Congdon's tarplant	-	-	1B.1	Occurs on valley and foothill grasslands and vernal pools on alkaline soils; species is highly tolerant of disturbed habitats	May- Nov	**Likely to occur.** Suitable habitat is present in the study area in grassland, ruderal, and vernal pool habitat. There are 5 CNDDB occurrences within 2 miles of the study area, although one is considered possibly extirpated. One of the CNDDB occurrences is located directly under the transmission line near Tower 43 where 822 plants were observed in 2016. Another occurrence is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat, where 16,000 plants were observed in 2001 and seen in 2019.	Towers 10 through 15 and Tower 43.
Chorizanthe robusta var. robusta	Robust Spineflower	E	-	1B.1	Occurs on sandy or gravelly soils in openings of cismontane woodlands, coastal dunes and coastal scrub	Apr-Sep	**Unlikely to occur.** Suitable habitat is absent from the study area. There is one CNDDB occurrence within 2 miles of the study area; however, this occurrence is considered possibly extirpated.	
Cordylanthus maritimus ssp. palustris	Point Reyes bird's-beak	-	-	1B.2	Found in coastal salt areas such as marshes and swamps	Jun- Oct	**Unlikely to occur.** Marginally suitable habitat is present in the study area in salt marsh habitat. There is one CNDDB occurrence within 2 miles of the study area; however, this occurrence is considered extirpated.	
Cirsium fontinale var. campylon	Mt. Hamilton fountain thistle	-	-	1B.2	Occurs in serpentinite seeps, chaparral, cismontane woodland, and valley and foothill grassland	(Feb)Apr-Oct	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	
Collinsia multicolor	San Francisco collinsia	-	-	1B.2	Occurs in closed-cone coniferous forest and coastal scrub, sometime in serpentine soils	(Feb)Mar-May	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Delphinium californicum ssp. interius	Hospital Canyon larkspur	-	-	1B.2	Occurs in chaparral openings and mesic cismontane woodlands	April- Jun	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	

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Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				
Dirca occidentalis	Western leatherwood	-	-	1B.2	Found in mesic habitats such as broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, and riparian woodland	Jan- April	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Dudleya abramsii ssp. setchellii	Santa Clara Valley dudleya	E	-	1B.1	Occurs in cismontane woodland and valley and foothill grassland. Grows in serpentine and rocky soils	Apr-Oct	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	
Eryngium aristulatum var. hooveri	Hoover's button-celery	-	-	1B.1	Occurs in vernal pools	Jul- Aug	**Potential to occur.** Suitable habitat is present in the study area in vernal pool habitat. There are four CNDDB occurrences within 2 miles of the study area; however, two occurrences are considered possibly extirpated. One of the extant occurrences is located approximately 0.5 miles southwest of Tower 10 in vernal pool habitat, where 20 plants were observed in 2009.	Towers 12 through 15.
Extriplex joaquiniana	San Joaquin Spearscale	-	-	1B.2	Occurs in chenopod scrub, meadows and seeps, playas, and valley and foothill grasslands on alkaline soils	April- Oct	**Potential to occur.** Suitable habitat is present in the study area in grassland and vernal pool habitat. There is one CNDDB occurrence within 2 miles of the study area, which is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat, where 300 plants were observed in 2001.	Towers 12 through 15.

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				
Fritillaria liliacea	fragrant fritillary	-	-	1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Grows in serpentinite soils. Ranges over parts of southwestern Northern California, USA, especially Solano and Sonoma Counties and at coastal locations south to Monterey County	Feb-Apr	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	
Helianthella castanea	Diablo helianthella	-	-	1B.2	Occurs in broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland. Grows in rocky, axonal soils often in partial shade	Mar-Jun	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Hoita strobilina	Loma Prieta hoita	-	-	1B.1	Occurs in chaparral, cismontane woodland, and riparian woodland. Usually grows in serpentine and mesic soils	May-Jul(Aug-Oct)	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Lasthenia conjugens	Contra Costa goldfields	E	-	1B.1	Vernal pools and mesic soils within cismontane woodland, playas (alkaline), and valley and foothill grassland	Mar-Jun	**Likely to occur.** Suitable habitat is present in the study area in mesic grassland and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the study area. One occurrence is located approximately 0.2 miles southwest of Tower 10 in vernal pool habitat where 4 colonies are mapped. The other occurrence is located approximately 0.4 miles northeast of Tower 15 10 in vernal pool habitat, where 1,485 plants were seen in 2009 and 3 colonies are mapped.	Towers 2 through 7 and towers 12 through 15.
Lessingia micradenia var. glabrata	smooth lessingia	-	-	1B.2	Occurs in chaparral, cismontane woodland, and valley and foothill grassland	(Apr-Jun)Jul-Nov	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a] Federal	Status[a] State	Status[a] CNPS	Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
Malacothamnus arcuatus	arcuate bush-mallow	-	-	1B.2	Chaparral and cismontane woodland.	Apr-Sep	**Unlikely to occur.** Suitable habitat is absent; however, there is one CNDDB occurrence within 2 miles of the study area along Alviso slough.	
Malacothamnus hallii	Hall's bush-mallow	-	-	1B.2	Chaparral and coastal scrub	(Apr) May-Sep (Oct)	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Monolopia gracilens	woodland woolythreads	-	-	1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, North Coast coniferous forest (openings), and valley and foothill grassland. Grows in serpentine soils	(Feb) Mar-Jul	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Navarretia paradoxiclara	Patterson's navarretia	-	-	1B.3	Meadows and seeps. Grows in serpentine and vernally mesic soils	May-Jun (Jul)	**Absent.** Suitable habitat is absent. No CNDDB occurrences within 2 miles of the study area.	
Navarretia prostrata	prostrate vernal pool navarretia	-	-	1B.1	Vernal pools and mesic soils in coastal scrub, meadows and seeps, and valley and foothill grassland (alkaline)	Apr-Jul	**Likely to occur.** Suitable habitat is present in the study area in mesic grassland and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the study area. One occurrence is located approximately 0.5 miles northeast of Tower 13 in vernal pool habitat and another is located approximately 0.4 miles southwest of Tower 10 in vernal pool habitat. In total, 950 plants seen at both occurrences in 2001.	Towers 2 through 7 and towers 12 through 15.
Plagiobothrys glaber	hairless popcornflower	-	-	1A	Meadows and seeps (alkaline) and marshes and swamps (coastal salt)	Mar-May	**Absent.** Presumed extirpated in California.	
Puccinellia simplex	California alkali grass	-	-	1B.2	Vernal pools in chenopod scrub, meadows and seeps, and valley and foothill grassland	Mar-May	**Potential to occur.** Suitable habitat is present in the study area in vernal pool habitat. There is one CNDDB occurrence within 2 miles of the study area located approximately 0.4 miles southwest of Tower 13 in vernal pool habitat that was observed in 2003.	Towers 12 through 15.
Senecio aphanactis	Chaparral ragwort	-	-	2B.2	Chaparral, cismontane woodland, and coastal scrub, sometimes alkaline soils	Jan- April	**Absent.** No suitable habitat occurs on the site for this species.	

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				
Spergularia macrotheca var. *longistyla*	long-styled sand-spurrey	-	-	1B.2	Meadows and seeps and marshes and swamps. Grows in mesic soils	Feb-May (Jun)	**Unlikely to occur.** Marginally suitable habitat is present. No CNDDB occurrences within 2 miles of the study area.	
Streptanthus albidus ssp. albidus	Metcalf Canyon jewelflower	E	-	1B.1	Occurs in valley and foothill grasslands usually in serpentine soils	April-Jul	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	-	-	1B.2	Occurs in chaparral, cismontane woodland, and valley and foothill grassland	(Mar)Apr-Sep(Oct)	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	
Stuckenia filiformis	Slender-leaved Pondweed	-	-	2B.2	Shallow freshwater marshes and swamps between 300 and 2,150 meters	May- Jul	**Absent.** Elevation range exceeds study area elevation. There are no CNDDB occurrences within 2 miles of the study area.	
Suaeda californica	California Seablite	E	-	1B.1	Occurs in coastal salt marshes and swamps	July-Oct	**Unlikely to occur.** Marginally suitable habitat is present in the study area in salt marsh habitat. There is one CNDDB occurrence within 2 miles of the study area; however, it is considered likely extirpated.	
Trifolium hydrophilum	Saline clover	-	-	1B.2	Marshes and swamps, valley and foothill grasslands on mesic or alkaline soils, and vernal pools	April- Jun	**Potential to occur.** Suitable habitat is present in the study area in salt marsh, grassland, and vernal pool habitat. There are 2 CNDDB occurrences within 2 miles of the study area. Once occurrence is located approximately 0.5 miles southwest of Tower 12 in vernal pool habitat and was observed in 2019.The other occurrence is within the vicinity of Alviso.	Towers 12 through 15 and towers 35 through 42.
Tropidocarpum capparideum	caper-fruited tropidocarpum	-	-	1B.1	Valley and foothill grassland (alkaline hills).	Mar-Apr	**Unlikely to occur.** Potentially suitable habitat is only present in the study area in grasslands. There are no CNDDB occurrences within 2 miles of the study area.	

Sources:
California Natural Diversity Database (CNDDB). 2020. Queried for occurrences within 2 miles of the Project Location. Accessed August 4, 2020. https://www.wildlife.ca.gov/data/cnddb
California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB) BIOS 5 government Edition. Accessed August 4, 2020.
California Native Plant Society (CNPS). 2020. Inventory of Rare and Endangered Plants of California. Accessed August 4, 2020.
United States Fish and Wildlife Service (USFWS). 2020. Information, Planning, and Consultation System (IPAC System). Accessed August 4, 2020.

[a] Status designations are as follows:

Table 1. Special-Status Plant Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Blooming Period	Likelihood of Presence in Study Area	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CNPS				

Federal Designations:
(E) Federally Endangered, (T) Federally Threatened

State Designations:
(E) State Endangered, (T) State Threatened

CNPS California Rare Plant Rank:
(1B) Rare, threatened, or endangered in California and elsewhere; (2) Rare, threatened, or endangered in California, but more common elsewhere

Threat Rank:
0.1 Seriously threatened in California (more than 80% of occurrences threatened / high degree and immediacy of threat)
0.2 Fairly threatened in California (20 to 80% occurrences threatened / moderate degree and immediacy of threat)

Notes:
CNPS = California Native Plant Society

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
Invertebrates							
Branchinecta conservatio	Conservancy fairy shrimp	E	-	-	Endemic to the grasslands of the northern two-thirds of the central valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**Potential to occur.** Suitable habitat is present within the study area in vernal pools. There are no CNDDB occurrences within 2 miles of the study area.	Towers 12 through 15.
Bombus crotchii	Crotch bumble bee	-	CE	-	Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include Antirrhinum, Phacelia, Clarkia, Dendromecon, Eschscholzia, and Eriogonum.	**Absent.** Food plant genera are not present in the study area. There is one CNDDB occurrence within 2 miles of the study area.	
Bombus occidentalis	western bumble bee	-	CE	-	Once common and widespread, species has declined precipitously from central California to southern British Columbia, perhaps from disease. Eusocial generalist pollinator, visiting a wide range of plant species that provide nectar and pollen during the colony's life cycle of February to November.	**Potential to occur.** A variety of flowering plants grow within the study area; species could forage and nest in the study area. There is one CNDDB occurrence within 2 miles of the study area located in the vicinity of the city of San Jose.	Towers 10 through 15, 44 through 46, 52, 53, and 55.
Euphydryas editha bayensis	Bay checkerspot butterfly	T	-	-	Native grasslands on outcrops of serpentine soil. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *Orthocarpus purpurscens* are the secondary host plants.	**Unlikely to occur.** Host plants are not present in the study area. No CNDDB occurrences within 2 miles of the study area.	
Callophrys mossii bayensis	San Bruno elfin butterfly	E	-	-	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno mountain, San Mateo county. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedium spathulifolium*.	**Absent.** No suitable habitat is present in the study area. No CNDDB occurrences within 2 miles of the study area.	
Branchinecta lynchi	Vernal pool fairy shrimp	T			Endemic to the grasslands of the central valley, central coast mountains and south coast mountains in rain-filled vernal pools and swales.	**Potential to occur.** Suitable habitat is present in the study area in vernal pool habitat. There are no CNDDB occurrence within 2 miles of the study area.	Towers 12 through 15.
Lepidurus packardi	Vernal pool tadpole shrimp	E	-	-	Occurs in vernal pools of California; vernal pools and swales in the Sacramento Valley containing clear to highly turbid water	**Likely to occur.** Suitable habitat is present in the study area in vernal pool habitat. There are two CNDDB occurrences within 2 miles of the study area, with one occurrence located approximately 0.2 miles southwest of	Towers 12 through 15.

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
						Tower 12 in vernal pool habitat. In 2004, 22 species were found in 3 vernal pools in the area.	
Fish							
Acipenser medirostris	green sturgeon	T	-	-	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento River. Spawns at temps between 8-14 C. Preferred spawing substrate is large cobble, but can range from clean sand to bedrock.	**Potential to Occur.** Suitable foraging habitat is present within open water and intertidal mudflats (during high tide) of the study area. Portions of the study area are within designated critical habitat. Sturgeon have the potential to be present within the study area year-round.	Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.
Hypomesus transpacificus	Delta smelt	T	E	-	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities <2 ppt.	**Absent.** No suitable habitat is present in the study area. No CNDDB occurrences within 2 miles of the study area.	
Oncorhynchus mykiss irideus	Steelhead - Central California Coast DPS	T	-	-	Spawn in freshwater rivers or streams in the spring and spend the remainder of their life in the ocean	**Seasonally Present.** Suitable habitat is present within open water of the study area; however, this species is unlikely to occur between July and October. There is one CNDDB occurrence within 2 miles of the study area, which is directly in the project footprint in Guadalupe River/Alviso Slough between towers 48 and 49. According to this occurrence, three juveniles were observed in 2017 in this area.	Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.
Spirinchus thaleichthys	Longfin smelt	CT	-	SSC	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column and more recently in marshes and sloughs.	**Seasonally Present**. Suitable habitat is present within the marshes and sloughs of the Coyote Creek watershed within the study area, where recent studies have documented longfin smelt (adults and postlarval recruits) from October through May (Lewis et al. 2019).	Towers 20, 21, 24 through 27, 29, 35 through 39 and between 48 and 49.
Reptiles							

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
Actinemys marmorata	western pond turtle	-	-	SSC	Intermittent and permanent waterways including streams, marshes, rivers, ponds and lakes Open slow-moving water of rivers and creeks of central California with rocks and logs for basking	**Potential to occur**. Waterways within the study area lack rocks and logs and are likely too saline; however they could potentially occur. There is one CNDDB occurrence within 2 miles of the study area located approximately 0.4 miles southwest of Tower 55 in Saratoga Creek recorded in 2017.	Between Towers 7 and 8 and surrounding Tower 52.
Masticophis lateralis euryxanthus	Alameda whipsnake	T	T	-	Typically found in chaparral and scrub habitats but will also use adjacent grassland, oak savanna and woodland habitats. Mostly south-facing slopes and ravines, with rock outcrops, deep crevices or abundant rodent burrows.	**Absent**. Chaparral and scrub habitats are not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Amphibians							
Ambystoma californiense	California Tiger Salamander	T	T	-	Breeds in vernal pools and stock ponds of central California; adults aestivate in grassland habitats adjacent to the breeding sites	**Likely to occur**. Suitable habitat is present within the study area in vernal pools and adjacent grasslands. There are five CNDDB occurrences within 2 miles of the study area, with some occurring directly in the study area. One of the occurrences is considered extirpated but the other four are located both directly in the project footprint and within 0.4 miles of the project footprint within the vernal pool complex near towers 12 through 15 and were last observed in 2004.	Towers 10 through 15.
Anniella pulchra	Northern California legless lizard	-	-	SSC	Sandy or loose loamy soils under sparse vegetation within chaparral, coastal dunes, or coastal scrub. Soil moisture is essential. They prefer soils with a high moisture content.	**Unlikely to Occur**. Chaparral and scrub habitats are not present within the study area. There is one CNDDB occurrence within 2 miles of the study area that is considered possibly extirpated.	
Dicamptodon ensatus	California giant salamander	-	-	SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**Absent**. Wet coastal forests are not present within the study area. No CNDDB occurrences within 2 miles of the study area.	

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
Rana boylii	Foothill Yellow-legged Frog	E	E	CFP	Occurs in swiftly flowing streams and rivers with rocky substrate with open, sunny banks in forest, chaparral, and woodland habitats, and can sometimes be found in isolated pools	**Absent**. Suitable habitat is not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Rana draytonii	California Red-legged Frog	T	-	SSC	Rivers, creeks and stock ponds of the Sierra foothills and coast range, preferring pools with overhanging vegetation	**Absent**. Suitable habitat is not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Birds							
Agelaius tricolor	Tricolored Blackbird-	-	T	SSC	Breeds near fresh water, primarily emergent wetlands, with tall thickets; forages in grassland and cropland habitats	**Potential to Occur**. Suitable foraging habitat is present within the study area in grasslands. Potentially suitable nesting habitat is present within wetlands in the study area. There are four CNDDB occurrences within 2 miles of the study area with one occurrence located directly within the project footprint between towers 37 to 49.	Towers 20 through 29 and 35 through 42.
Athene cunicularia	Burrowing Owl-	-	-	SSC	Open, dry grasslands, deserts and ruderal areas; requires suitable burrows; often associated with California ground squirrels	**Likely to occur.** Suitable foraging and nesting habitat is present throughout much of the study area in ruderal and grassland habitats that have heavy ground squirrel use. There are 30 CNDDB occurrences within 2 miles of the study area with many occurring directly in the project footprint and study area.	Laydown and Staging areas C, D, E, Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.
Buteo swainsoni	Swainson's hawk	CT	-	-	Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations	**Unlikely to Occur.** There is potentially suitable foraging habitat within grasslands in the study area; however, no CNDDB occurrences within 2 miles of the study area and the closest occurrence exceeds travel distance.	

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Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
Charadrius alexandrines nivosus	Western snowy plover-	T	-	SSC	Uses man-made agricultural wastewater ponds and reservoir margins Breeds on barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds, and riverine sand bar	**Potential to Occur**. Suitable foraging anf nesting habitat is present within the study area in salt pannes and salt ponds. There are two CNDDB occurrences within 2 miles of the study area. One occurrence is located approximately 0.1 and 0.5 miles north from Tower 50 in salt pond habitat. The other occurrence is located directly within the project footprint and study area between towers 15 through 20 within salt panne and salt pond habitat, where birds have been observed overwintering and 13 nests were observed in 2017.	Towers 15 through 20, 30 through 42, and 48 to 49.
Coturnicops noveboracensis	yellow rail	-	-	SSC	Freshwater marshlands. Summer resident in eastern Sierra Nevada in Mono County.	**Potential to Occur**. Suitable habitat is present within the study area in wetlands and marshes. There are two CNDDB occurrences within 2 miles of the study area with one occurrence located directly within the project footprint between towers 37 to 49 and last observed in 2013 near wildlife refuge in the vicinity of Alviso.	Towers 20 through 29 and 35 through 42.
Circus cyaneus	Northern harrier	-	-	SSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands; uncommon in wooded habitats	**Present**. Suitable foraging habitat is present within the study area in grassland, ruderal, wetland, and marsh habitat. There are two CNDDB occurrences within 2 miles of the study area. Species observed flying over brackish marsh near Tower 22 during reconnaissance level surveys.	Towers 10 through 15, 20 through 29, 35 through 46, and 55 through 57.
Coccyzus americanus occidentalis	Western yellow-billed cuckoo-	C	E	-	Breed in large blocks of riparian habitats, particularly cottonwoods and willows	**Absent**. The study area does not have riparian habitat. There is one CNDDB occurrence within 2 miles of the study area' however it is considered extirpated.	
Elanus leucurus	White-tailed Kite-	-	-	CFP	Open grasslands and agricultural areas throughout central California	**Potential to Occur**. Suitable foraging habitat is present within the study area in grassland and ruderal habitat. There are two CNDDB occurrences within 2 miles of the study area.	Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
Falco peregrines anatum	American Peregrine Falcon-	-	-	CFP	Individuals breed on cliffs in the Sierra or in coastal habitats; occurs in many habitats of the state during migration and winter	**Potential to Occur**. Suitable foraging habitat is present within the study area. This species is known from the San José area. There is one CNDDB occurrence within 2 miles of the study area.	Towers 10 through 15, 43 through 46, between 52 and 53, and 55 through 57.
Geothlypis trichas sinuosa	Saltmarsh Common Yellowthroat-	-	-	SSC	Breeds in herbaceous wetlands and salt marshes of the San Francisco Bay area; can also be found in non-breeding along the California Coast Nests in thick herbaceous vegetation up to one meter above the ground or over water	**Potential to Occur**. Suitable foraging and nesting habitat is present within the study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the study area located within Coyote Creek watershed and Alviso Slough.	Towers 20 through 29, 35 through 42, and 48 to 49.
Laterallus jamaicensis coturniculus	California Black Rail-	CT	-	CFP	Occurs in coastal and freshwater marshes, estuaries, and tidal slough areas	**Potential to Occur**. Suitable foraging and nesting habitat is present within the study area in wetland and marsh habitat. There are four CNDDB occurrences within 2 miles of the study area. One occurrence is located in Alviso Slough and another is located in salt marsh and salt pond habitat within the project footprint between towers 33 and 39.	Towers 20 through 42, and 48 to 49.
Melospiza melodia pusillula	Alameda song sparrow-	-	-	SSC	Found in tidal salt marsh habitat with exposed ground for foraging with no more than 2-5 cm between bases of plants; current range is generally only along the San Francisco Bay	**Potential to Occur**. Suitable foraging and nesting habitat is present within the study area in marsh habitat. There are four CNDDB occurrences within 2 miles of the study area located in Alviso Slough, salt marsh habitat adjacent to towers 33 to 38, and salt pond habitat north of the study area.	Towers 30 through 42 and 48 to 49.
Rallus longirostris obsoletus	California Ridgway's rail-	E	E	CFP	Occurs in tidal salt and brackish marshes of the San Francisco Bay and historically in tidal estuaries from Marin to San Luis Obispo Counties, CA	**Potential to Occur**. Suitable foraging and nesting habitat is present within the study area in salt and brackish marsh habitat. There are three CNDDB occurrences within 2 miles of the study area. Occurrences are located in Guadalupe Slough approximately 1.6 miles northwest from Tower 50, the marshes fringing Coyote Creek and Mud Slough approximately 1.4 miles west of Tower 28, and in Alviso Slough	Towers 20 through 30, 35 through 42, and 48 to 49.

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Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
						approximately 1.4 miles northwest from Tower 47.	
Riparia riparia	Bank Swallow	-	T	-	Occurs in open areas near flowing water, nests in steep banks along inland water or coast; state-wide	**Unlikely to occur**. Suitable habitat is not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Rynchops niger	black skimmer	-	-	SSC	Nests on gravel bars, low islets, and sandy beaches in unvegetated sites. Nesting colonies usually less than 200 pairs.	**Unlikely to occur**. Suitable habitat is not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Sterna antillarum browni	California least tern	E	E	CFP	Occurs in central to southern California April to November; found in and near coastal habitat including coasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests on open beaches kept free of vegetation by the tide	**Unlikely to occur** (breeding). Marginally suitable foraging and nesting habitat is present within the study area. This species is well studied in the San Francisco Bay and is not known to occur in the study area. There are no CNDDB occurrences within 2 miles of the study area..	
Mammals							
Antrozous pallidus	Pallid bat	-	-	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Potential to occur** (foraging). Potentially suitable foraging habitat is present within grasslands in the study area; however, there are no suitable roosting sites. No CNDDB occurrences within 2 miles of the study area.	Towers 10 through 15, 44 to 46, and 55 to 57.
Corynorhinus townsendii	Townsend's big-eared bat	-	-	SSC	Primarily a cave-dwelling bat that may also roost in buildings; occurs in a variety of habitats of the state	**Unlikely to occur.** Marginally suitable foraging habitat is present within the study area; however, there are no suitable roosting sites. No CNDDB occurrences within 2 miles of the study area.	
Neotoma fuscipes annectens	San Francisco Dusky-Footed Woodrat	-	-	SSC	Found in hardwood forests, oak riparian, and shrub habitats	**Unlikely to occur**. Suitable habitat including forests and riparian habitat is not present within the study area. No CNDDB occurrences within 2 miles of the study area.	
Vulpes macrotis mutica	San Joaquin kit fox	E	T	-	Annual grasslands or grassy open stages with scattered shrubby vegetation. Needs loose	**Absent**. Marginally suitable habitat is present within the study area in grasslands;	

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			
					textured sandy soils for burrowing, and suitable prey base.	however, no CNDDB occurrences within 2 miles of the study area.	
Reithrodontomys raviventris	Salt-marsh Harvest Mouse	E	E	CFP	Occurs in the salt and brackish marshes of Corte Madera, Richmond, and South San Francisco Bay, especially those with pickleweed and saltgrass	**Potential to Occur**. Suitable habitat is present within the study area in marsh habitat. There are 13 CNDDB occurrences within 2 miles of the study area. One occurrence is located directly in the project footprint in salt marsh habitat between towers 39 to 42. Another occurrence directly in the project footprint is located in brackish marsh near Tower 28. Another occurrence is located approximately 0.1 miles northeast of Tower 21 in brackish marsh.	Towers 20 through 30, 35 through 42, and 48 to 49.
Sorex vagrans halicoetes	Salt-marsh Wandering Shrew	-	-	SSC	Found in salt marshes along the San Francisco Bay	**Potential to Occur**. Suitable habitat is present within the study area in salt marsh habitat and marginally suitable habitat is present in brackish marsh habitat. There are two CNDDB occurrences within 2 miles of the study area. One occurrence is located directly in the project footprint in salt marsh habitat between towers 39 to 42. The other occurrence is considered extirpated to due development.	Towers 20 through 30, 35 through 42, and 48 to 49.

Sources:
California Natural Diversity Database (CNDDB). 2020. Queried for occurrences within 5 miles of the Project Location. Accessed August 4, 2020. https://www.wildlife.ca.gov/data/cnddb
California Department of Fish and Wildlife (CDFW). 2020. California Natural Diversity Database (CNDDB) BIOS 5 government Edition. Accessed August 4, 2020.
United States Fish and Wildlife Service (USFWS). 2020. Information, Planning, and Consultation System (IPAC System). Accessed August 4, 2020.

[a] Status designations are as follows:

Federal Designations:
(E) Federally Endangered, (T) Federally Threatened, (C) Candidate, (CT) Candidate Threatened

State Designations:
(E) State Endangered, (T) State Threatened

California Department of Fish and Wildlife (CDFW) Designations:
(SSC) Species of Special Concern, (CFP) California Fully Protected

Notes:

cm = centimeter(s)

Table 2. Special-Status Wildlife Species Identified in Records Searches

Scientific Name	Common Name	Status[a]			Habitat	Likelihood of Presence	Location of Potentially Suitable Habitat (approximate)
		Federal	State	CDFW			

DPS = distinct population segment
ppt = part(s) per thousand

CONFIDENTIAL Attachment C
Cultural Resources Supplemental Memorandum (Reconductored Transmission Line Alignment for SJCO2)

Attachment C, Cultural Resources Supplemental Memorandum (Reconductored Transmission Line Alignment for SJCO2), has been submitted under a request for confidentiality.

Attachment D
SJC02 SPPE Paleontological Resources Assessment – Revised

San Jose Data Center Small Power Plant Project

Paleontological Resources Assessment - Revised

Version 2

September 2020

Contents

1. Introduction

1.1 Purpose of Investigation

This updated technical memorandum was completed to evaluate the potential for sensitive paleontological resources to be encountered during the construction of San Jose Data Center Small Power Plant Project (SJC02 or Project), including the reconductoring of approximately 8.76 miles of transmission line. Paleontological resources are the mineralized (fossilized) remains of prehistoric plants and animals and the mineralized impressions (trace fossils) left as indirect evidence of the form and activity of such organisms. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i. e., older than about 5,000 radiocarbon years). These resources are located within geologic units and are considered to be nonrenewable. Thus, they are afforded protection under several federal, state, and local laws, ordinances, regulations, and standards (LORS).

1.2 Project Location and Description

The San José Data Center (SJC02) will be located within the City of San José on an approximately 64.5-acre site and will consist of two data center buildings totaling over approximately 479,000 square feet of space. The project will include 40 3.0-megawatt (MW) standby diesel generators (20 per building) to provide electrical power to support the IT load during utility outages or certain onsite electrical equipment interruptions or failures, as well as the installation of 20 3-MW emergency diesel generators at each building. In addition to the 40 backup generators, the project will include two administrative generators, rated at 1.25 MW and 0.5 MW, to support administrative functions during an interruption in the normal delivery of electrical power from the utility. The facility design will not require more than approximately 99 MW of electrical power, which will be used only for backup power for onsite data center operations in the event of an electrical outage by Pacific Gas & Electric (PG&E), although the estimated load is 92 MW.

At PG&E's request, to accommodate the power demands of the project, the project also includes the reconductoring of the existing approximately 8.76-mile PG&E Newark-North Receiving Station #1 115 kilovolt (kV) transmission line. These reconductoring activities are expected to occur concurrently with onsite project construction. No ground disturbance or excavations will occur as a result of reconductoring activities.

The project site has been used historically for farming since the early 1920s but is not currently in agricultural use. There are two vacant residences, a mobile home, and a storage shed/warehouse currently onsite, which will be demolished as part of the project. To the north of the project site are the San José/Santa Clara Regional Wastewater Treatment Plant sludge drying beds, to the south is Highway 237, to the west is the Los Esteros Critical Energy Facility, a PG&E substation, and to the east is Coyote Creek. The project is anticipated to begin construction in the 4th quarter of 2021, with operations beginning in the 2nd quarter of 2023.

1.3 Potable Water

For redundancy purposes, there are two proposed potable water lines. As shown in Figure 1-2R of the SJC02 SPPE Application revised Project Description, both begin in the northwest corner of the project site. Water Line Route #1, begins at the northwest corner of the property. At Zanker Road the water line turns north at Zanker Road heads north and then turns west ultimately connecting to the Nortech valve to the west. Route 1 is approximately 1.5 miles (7,815-feet long). Water Line Route 2 shares the same pipeline as Water Line Route #1, but at Zanker Road the line splits and turns south before turning west alongside Highway 237, and eventually turning south, going under 237 to connect to the new Holger Valve. Water Line Route #2 is approximately 1.3 miles (7,000 feet long). The water will come from the SJWMS to the Project.

1.4 Reclaimed Water

Reclaimed water will be used at the site for both cooling and landscaping purposes. The reclaimed water will start at the northwest corner and heads south to the proposed entrance road for the site. From there the line turns west and ends at an existing reclaimed water line that heads generally north to south. The reclaimed water line will be approximately ½ mile (2,800 feet long). The reclaimed water will flow from the South Bay Water Recycling facility to the project.

1.5 Sanitary Sewer

A sanitary sewer line will begin at the northwest corner of the project site, and head south to the proposed entrance road. At Zanker Road the line turns south and will connect to the existing sanitary sewer force main/pump station at the corner of Zanker Road and Thomas Foon Chew Way. The sewer line is approximately 0.6 mile (3,100 feet long). Wastewater will flow from the project to the San José-Santa Clara Regional Wastewater Facility (RWF).

1.6 Stormwater

A stormwater line will begin in the northwest corner of the project site, paralleling the Water Line Routes #1 and #2 and terminating at Zanker Road where it will tie into the City of San Jose stormwater system. The stormwater line is approximately 0.55 mile (3,000 feet long). Stormwater will flow from the project to the municipal storm drainage system.

1.7 Electrical Supply Line

The proposed onsite substation will be located in the northwestern corner of the project site and will interconnect to the existing PG&E substation via two, underground 115kV feeder lines. The conductor type and sizing is anticipated to be approximately 1,250 kcmil copper XLPE extruded dielectric cable, consistent with typical sizing. The approximately 1,100-foot-long underground electrical supply lines will be located on the western fence line of the project site, adjacent to the Los Esteros Critical Energy Facility (LECEF).

1.8 Reconductored Transmission Line

At PG&E's request, the project has been modified to include the reconductoring of an existing approximately 8.76 mile-long Pacific Gas & Electric (PG&E) existing Newark-North Receiving Station #1 115kV transmission line. This transmission line is near the northern boundary of the project site, and as shown in Figure 1-2R, the line generally trends northward to the City of Newark along the eastern edge of the San Francisco Bay.

2. Regulatory Setting

This section summarizes the federal, state, and local LORS that may apply to paleontological resources in the project vicinity.

2.1 Federal LORS

The National Environmental Policy Act (NEPA) as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258 § 4(b), September 13, 1982) recognizes the continuing responsibility of the federal government to "preserve important historic, cultural, and natural aspects of our national heritage..." (Sec. 101 [42 U.S.C. § 4321]) (#382). Fossils are important historic and natural aspects of our national heritage. When not on federal lands, paleontological analysis under NEPA is at the discretion of the lead federal agency.

Paleontological resources are also protected by several federal laws (Federal Antiquities Act of 1906, Federal Land Management and Policy Act of 1962, National Historic Preservation Act of 1966, *Code of Federal Regulations* Title 43, Section 8365.1-5, and the Paleontological Resources Preservation Act).

2.2 State LORS

At the state level, paleontological resources are protected by both the California Environmental Quality Act (CEQA) and California Public Resources Code (PRC) Section 5097.5. CEQA (Public Resources Code [PRC] Sections 21000 *et seq.*). Both require public agencies and private interests to identify the environmental consequences of proposed projects requiring a discretionary permit on any object or site of significance to the scientific annals of California. Specifically, in Appendix G, Section VII(f) of the CEQA Guidelines, Lead Agencies are directed to consider if the project will "directly or indirectly destroy a unique paleontological resource, or site, or unique geological feature" when assessing the potential environmental impacts of a project.

An impact to paleontological resources will be considered significant if a project could result in the direct or indirect destruction of a unique paleontological resource or site. A paleontological resource or site is deemed unique per the Society of Vertebrate Paleontology (SVP) (2010) if it contains identifiable vertebrate fossils, large or small; uncommon invertebrate, plant, or trace fossils; and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information.

PRC Chapter 1.7, Section 5097.5/5097.9 (Stats. 1965, c. 1136, p. 2792), entitled Archaeological, Paleontological, and Historical Sites, defines any unauthorized disturbance or removal of a fossil site or remains on public land as a misdemeanor and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on state lands to preserve or record paleontological resources.

2.3 Local Regulations

The Envision San Jose 2040 General Plan (2011) includes policies applicable to all development projects in San Jose. The following policies are specific to paleontological resources and are applicable to the proposed project.

- Policy ER-10.1: Proposed development sites that have been identified as archaeologically or paleontologically sensitive require investigation during the planning process in order to determine whether potentially significant archaeological or paleontological information may be affected by the project and then require, if needed, that appropriate mitigation measures be incorporated into the project design.

- Policy ER-10.3: Ensure that City, State, and Federal historic preservation laws, regulations, and codes are enforced, including laws related to archaeological and paleontological resources, to ensure the adequate protection of historic and prehistoric resources.

2.4 Professional Standards and Guidelines

The SVP, an international scientific organization of professional paleontologists, has established guidelines and standard procedures that outline acceptable professional practices in the conduct of paleontological resource assessments (SVP, 2010). This assessment was prepared in accordance with these guidelines.

3. Affected Environment

3.1 Regional Geology

The project site and related offsite areas where project activities (excluding reconductoring) will occur are located within the city of San Jose, while the reconductored transmission line is located within the cities of Fremont, Santa Clara, and San Jose. All are located at the southern end of the San Francisco Bay in Santa Clara Valley. The Santa Clara Valley is a northwest-southeast trending structural trough bounded by the Santa Cruz Mountains to the west, the Hamilton/Diablo Range to the east, and the San Francisco Bay to the north. The Santa Clara Valley was formed over the last few million years as sediments derived from the Santa Cruz Mountains and the Hamilton/Diablo Range were eroded and shed to the valley floor during continued tectonic uplift. Sediments within the basin were also deposited during transgression and regression of the inland sea that had previously inundated the area. It is estimated that during the Pleistocene era (15,000 years before present {BP]), sea levels were about 328 feet lower than today. As a consequence, the shoreline lay far to the west of San Francisco near the present-day Farallon Islands, and the "Bay" of that time was a broad and deeply incised dry valley (e.g., Sloan and Lipps, 2002; Clifton and Leithold, 1991). Between the historic San Francisco Bay shoreline and the project site, the historic habitat consisted of a low-lying estuarine marsh. From approximately 14,500–8,200 BP, sea level began and continued to rise which caused the active shoreline of the Pacific Ocean to migrate eastward into the lower reaches of the valley which later became San Francisco Bay. Uplift and erosion of the mountains and changes in sea level led to alternating depositional sequences of coarse grained alluvium and fine-grained silts and clays in the Santa Clara Valley (Maguire and Holroyd, 2016).

The oldest rocks in the region belong to the Franciscan Complex of Jurassic to Cretaceous age (205 to 65 million years before present [Ma]). These rocks are intensely deformed (i.e., folded, faulted, and fractured) due to tectonic processes associated with the San Andreas Fault system. A sequence of Tertiary (65 to 1.8 Ma) marine and nonmarine sedimentary rocks unconformably overlies the Franciscan Complex. This unconformity represents an erosional surface, creating a gap in the depositional sequence separating the younger Tertiary rocks from the older Jurassic to Cretaceous rocks. During the Plio-Pleistocene (5 Ma to 11,700 BP), sediments eroded from the uplifting Diablo Range and the Santa Cruz Mountains formed broad alluvial fan complexes along the margins of Santa Clara Valley. The 5 Ma to 300,000 BP (Plio-Pleistocene) Santa Clara Formation, which consists of a sequence of fluvial and lacustrine sediments, was deposited unconformably on the older Tertiary and Franciscan rocks along the margins of Santa Clara Valley. The Santa Clara Formation is unconformably overlain by younger Pleistocene and Holocene (11, 700 BP to present) alluvial and fluvial deposits (stream channel, overbank, and flood basin environments), which interfinger to the north with estuarine muds of San Francisco Bay (Helley and Wesling, 1989).

South San Francisco Bay is a north-northwest trending subsiding basin that is filled primarily with Quaternary fluvial deposits eroded from the surrounding margins and estuarine deposits (Bay mud). Estuarine muds (Bay Mud) were deposited in San Francisco Bay when sea levels were high 130,000 to 70,000 BP (Sangamon interglacial stage) and during the Holocene (Atwater and others 1977). The older Sangamon Bay Mud is lithologically similar to the Holocene Bay Mud; both are uniformly fine-grained clays with minor amounts of sand. The Holocene Bay Mud is separated from the Sangamon Bay Mud by a mixture of sands, gravels, silts, and clays transported and deposited predominantly by streams during periods of lowered sea level (i.e prior to 130,000 BP and between 70,000 and 11,700 BP [Wisconsin Glacial Period]) (Treasher, 1963).

The structural depression presently occupied by San Francisco Bay appears to have undergone almost continuous subsidence at least since the late Pliocene, while the surrounding hills were being uplifted. Gilbert (1917) was among the first to recognize that historical active subsidence had occurred around the margins of the Bay. This is now known to have been caused by the static rise in sea level. Atwater et al. (1977) have shown, on the basis of bedrock sill depths, thalwegs, and stream gradients, that the South Bay has subsided since the Sangamon interglacial stage and some of the sediments under southern San Francisco Bay appear to be below the level at which they were initially deposited. The vertical crustal movement suggested by these sediments may be summarized as follows: (1) Some Quaternary sediments have sustained at least 328 feet of tectonic subsidence in less than 1.5 million years relative to the likely elevation of the lowest Pleistocene land surface; (2) the deepest Sangamon Bay Mud deposits subsided tectonically about 66 to 131 feet in about 0.1 million years relative to the assumed initial elevations of the thalwegs buried by these sediments; and (3) Holocene Bay Mud deposits have undergone about 16 feet of tectonic and possibly isostatic subsidence in about 6,000 years relative to elevations which might be expected from eustatic sea-level changes alone (Atwater et al., 1977). Thus, deposits within and along the shore of the San Francisco Bay are generally deeper than those found near the valley margins.

3.2 Geology Units in the Study Area

The local geology of a project area determines its paleontological potential. A study area within 1-mile of the project site and the related offsite areas including those where the reconductoring will occur was established to assess project area geology. General geologic mapping sources reviewed in this analysis include maps compiled by the Unites States Geological Survey (Dibblee, 1972; Helley and Wesling, 1989) both at a scale of 1:24,000. According to both maps, the project study area is underlain by surficial sediments Holocene (11,700 years ago to present) in age. Dibblee (1972) mapped the area as underlain by undifferentiated Holocene alluvium, while Helley and Wesling (1989) have differentiated the Holocene deposits into mappable units associated with depositional environments (i.e. floodplain, levee, stream channel, etc.). Several salt evaporator areas are present. These areas are enclosed completely within levees and are underlain by Holocene bay mud (Qhbm). Although surficial sediments within Santa Clara Valley have historically been mapped as Holocene in age (i.e. Helley and Wesling, 1989), recent studies of Pleistocene age (2.6 million to 11,700 years ago) vertebrate fossils recovered at relatively shallow depths from deposits within Santa Clara Valley mapped as Holocene indicate that Pleistocene deposits occur closer to the surface than historical mapping indicates (Maguire and Holroyd, 2016). Thus, Holocene deposits should be thought of as a relatively thin veneer over older Pleistocene deposits. The geological units within the project study area are presented below and are mapped on Figure 1; the three- to four-letter mapping designations as shown on Figure 1 are also listed below.

- Artificial Fill (Qha): Sanitary landfill, composed of gravel, sand, silt and clay with heterogenous mixture of man-made refuse and organic and inorganic materials.
- Holocene Stream Channel Deposits (Qhsc): Poorly- to well-sorted sandy silt, silty sand, sand, or sandy gravel with minor cobbles. Stream channel deposits occur along the modern and ancient stream channels of Coyote Creek and the Guadalupe River.
- Holocene Natural Levee Deposits (Qhl): Loose, moderate- to well-sorted sandy or clayey silt grading to sandy or silty clay. Levee deposits border the channels of Guadalupe River and Coyote Creek. Deposits along Coyote Creek tend to be coarser (sandy or clayey silt) than those along the Guadalupe River (sandy or silty clay).
- Holocene Floodplain Deposits (Qhfp): Medium to dark gray, dense, sandy to silty clay. Lenses of coarser material (silt, sand, and pebbles) may be locally present. Floodplain deposits are found between the levee deposits of Coyote Creek and the Guadalupe River and between the levee and floodbasin deposits on the east side of Coyote Creek.
- Holocene Floodbasin Deposits (Qhb): Organic-rich clay to very fine silty-clay deposits occupying the lowest topographic positions either between the levee deposits or floodplain deposits.
- Holocene Floodbasin Deposits (salt-affected) (Qhbs): Clay to very fine silty-clay deposits similar to the Qhb deposits except that they contain carbonate nodules and iron-stained mottles. These deposits may have been formed by the interaction of bicarbonate-rich upland water and saline water of the San Francisco Bay estuary. Salt-affected basin deposits generally occur along the margin of the Bay and are in contact with estuary deposits (Qhbm).
- Holocene Estuary Deposits (Bay Mud) (Qhbm): Clay and silty clay underlying tidal mudflats, marshland and salt evaporators of San Francisco Bay. May contain shelly and peaty layers. Estuary deposits interfinger with floodbasin deposits (Qhb) and salt affected floodbasin deposits (Qhbs).

4. Paleontological Potential

The paleontological potential of a geologic unit exposed in a project area is inferred from the abundance of fossil specimens and/or previously recorded fossil sites in exposures of the unit, or of similar units in similar geological settings. The underlying assumption of this assessment method is that a geologic unit is mostly likely to yield fossil remains in a quantity and of a quality similar to those previously recorded from the unit elsewhere in the region.

The paleontological potential of a geologic unit reflects (a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant vertebrate, invertebrate, plant, or trace fossils and (b) the importance of recovered evidence for proper stratigraphic interpretation, age determination of a geologic unit, paleoenvironmental and paleoclimatic reconstructions, or to understanding evolutionary processes.

Determining the paleontological potential of a geologic unit helps to determine which units may require mitigation to reduce potential impacts to paleontological resources during the development of the project. In its guidelines for assessment and mitigation of adverse impacts to paleontological resources, the SVP (2010) established the following four categories of paleontological potential: high, low, none, and undetermined. These categories are described below.

- **High Potential**: Geologic units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Geologic units that contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and geologic units which may contain new vertebrate deposits, traces, or trackways, are also classified as having high potential.
- **Low Potential**: Geologic units with low potential are known to produce significant fossils only on rare occasions, and/or only preserve fossils in rare circumstances such that the presence of fossils is the exception not the rule, e. g. basalt flows or Recent colluvium.
- **No Potential**: Geologic units with no potential are those that formed at high temperatures and/or pressures, deep within the earth, such as plutonic igneous rocks, and high-grade metamorphic rocks. Since the environment in which these rocks formed is not conducive to the preservation of biological remains, they do not contain fossils.
- **Undetermined Potential**: Geologic units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have undetermined potential. Further study is necessary to determine if these units have high or low potential to contain significant paleontological resources.

The SVP classification of paleontological potential makes nuanced interpretation difficult because it does not have a “moderate” rating and has a single “high” rating. For a more nuanced assessment, the Bureau of Land Management (BLM) Potential Fossil Yield Classification (PFYC) system for paleontological resources (BLM, 2016) is often employed regardless of land ownership. The PFYC system is a predictive resource management tool that classifies geologic units on their likelihood to contain paleontological resources on a scale of 1 (very low potential) to 5 (very high potential). It is widely used for paleontological assessments in the western U.S. and has been adopted by agencies other than BLM. The PFYC system adapted from the BLM (2016) is as follows:

Class 5 – Very High. Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Units assigned to Class 5 have some or all of the following characteristics:

- Significant paleontological resources have been documented and occur consistently.
- Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.
- Unit is frequently the focus of illegal collecting activities.

Management concerns for paleontological resources in Class 5 areas are high to very high. Pre-work field surveys are usually needed, and on-site monitoring may be necessary during land disturbing activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.

Class 4 – High. Geologic units that are known to contain a high occurrence of paleontological resources. Units assigned to Class 4 typically have the following characteristics:

- Significant paleontological resources have been documented but may vary in occurrence and predictability.
- Surface disturbing activities may adversely affect paleontological resources.
- Rare or uncommon fossils, including nonvertebrate or unusual plant fossils, may be present.
- Illegal collecting activities may impact some areas.

Management concerns for paleontological resources in Class 4 are moderate to high. Field assessment by a qualified paleontologist is normally needed to assess local conditions. Mitigation plans must consider the nature of the proposed disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access that could result in looting. On-site monitoring or spot-checking may be necessary during land disturbing activities. Avoidance of known paleontological resources may be necessary.

Class 3 – Moderate. Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Units assigned to Class 3 have some of the following characteristics:

- Marine in origin with sporadic known occurrences of paleontological resources.
- Significant paleontological resources may occur intermittently, but these occurrences are widely scattered.
- The potential for an authorized land use to impact a significant paleontological resource is known to be low-to-moderate.

Management concerns for paleontological resources are moderate because the existence of significant paleontological resources occur intermittently and are generally widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for casual collecting. Management considerations may include pre- disturbance surveys, monitoring, mitigation, or avoidance.

Class 2 – Low. Geologic units that are not likely to contain paleontological resources. Units assigned to Class 2 typically have one or more of the following characteristics:

- Field surveys have verified that significant paleontological resources are not present or are very rare.
- Units are generally younger than 10,000 years before present.
- Recent aeolian deposits.
- Sediments exhibit significant physical and chemical changes that make fossil preservation unlikely.

Except where paleontological resources are known or found to exist, management concerns for paleontological resources are generally low and further assessment is usually unnecessary. However, standard stipulations should be put in place in order to accommodate unanticipated discoveries.

Class 1 – Very Low. Geologic units that are not likely to contain recognizable paleontological resources. Units assigned to Class 1 typically have one or more of the following characteristics:

- Geologic units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.
- Geologic Units are Precambrian in age.

Management concerns for paleontological resources in Class 1 units are usually negligible or not applicable.

Class U – Unknown. Geologic units that cannot receive an informed PFYC assignment. Characteristics of Class U may include:

- Geological units exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known.
- Geological units represented on a map are based on lithologic character or basis of origin but have not been studied in detail.
- Scientific literature does not exist or does not reveal the nature of paleontological resources for that geologic unit.
- Area or geologic unit is poorly or under-studied.
- BLM staff has not yet been able to assess the nature of the geologic unit.

Until a provisional assignment is made, geologic units that have an unknown potential have medium to high management concerns. Lacking other information, field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity.

4.1 Existing Paleontological Resources

This paleontological resource assessment consisted of an examination of published geological maps of the project site and related offsite areas where project activities (including reconductoring) will occur, a paleontological locality search using the UCMP online database (UCMP, 2019), a review of published paleontological reports to determine if the geologic units present within the foregoing study area typically yield paleontological resources, and a limited field reconnaissance along the on-land portions of the existing transmission line corridor where reconductoring activities will occur. The purpose of the literature review and locality search was to assess the potential for paleontological resources to be uncovered during ground-disturbing activities associated with the proposed project. As geologic formations and units can be exposed over large geographic areas but contain similar lithologies and fossils, the literature review and fossil locality search includes localities outside the immediate project site and related offsite areas. The fossil record from the UCMP database is provided as Appendix A.

In addition, a windshield field reconnaissance of the publicly accessible existing transmission line corridor where reconductoring activities will occur as well as laydown and staging areas was conducted on August 7, 2020 to further inform the fossil locality search and desktop review. The reconnaissance was limited to inspection of undeveloped ground surfaces on dry land accessible to the public within the 1-mile wide study corridor for the transmission line where the reconductoring activities will occur (Figure 1). Given the nature of the proposed reconductoring activities, subsurface exploration was determined unnecessary and thus not conducted. No new fossil localities were discovered during the reconnaissance.

While Holocene deposits do not generally yield significant fossils because of the relatively young age of the sediments, Holocene sediments can and do exist as a relatively thin veneer on top of older Holocene (between 5,000 and 11,700 years ago) and Pleistocene (11,700 years to 2.6 million years ago) sediments, which can contain scientifically significant fossils. This is of particular importance for Holocene deposits in the project vicinity, and larger Santa Clara Valley. As discussed previously, a recent study on Pleistocene vertebrate localities near the San Francisco Bay in Santa Clara County (Maguire and Holroyd 2016) reports on three new vertebrate localities and eight previously described localities that were discovered close to the surface (between 2 and 33 feet below ground surface) in Pleistocene deposits. These localities have produced 210 vertebrate fossils including specimens of mammoth (*Mammuthus columbi*), sloth (*Paramylodon harlani*), horse (*Equus* sp.), bison (*Bison* sp.), and pronghorn (*Capromeryx minor*), among other taxa (Maguire and Holroyd 2016). All but two localities in the study were discovered in sediments mapped as Holocene, indicating that Pleistocene deposits occur closer to the surface in Santa Clara County than historical mapping indicates (Maguire and Holroyd 2016). Besides validating the existence of potentially more expansive Pleistocene deposits in the Santa Clara Valley and demonstrating that the Pleistocene fossils and sediments may be encountered at minimal depths, the locality data demonstrate that the Quaternary alluvium of the Santa Clara Valley has a higher paleontological potential than previously recognized.

4.1.1 Existing Paleontological Resources – Project Site and Offsite Linears (Excluding Reconductored Transmission Line)

The UCMP has records of fourteen sites (also called localities) from which fossils from the Holocene or Pleistocene periods were found in Santa Clara County (UCMP, 2019). Two additional USGS localities were also reported from the literature (Brown, 1978; Jefferson, 1991; Maguire and Holroyd, 2016; Savage, 1951). At least nine of these fossil localities occur within 5 miles of the project site: two to the northwest, one to the northeast, and six to the southwest as discussed below:

- Approximately 0.5 mile northwest of the project site, a bison fossil was discovered in a sandy layer about 2 feet below ground surface in a former pear orchard located adjacent to the west bank of Coyote Creek (UCMP location V4916). Prior mapping of the area suggested the area is underlain by Holocene floodplain deposits, but the presence of bison remains suggest an older age for the deposits or Pleistocene deposits closer to the surface than current mapping indicates. Based on the presence of fossil bison, Savage (1951) attributes the Rancholabrean North American Land Mammal Age to these sediments which spans the boundary between Late Pleistocene and Early Holocene.
- Approximately 2.5 miles southwest of the project site, three fossil localities were found along the Guadalupe River channel in 2005 and 2006:
  - Fragments of juvenile mammoth skull, tusk, and other bones were found eroding out of the Guadalupe River channel just north of San Jose International Airport and the East Trimble Road overpass (UCMP location V99597). Prior mapping of the area suggested a Holocene age for the underlying stream channel deposits, but the presence of associated mammoth remains and charcoal dates suggest that the deposits are Pleistocene in age, indicating that Pleistocene deposits are closer to the surface than current mapping indicates.
  - At a second locality in the Guadalupe River channel about 200 feet away from V99597, a mammoth fossil was found also on the surface of the riverbed (UCMP location V99893).
  - A third locality, just 30 to 40 feet from V99597, fossils of bison, camel, giant sloth, horse, peccary, and mammoth were discovered (UCMP location V99891). Postcranial material belonging to the family Bovidae was also discovered but was not assignable to a lower taxonomic level because it was within the size of modern and extinct species. Thus, this locality may have a mix of both Pleistocene and Holocene specimens, as is true of several Rancholabrean localities in the area. For example, the Pacheco localities east of the San Francisco Bay contain specimens of Holocene and Pleistocene vertebrates in close proximity (Tomiya et al. 2011). This locality indicates that significant fossil remains can be found at the Holocene- Pleistocene interface, and that this interface is at or very near the surface in areas of the Santa Clara Valley mapped as only Holocene.
- Approximately 2.8 miles northeast of the project site, invertebrate fossils (not further identified) (UCMP location A9442), and horse and fish fossils (UCMP location V5313) were discovered from a pit excavated at a stone quarry. The stone quarry no longer exists as the area has since been built over with residential housing. Prior mapping of the area suggested the area is underlain by Pleistocene age alluvial fan deposits of the Santa Clara Formation.
- Approximately 4.3 miles southwest of the project site, a mammoth fossil was discovered in 1990 in sandy gravel deposits 9 feet below ground surface at the site of a housing development near the intersection of Lawrence Expressway and Highway 101 (UCMP location V91128). Current mapping indicates the area is underlain by Holocene deposits, but the presence of associated mammoth remains suggest an older age for the deposits or that Pleistocene deposits are closer to the surface than current mapping indicates.
- Approximately 5 miles southwest of the project site near the intersection of Briton and Taylor Avenues fossil specimens of bison, camel, horse, and gopher were found during the excavation of the Sunnyvale sewer in 1970 (USGS location M1218). Near locality M1218, but closer to Calabazas Creek, fossils specimens of camel, squirrel, and gopher were found during continued excavation of the Sunnyvale sewer in 1970--1972 (USGS location M1218A). Current mapping indicates the area is underlain by Holocene deposits, but the presence of a Pleistocene fossil assemblage suggests an older age for the deposits or that Pleistocene deposits are closer to the surface than current mapping indicates.

4.1.2 Existing Paleontological Resources – Project Site and All Linears as well as Reconductored Transmission Line

The other localities identified are located between 5.7 and 24 miles from the project site, offsite linears and transmission line corridor. Two of these localities (UCMP V79134 and UCMP V91248) occur in a similar setting to the SJC02 project (along the southern margin of the San Francisco Bay in Santa Clara County) and produced vertebrate fossils in sediments mapped as Holocene floodplain, floodbasin, and estuary (Bay Mud) deposits. In addition, Schlocker (1974) has reported fossil plant remains from sediments he referred to as “Bay mud and clay” and Bonilla (1971) has reported fossil shells and plant remains from “Bay Mud.”

Helley and LaJoie (1979) and Atwater et al. (1977) report that the Estuarine deposits of the southern San Francisco Bay area locally also contain freshwater invertebrate fossils (gastropods and pelecypods). The age of these deposits apparently extends from latest Pleistocene to the Holocene.

4.1.3 Existing Paleontological Resources – Reconductored Transmission Line

The UCMP has records of 54 localities where Pleistocene age fossils were found in Alameda County in sediments similar to those present along the transmission line corridor where the reconductoring activities will take place (UCMP, 2020). At least three of these fossil localities occur with 5 miles of the transmission line corridor as discussed below. The other localities identified are located between 5.6 and 30 miles from the transmission line corridor.

- Approximately 2 miles east from the northern terminus of the transmission line corridor, fossil remains of Equus (horse) were found at Arroyo Agua Fria (UCMP location V72003).
- Approximately 3 miles northeast from the northern terminus of the transmission line corridor, 63 vertebrate and invertebrate fossil specimens (UCMP V5301) were recovered from excavations along Prune Avenue. Vertebrate fossil assemblages of small rodents (deer mouse, ground squirrel, pocket gopher, vole, mole, etc.), birds, amphibians, and reptiles were found along with invertebrate assemblages of bivalves and gastropods.
- Approximately 3.4 miles northwest from the northern terminus of the transmission line corridor, a mammalian distal humerus (not further identified) was found in Newark (UCMP location V69195).

4.2 Paleontological Potential of the Study Area

During the peak of the last ice-age (also known as the late Pleistocene Epoch), sea level was much lower than it is today because water was tied up in continental glaciers. At that time, the Pacific coastline was west of the Farallon Islands and, where the San Francisco Bay is today, there was a wide, grassy river valley that has been called the California Serengeti (Parkman, 2006). The valley was teaming with animals now known as the Rancholabrean fauna, including herbivores such as mammoth, mastodon, camels, bison, llamas, elk, and horses, as well as predators such as the short-faced bear, saber-tooth cat, scimitar cat, dire wolf, and California lion.

According to Anderson et al. 2008, ice-age fossils in Santa Clara Valley are anomalously shallow. A more recent study also suggests that Pleistocene deposits containing vertebrate fossils are more extensive at the surface in Santa Clara County than current mapping will suggest (Holroyd and Maguire, 2016). As previously described, significant Pleistocene age fossils have been recovered from areas mapped as Holocene floodplain (Qhfp), floodbasin (Qhb), and stream channel deposits (Qhsc), as close as 0.5 mile from the project site. In addition, many of the fossil localities in the Santa Clara Valley have been found near or within the stream channels of the Guadalupe River, Calabasas Creek, and Coyote Creek. The project site is located adjacent to Coyote Creek and is about 2.3 miles east from the Guadalupe River (Figure 1).

Boring logs from the geotechnical investigation conducted within the project site (not including any offsite linears or the reconductored transmission line) indicates that soils from the surface to around 5 feet below ground surface (bgs) consist of clayey sands, sands, and gravels with variable clay content. From 5 to between 15 and 25 feet bgs, fat and lean clays were predominantly encountered. Below the clay, dense interbedded gravels and sands with occasional clay interbeds were encountered to 100 feet bgs (total depth explored) (Kleinfelder, 2016). When compared with previous geological studies of the southern margin of the San Francisco Bay (Atwater et al.; 1977; Conomos, 1963; Treasher, 1963 etc.) the clay interval between 5 and 25 feet below ground surface (bgs) appears to correlate with the description of the Bay Mud. The underlying dense interbedded gravels and sands appear to be correlative with the fluvial deposits that separate the Holocene Bay Mud from the older Sangamonian Bay Mud. As discussed previously, these more coarse-grained deposits were likely laid down when sea level was low (i.e. during the Pleistocene Wisconsin glaciation) (Bloom, 1983).

At the adjacent Los Esteros Critical Energy Facility (LECEF) (Figure 1) subsurface investigations were conducted as part of the paleontological resources monitoring and mitigation program and included presence-absence testing by mechanical-excavation (Busby, 2002), and paleontological monitoring of excavations for plant construction (Lawler Associates Geoscience [LAG], 2004). No paleontological resources were encountered during the presence-absence testing or monitoring (CH2M HILL, 2010). During paleontological monitoring, the underlying sediments encountered were described as primarily estuarine clay (Bay Mud) overlain by a fluvial silty sand. The latter frequently contained historic and recent debris. Modern deer and cow bones were also encountered during trenching at an approximate depth of 4.4 feet in a light brown clay. Based on the findings of the initial monitoring program, as well as an understanding the geology of the area, LAG (2004) concluded that:

"The high rate of sedimentation in this portion of the San Francisco Bay would suggest that all sediments within… the light brown clay are Holocene or sub-recent in age." (ibid, p. 5).

Based on the results of actual field investigations and monitoring, and the geomorphic setting of the project vicinity (Atwater et al., 1977; Malamud-Roam, 2002; Bloom, 1983) sediments shallower than 20 feet bgs underlying the LECEF were re-assigned from high to low paleontological potential (CH2M HILL, 2010). Given the proximity of the SJC02 project to the LECEF, the above was considered in tandem with the paleontological locality and literature review to evaluate the paleontological potential of sediments underlying the SJC02 site. Twelve fossil localities have been documented within 5 miles of the project site and transmission line corridor from sediments similar to those mapped as underlying the project footprint and associated linears, but these localities are widely scattered. While no fossils were encountered at the adjacent LECEF project and geotechnical borings indicate that potential Pleistocene sediments were encountered between 15 and 25 feet bgs, fossils have been recovered from the surface and near surface in sediments mapped as Holocene in areas similar to those that occur in the project area (i.e. near stream channels and along the southern margin of the San Francisco Bay). Consequently, all deposits underlying the SJC02 site and associated linears (including the reconductored transmission line) are designated as having moderate potential (PFYC Class 3) according to BLM criteria (see Paleontological Potential).

5. Environmental Impacts and Recommendations

The potential effects from construction and operation of the project on paleontological resources are assessed in the following sections.

5.1 Significance Criteria

CEQA provides that the damage or destruction of a unique paleontological resource or site is a significant impact to paleontological resources (SVP, 2010). This is most typically thought of as occurring as a result of heavy equipment damage to fossils, but may also occur when fossils are looted, improperly removed from the surrounding sediment, or otherwise lost to the scientific world. Because fossils are a non-renewable resource (SVP, 2010), any unmitigated impact on a unique paleontological resource will be considered significant.

Generally, the probability of adverse impacts during excavations within a geologic unit is proportionate to the paleontological potential of the unit. While it is theoretically possible to adversely affect paleontological resources in geologic units with Low Potential, it will be remote because the units are not known to contain fossils. The highest probability of significant adverse effects to paleontological resources results from disturbance of geologic units with Moderate (Class 3) to Very High (Class 5) Potential, which have produced scientifically significant fossils, and recorded fossil localities are sufficiently frequent to anticipate encountering more (SVP, 2010).

5.2 Impacts

The potential for construction activities (including the project site, linear pipelines and related offsite improvements, and reconductoring) to cause significant impacts (damage or destruction of unique paleontological resources) is dependent on the type of activity and the paleontological potential of each unit. Impacts on paleontological resources can be avoided by relocating the excavation or reduced by scientifically recovering the fossil(s). Because proper excavation and removal of paleontological resources do not lessen the scientific value of the resources, recovery is the recommended method of reducing impacts to paleontological resources resulting from project-related excavations and will reduce any impacts to non-significant levels.

Activities that do not involve excavations or other subsurface disturbance (such as along the reconductored transmission line) will not affect fossils buried in the sediments. Fossils not impacted by excavations are considered to be preserved; therefore, impacts to paleontological resources during the operation or maintenance of the project are not expected. The following project design features described in Section 5.3 are applicable only to the construction phase of the project (such as the project site or offsite linears, excluding the reconductored transmission line) where significant adverse impacts could occur.

As previously described, the lateral and vertical extent of Holocene deposits may vary significantly from what current mapping suggests, and Pleistocene deposits with higher paleontological potential may be encountered in the shallow subsurface. For these reasons, a worker environmental awareness training module (WEAT) for paleontological resources and a paleontological resources monitoring plan (PRMP) will be developed and implemented as part of the project design prior to construction.

5.3 Project Design Features to Reduce Impacts to Ensure Less Than Significant

The results of this records search and literature review indicate that grading and excavation may encounter sediments with moderate to high paleontological potential in the shallow subsurface of the project site and offsite linears (excluding the reconductored transmission line). No paleontological impacts are expected from the reconductoring activities as no excavation is expected. Implementation of the

PRMP and WEAT outlined below will ensure that potential impacts to paleontological resources remain less than significant.

5.3.1 Develop Paleontological Resource Monitoring Plan (PRMP)

Based on the potential to encounter paleontological resources in the shallow subsurface, a PRMP will be required to be developed as part of the project design to ensure potential impacts to paleontological resources remain less than significant. A PRMP is only required for excavations, trenching, or rotary drilling. If driven piles are utilized, they will not require paleontological monitoring as they are generally not conducive to the monitoring for, or collection of, paleontological remains as there is no way to directly examine the sediments.

The PRMP will be required to be prepared by a professional paleontologist and will stipulate the location and frequency of monitoring, and other appropriate procedures. It will also detail the significance criteria to be used to determine which resources will be recovered for their data potential, as well as the coordination strategy to ensure adequate monitoring. The PRMP will detail methods of recovery, post-excavation preparation and analysis of specimens, final curation of specimens at an accredited facility, data analysis, and reporting. The PRMP will specify that all paleontological work will be conducted by qualified professionals meeting the SVP criteria (SVP, 2010) so that any encountered resources will be quickly and professionally recovered while not impeding project development. At the end of the monitoring effort, a Paleontological Monitoring Report will be prepared by the professional paleontologist to document the results of monitoring.

5.3.2 Train Construction Personnel in Paleontological Resources Awareness

Since all ground disturbance is associated with some risk of encountering previously undiscovered paleontological resources, prior to the initiation of construction or ground-disturbing activities, a WEAT module for paleontological resources will be required to be prepared by a qualified professional paleontologist, as defined by the SVP (2010). All construction personnel will be trained via the WEAT module regarding the recognition of possible buried paleontological resources, protection of paleontological resources during construction, and the procedures to be followed in the event that paleontological resources are encountered. All personnel will be instructed that unauthorized collection or disturbance of fossils is unlawful.

6. CEQA Significance Criteria

This section addresses the CEQA question regarding paleontological resources:

Would the project: Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. The paleontological potential of the deposits underlying the project site is considered to be Moderate (Class 3). The project site and related offsite areas where project activities (including reconductoring) are located in an area, the Santa Clara Valley, known to have scientifically significant but widespread or intermittent fossil discoveries. Deposits underlying the project study area have been mapped as Holocene (11,700 years before present) and paleontological evidence indicates that Pleistocene (2.6 million to 11,700 years before present) deposits containing significant paleontological resources may also be present at or near the surface.

The potential to disturb paleontological resources will occur during earth moving activities such as grading, rotary drilling, trenching for utilities, excavation for foundations, installation of support structures, etc. There is no potential to disturb paleontological resources during reconductoring activities or project operation. The measures described above will be included in the project design to ensure that impacts to paleontological resources are less than significant.

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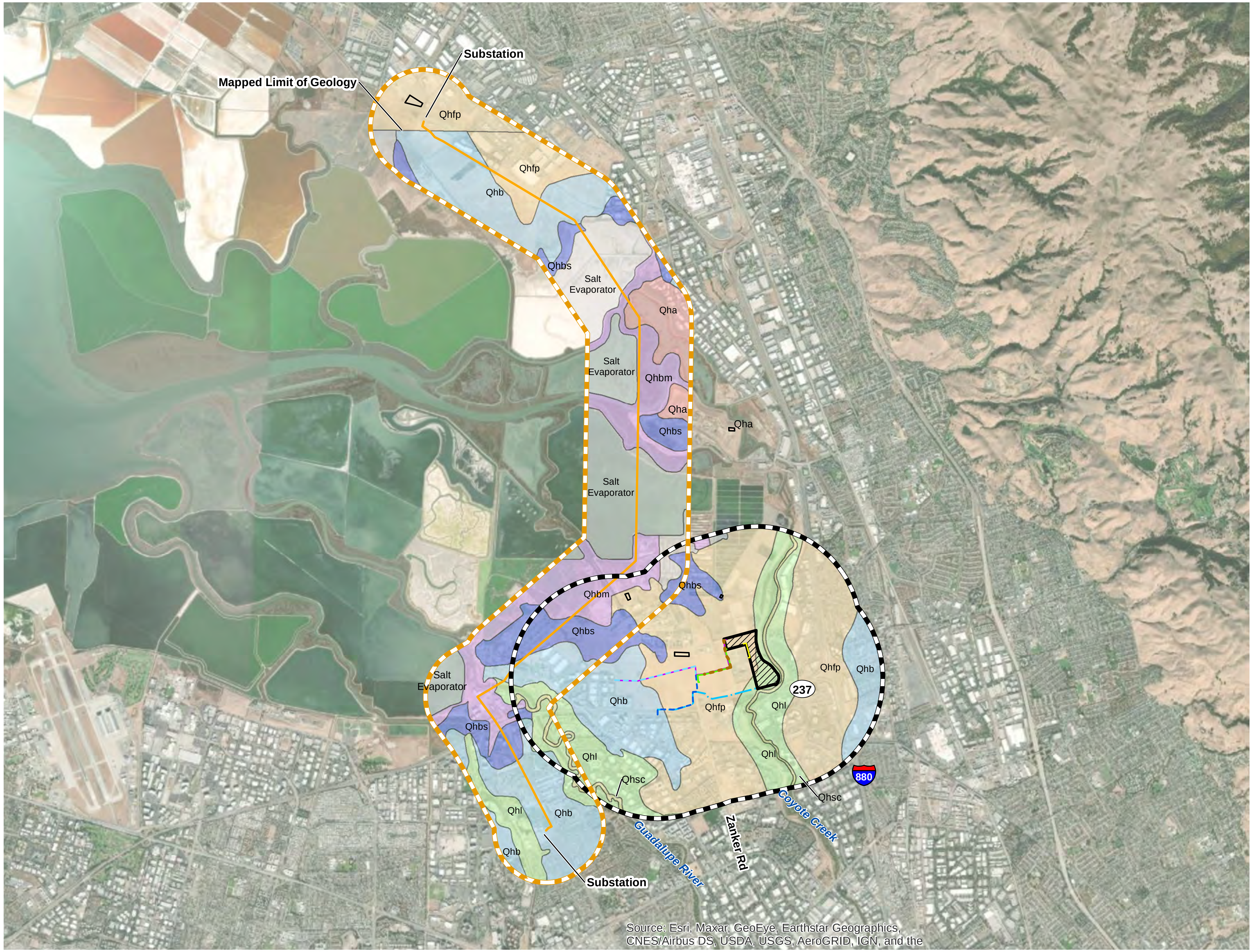

LEGEND
- Transmission Line
- Transmission Line 1/2-mile Buffer
- Laydown and Staging
- Los Esteros Critical Energy Facility
- 1-Mile Buffer
- Proposed Storm Drain
- Proposed Sanitary Sewer
- Proposed Reclaimed Water
- Proposed Water Line Route #1
- Proposed Water Line Route #2
- Proposed Water Line Route #3
- Proposed Shared Water Line
- Proposed Electrical Supply Line

Geology
- Qha: Artificial
- Qhsc: Holocene Stream Channel Deposits
- Qhl: Holocene Natural Levee Deposits
- Qhfp: Holocene Floodplain Deposits
- Qhb: Holocene Floodbasin Deposits
- Qhbs: Holocene Floodbasin Deposits (salt-affected)
- Qhbm: Holocene Estuary Deposits (Bay Mud)

N

0 6,000 12,000
Approximate scale in feet

Figure 1
Geology Within 1 Mile of the Project Site
San José Data Center (SJC02)
San José, California

JACOBS

GEOLOGIC MAP FROM Helley and Wesling (1989) USGS Open-File Report 89-671

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Appendix A
UCMP Paleontological Resource Inventory Review - Revised

Appendix A
University of California Museum of Paleontology Inventory Review
Paleontological Resource Inventory Review, San Jose Data Center Small Power Plant Project

Locality ID	Locality Name	County	Period	Epoch	Storage Age	Fossil Collection
A9442	Scott Creek	Santa Clara	Quaternary	Pleistocene	Undisclosed	I
IP6849	Santa Cruz Point	Santa Clara	Quaternary	Pleistocene	Late Pleistocene	I
V4916	Milpitas	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V5313	Scott Creek	Santa Clara	Quaternary	Pleistocene	Irvingtonian	V
V6561	San Felipe	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V79134	Long Point	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V90003	Molecular Medicine bldg.	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V90055	Calabazas Creek	Santa Clara	Quaternary	Pleistocene	Irvingtonian	V
V91128	Lawrence Expressway E	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V91248	Onizuka	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V93037	Anderson Lake	Santa Clara	Quaternary	Pleistocene	Irvingtonian	V
V99597	SCVWD Mammoth	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V99891	Babcock's Bones	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
V99893	SCVWD Humerus	Santa Clara	Quaternary	Pleistocene	Rancholabrean	V
1052-	Emeryville Mound	Alameda	Quaternary	Pleistocene	Rancholabrean	IV
-1077	Livermore W	Alameda	Quaternary	Pleistocene	Pleistocene	P
PA201	Arroyo del Valle	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V2841	Harrison St Tunnel	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V3613	Berkeley Municipal Wharf	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V3823	Mountain House	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V3933	Montclair Playground	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V3937	Calaveras Dam	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4007	Aquatic Park	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4045	Oakland 81St Avenue	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4103	Doolan Canyon	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4727	Delta Mendota	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4728	Delta Mendota	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4801	Delta Mendota 10	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4802	Delta Mendota 11	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4803	Delta Mendota 12	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4816	Delta Mendota General	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4817	Delta Mendota General	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4818	Delta Mendota 18	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4859	Delta Mendota 20	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4860	Delta Mendota 21	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4861	Delta Mendota 22	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V4862	Delta Mendota 23	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V5258	Hayward Freeway	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V5301	Prune Avenue	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V5370	Centerville Gravel Pit	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V5928	Hayward Gravel Pit	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V5933	Niles Community	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6111	California Sand+gravel 1	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6227	Alameda Tube Excavation	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6304	Hayward Motel	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6420	Oakland Coliseum	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6535	Sunol	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6644	University Ave	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V6798	Alameda Co	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V7073	Romoser Bayshore	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V66142	Auchenia	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V67194	Shattuck Ave 1	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V69166	Delta Mendota 26	Alameda	Quaternary	Pleistocene	Rancholabrean	V

V69167	Positas Arroyo General	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V69168	Alameda Canal	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V69170	Webster St.	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V69195	Newark	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V69199	Boomer Hill	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V72003	Arroyo Agua Fria	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V75112	California Sand+gravel 2	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V81118	Harris, T, Ranch	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V86011	Green School	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V88057	Laughlin Road W	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V88077	Laughlin Road W 2	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V88078	Laughlin Road W 3	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V93154	Arroyo Valle	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V99098	NIF W	Alameda	Quaternary	Pleistocene	Rancholabrean	V
V99099	NIF E	Alameda	Quaternary	Pleistocene	Rancholabrean	V

Notes:

I = Invertebrate

P = Plant

V = Vertebrate

Attachment E
Section 3.8 Greenhouse Gas Emissions – Revised

3.8 Greenhouse Gas Emissions

Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
h) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Environmental checklist established in Appendix G of the *2019 California Environmental Quality Act (CEQA) Statute & Guidelines* (AEP 2019).

3.8.1 Setting

The San José Data Center (SJC02) will be located within the City of San José on an approximately 64.5-acre site and will consist of two data center buildings totaling over approximately 479,000 square feet of space. The project will include 40 3.0-megawatt (MW) standby diesel generators (20 per building) to provide electrical power to support the information technology (IT) load during utility outages or certain onsite electrical equipment interruptions or failures, as well as the installation of 20 3-MW emergency diesel generators at each building. In addition to the 40 backup generators, the project will include two administrative generators, rated at 1.25 MW and 0.5 MW, to support administrative functions during an interruption in the normal delivery of electrical power from the utility. The facility design will not require more than approximately 99 MW of electrical power, which will be used only for backup power for onsite data center operations in the event of an electrical outage by Pacific Gas & Electric (PG&E), although the estimated load is 92 MW.

In response to PG&E's Preliminary Engineering Study[33], to accommodate the power demands of the SJC02, the project also includes the reconductoring of the existing approximately 8.76-mile-long PG&E Newark-North Receiving Station #1 115 kilovolt (kV) transmission line. These reconductoring activities are expected to occur concurrently with onsite project construction.

The project site has been used historically for farming since the early 1920s but is not currently in agricultural use. There are two vacant residences, a mobile home, and a storage shed/warehouse currently onsite, which will be demolished as part of the SJC02 project. To the north of the project site are the San José/Santa Clara Regional Wastewater Treatment Plant sludge drying beds, to the south is Highway 237, to the west is the Los Esteros Critical Energy Facility, a PG&E substation, and to the east is Coyote Creek. The project is anticipated to begin construction in the 4th quarter of 2021, with operations beginning in the 2nd quarter of 2023.

Unlike emissions of criteria and toxic air pollutants, which have local or regional impacts, emissions of greenhouse gases (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 carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds, such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors.

[33] This section is intended to replace, in its entirety, the previous version of SPPE Section 3.8.

3.8.1.1 Regulatory Background

Federal Laws and Regulations

In April 2007, the U.S. Supreme Court held that GHG emissions are pollutants within the meaning of the Clean Air Act (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 U.S. Environmental Protection Agency (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 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 to submit annual reports to EPA. The rule is intended to collect accurate and timely emissions data to guide future policy decisions on climate change.

With the 2010 GHG Tailoring Rule, EPA mandated that Prevention of Significant Deterioration (PSD) and Title V operating permit requirements will apply to facilities whose potential to emit stationary source CO_2e emissions will exceed 100,000 tons per year. This changed in 2014 when 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. Rather, the Supreme Court found that EPA can regulate GHG emissions from sources that are already subject to PSD and Title V operating permit requirements due to emissions of other pollutants.

The project will not be subject to the federal laws and regulations noted herein, because the facility will not emit more than 25,000 metric tons of CO_2e per year, as demonstrated in Section 3.8.3, and is not subject to PSD and Title V operating permit requirements due to emissions of other pollutants, as demonstrated in Section 3.3.

State Laws and Policies

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. The California Environmental Protection Agency Secretary is required to coordinate development and implementation of strategies to achieve the GHG reduction targets.

In 2006, the California State Legislature passed the Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which provides the framework for regulating GHG emissions in California. This law requires the California Air Resources Board (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 (CARB 2017a).

Part of CARB's direction under AB 32 was to develop a scoping plan that contains the main strategies California will use to reduce the GHG emissions that contribute to 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 the following: direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system; and a fee regulation to fund the AB 32 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, with the most recent amendments in 2018. This regulation 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/or process sources. The project will not be 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.

To best support the 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 Senate Bill (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 (CARB 2017b). The SLCP Reduction Strategy was integrated into the 2017 update to CARB's Scoping Plan.

In 2006, the California Public Utilities Commission and California Energy Commission established requirements for utilities under the Electricity Greenhouse Gas Emission Standards Act (SB 1368[34]), 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 megawatt-hour (MWh) of electricity produced. The GHG 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.[35] 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 must work closely to implement the recommendations in the Scoping Plan. The project will not be subject to this GHG Environmental Performance Standard, as it is not a new or existing power plant and does not establish or renew a power contract.

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 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.

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.

In 2002, California initially established its Renewables Portfolio Standard (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)

[34] Public Utilities Code Section 8340 et seq.

[35] See rule at http://www.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/64072.htm.

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 Plans and Programs

The Bay Area Air Quality Management District (BAAQMD) adopted the *2017 Bay Area Clean Air Plan* on April 19, 2017 (BAAQMD 2017a). The 2017 Clean Air Plan provides a regional strategy to protect public health and 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 (last updated May 2017 [BAAQMD 2017b]) to assist lead agencies in evaluating a project’s potential impacts on climate change. The CEQA Guidelines describe the criteria BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects will 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 Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting an SCS that integrates transportation, land use, and housing to meet GHG 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 limited to those projects associated with land use and transportation strategies and align with the strategies identified in the BAAQMD’s 2017 Clean Air Plan (MTC & ABAG 2017).

Local Plans and Policies for New Development

The following discussion of local plans and policies pertain to development of the project site and associated construction activities within the limits of the City of San Jose.

Envision San José 2040 General Plan. The *Envision San José 2040 General Plan* was adopted by the City Council in November 2011, and most recently amended in December 2018. The City’s progress towards achieving key goals are evaluated every 4 years. This General Plan centers on 12 major strategies that reflect the community’s desire to see San José grow into a more prominent city through 2040, while taking on a growing environmental and economic leadership role (City of San José 2018). The General Plan provides the basis for the City’s GHG Reduction Strategy, while expanding upon the City of San José’s Green Vision. Both of these climate-specific plans are described in the following paragraphs.

Green Vision and Climate Smart San José. The *Green Vision*, adopted in October 2007, was a 15-year sustainability plan to steer economic growth while reducing GHG emissions. Its 10 goals included supporting development of new clean technology industries; becoming more energy efficient; producing and using electricity from clean and renewable sources; constructing green buildings; diverting waste from landfills; and expanding the use of recycled water (City of San José 2019b).

Climate Smart San José replaced the *Green Vision* in February 2018 and has nine overarching strategies with the overall goal of reducing GHG emissions while assuring a long-term water supply. This plan charts a course to meeting the GHG emission reduction targets of the international Paris Agreement, which calls for limiting the rise in average global temperature to below 2 degrees Celsius (City of San José 2019a).

City of San José 2030 GHG Reduction Strategy. The *City of San José 2030 GHG Reduction Strategy* is a comprehensive plan to achieve the City's share of statewide emissions reductions for the 2030 timeframe established by AB 32 and SB 32, while meeting the mandates outlined in the BAAQMD's CEQA Guidelines. Adopted in June 2020, the Strategy identifies GHG emissions reduction measures to be implemented by development projects as part of four categories: buildings and energy; land use and transportation; and recycling and waste; and other GHG reduction areas (City of San José 2020). Some measures are mandatory for all proposed development projects and others are voluntary, where voluntary measures could be incorporated as mitigation measures at the City's discretion.

CEQA clearance for development projects is required to address the consistency of individual projects with the goals and policies in the General Plan designed to reduce GHG emissions. Compliance with the mandatory and voluntary measures, if required by the City, will confirm an individual project's consistency with the GHG Reduction Strategy and, accordingly, the General Plan.

Local Plans and Policies for Reconductoring Activities

The following discussion of local plans and policies pertains only to construction activities associated with reconductoring PG&E's existing transmission line within the limits of the city of Santa Clara and the city of Fremont. Activities occurring within the limits of the city of San Jose will be subject to the same plans and policies as the project development, which were discussed above.

City of Santa Clara Climate Action Plan. The *City of Santa Clara Climate Action Plan* is a comprehensive plan to achieve the City's share of statewide emissions reductions for the 2020 timeframe established by AB 32, while meeting the mandates outlined in the BAAQMD's CEQA Guidelines. Adopted in December 2013, and currently undergoing updates to align with new state requirements, the *City of Santa Clara Climate Action Plan* identifies GHG emissions reduction measures to be implemented as part of the following 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 (City of Santa Clara 2013). As with the City of San Jose plans, some measures are required and others are voluntary, where voluntary measures could be incorporated as mitigation measures at the City of Santa Clara's discretion.

City of Fremont Climate Action Plan. The *City of Fremont Climate Action Plan* is a comprehensive plan to achieve the City's share of statewide emissions reductions for the 2020 timeframe established by AB 32. It should be noted that the *City of Fremont Climate Action Plan* does not adhere to the BAAQMD's CEQA Guidelines for a qualified climate action plan. Rather, the plan includes implementation actions for guiding the community and the City organization in efforts to reduce GHG emissions (City of Fremont 2012). Adopted in November 2012, the CAP identifies GHG emissions reduction measures to be implemented as part of the following focus areas: land use and mobility; energy; solid waste; water; and municipal services and operations (City of Fremont 2012). As with the City of San Jose plans, some measures are required and others are voluntary, where voluntary measures could be incorporated as mitigation measures at the City of Fremont's discretion.

CEQA clearance for development projects and associated construction activities within the City of Santa Clara and the City of Fremont is required to address the consistency of individual projects with the goals and policies in the local plan designed to reduce GHG emissions. Compliance with the mandatory and voluntary measures, if required by the governing city, will confirm an individual project's consistency with the applicable local plan.

3.8.1.2 Existing Conditions

The City prepares an annual report to assess progress towards meeting the GHG reduction targets established in the GHG Reduction Strategy and to 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 base year. Table 3.8-1 summarizes the City's 2017 GHG emissions inventory, which is the most recent inventory available (ICLEI 2019).

This GHG emissions inventory includes direct and indirect GHG emissions attributable to human activities. As shown in Table 3.8-1, transportation emissions, from on- and off-road vehicles, railcars, pleasure boats, and in-boundary flights, were the largest source of emissions, comprising 63 percent. Residential, commercial, and industrial energy, including electricity and natural gas use, were the next largest sources of emissions, comprising 13, 11, and 7 percent, respectively. Each of the other sectors represented 5 percent or less of total emissions, including solid waste disposal, the transmission and treatment of water and sewage, and natural gas distribution (ICLEI 2019).[36]

Table 3.8-1. City of San José 2017 Greenhouse Gas Emissions Inventory

End-Use Sector	Total Emissions (%)	CO_2e Emissions (Metric Tons per Year)
Residential Energy	13	763,961
Commercial Energy	11	627,496
Industrial Energy	7	399,690
Transportation and Mobile Sources	63	3,589,159
Solid Waste	5	271,862
Water and Wastewater	<1	29,235
Process and Fugitive Emissions	<1	30,262
Total	100	5,711,665

Source: ICLEI 2019

Note that existing conditions of the city of Santa Clara and the city of Fremont are not specifically addressed as project activities within those jurisdictions will only be related to short-term construction activities resulting from reconductoring of PG&E's existing transmission line, and are not expected to significantly contribute to GHG emissions within city limits. Rather, reconductoring GHG emissions will be evaluated in conjunction with those emitted from the project site directly within the City of San Jose.

3.8.2 Methodology and Significance Criteria

3.8.2.1 Methodology

Emissions of CO_2e from short-term project demolition and construction activities, including reconductoring activities, were evaluated, with detailed emission calculations presented in Appendix 3.3-A, including the assumptions employed. Demolition, construction (including reconductoring-related) GHG emissions from the project will result from fuel combustion in construction equipment, helicopters, and on- and offsite vehicle trips, such as material haul trucks, dump trucks, worker commutes, pick-up trucks for crew transport, and delivery vehicles. Emissions were estimated using construction equipment fuel

[36] Emissions from the residential, commercial, and industrial energy sectors have decreased the most over time, likely as a result of PG&E's cleaner electricity portfolio and reduced energy consumption.

consumption from the OFFROAD2017 Web Database[37], vehicle fuel economy from the EMFAC2017 Web Database[38], vehicle idling emission factors from EMFAC2017, emission factors by fuel type and/or vehicle category from The Climate Registry (TCR 2019), and helicopter take-off and landing emission factors from a study prepared by the U.S. Department of the Interior, Bureau of Ocean Energy Management (BOEM 2014).

Emissions of CO_2e from long-term project operations were also evaluated, with detailed emission calculations presented in Appendix 3.3-B, including the assumptions employed. Emissions will result from operation of 40 standby diesel generators, 2 administrative diesel generators, offsite vehicle trips for worker commutes and material deliveries, cooling units, and facility upkeep (such as architectural coatings, consumer product use, landscaping, water use, waste generation, and electricity use).[39] .

Diesel stationary combustion emissions were estimated using emission factors from EPA's Final Mandatory Reporting of Greenhouse Gases Rule, as presented in 40 Code of Federal Regulations (CFR) 98.33. Vehicle emissions were estimated using vehicle fuel economy from the EMFAC2017 Web Database, vehicle idling emission factors from EMFAC2017, and emission factors by fuel type or vehicle category, or both, from The Climate Registry. Facility upkeep emissions were estimated using the California Emissions Estimator Model (CalEEMod), based on the square footage of the buildings to be constructed, paved areas, and project-specific electricity and water use. The CalEEMod output is included in Appendix 3.3-B.

The cooling-related emissions will result from use of refrigerants in operation of five 18-ton Daikin variable refrigerant flow cooling units, two 4.5-ton variable refrigerant flow cooling units, and one 14-ton cooling unit. Based upon manufacturer data, each 18-ton unit contains 51.6 pounds of R-410A (two 25.8 pound systems), each 4.5-ton unit contains 15.8 pounds of R-410A, and the 14-ton unit contains 25.8 pounds of R-410A, for a facility total of 315.4 pounds of R-410A. Based on the conservative allowable annual leak rate of 20 percent for commercial cooling equipment, per 40 CFR 82.157(c)(2)(i), the maximum expected refrigerant leak mass will be approximately 63 pounds of R-410A per year. Use of a global warming potential of 1,923.5, from the Intergovernmental Panel on Climate Change's 5th Assessment Report (IPCC 2014), will indicate a maximum allowable refrigerant release of approximately 55 metric tons of CO_2e per year. Details of these emission calculations are included in Appendix 3.3-B.

3.8.2.2 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" (AEP 2019). As stated in Section 15064(b) of the CEQA Guidelines, the significance of an activity may vary with the setting (AEP 2019). CEQA allows for significance criteria established by 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 will have significant adverse environmental impacts.[40] 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

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[37] The OFFROAD2017 Web Database is available at: https://www.arb.ca.gov/orion/.

[38] The EMFAC2017 Web Database is available at: http://www.arb.ca.gov/emfac/2017/.

[39] Emissions of CO_2e associated with operation and maintenance of the approximately 8.76-miles of reconductored transmission lines were not estimated as those activities would be conducted by PG&E as part of the operation and maintenance of its existing transmission system, and not considered part of the SJC02 project.

[40] BAAQMD has initiated an update to its current CEQA Guidelines and thresholds of significance to reflect new or revised requirements in the State CEQA Guidelines, recent court decisions, improved analytical methodologies, and new mitigation strategies. However, until new guidance is approved, the thresholds of significance from the 2017 CEQA Guidelines are still considered appropriate for determining a project's significance.

include land uses that will accommodate processes and equipment that emit GHG emissions and require a local air district permit to operate (BAAQMD 2017b). Given that the project will accommodate diesel generators requiring BAAQMD permits to operate, the stationary source project threshold is applicable to this project, instead of the land use development project threshold.

The 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 San Francisco Bay Area Basin (BAAQMD 2017b). The project's standby and administrative generators will be permitted sources, and the BAAQMD's 10,000 metric tons of CO_2e per year threshold was used to analyze the significance of emissions that will be produced by the generators. The BAAQMD's CEQA significance thresholds apply to stationary source GHG emissions and to GHG emissions due to construction. Therefore, emissions from mobile sources and area sources, such as electricity use and water delivery, associated with project operation will not be included for comparison to this threshold, based on guidance in the BAAQMD's CEQA Guidelines (BAAQMD 2017b).

Therefore, GHG impacts from the project's standby and administrative generators will be considered to have a less-than-significant impact if estimated emissions will be below the BAAQMD's threshold of 10,000 metric tons of CO_2e per year. Furthermore, GHG impacts from all other project-related emission sources will be considered to have a less-than-significant impact if the project will be consistent with the *City of San José 2030 GHG Reduction Strategy* and applicable regulatory programs and policies adopted by CARB or other California agencies.[41]

3.8.3 Environmental Impacts and Mitigation Measures

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

Less Than Significant Impact. As shown in Table 3.8-2, standby and administrative generator maintenance and testing will generate 3,529 metric tons of CO_2e per year. Emissions from the standby and administrative generators will be less than the BAAQMD's stationary source threshold of 10,000 metric tons of CO_2e per year and will, therefore, have a less-than-significant impact on the environment, consistent with the BAAQMD CEQA guidance for stationary sources.

Table 3.8-2. Greenhouse Gas Emissions from Stationary Sources During Project Operation

Source	Annual Emissions (Metric Tons per Year of CO_2e)
Stationary Sources – Standby and Administrative Generators	3,529
BAAQMD Threshold	10,000
Exceeds Threshold (Y/N)?	No

Source: BAAQMD 2017b

Demolition and Construction (Including Reconductoring) Emissions. As discussed, demolition and construction of the project, including reconductoring activities, will result in GHG emissions generated by on- and offsite vehicle trips (material haul truck, dump truck, worker commute, crew transport, and delivery vehicle trips) and operation of construction equipment and helicopters. These sources will generate approximately 4,750 metric tons of CO_2e during the 17-month construction period, which includes a 1-month demolition period. Because demolition and construction (including reconductoring) emissions will cease once construction is complete, they are considered short-term. The BAAQMD's CEQA Guidelines do not identify a GHG emission threshold for demolition and construction (including reconductoring-related) emissions. Instead, BAAQMD recommends that GHG emissions from demolition and construction (including reconductoring) be quantified and disclosed.

[41] This includes consistency of reconductoring construction activities with the *City of Santa Clara Climate Action Plan* and the *City of Fremont Climate Action Plan*.

BAAQMD further recommends incorporation of Best Management Practices to reduce GHG emissions during demolition and construction (including reconductoring), as feasible and applicable. Best Management Practices (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 demolition, construction, and reconductoring waste (BAAQMD 2017b), although none of these BMPs are assumed for purposes of identifying the significance of any potential impacts for purposes of this analysis.

Operational Emissions. As stated, GHG emissions from project operation will consist of emissions from operation of the standby and administrative diesel generators, cooling units, offsite vehicle trips for worker commutes and material deliveries, and facility upkeep, including architectural coatings, consumer product use, landscaping, water use, waste generation, and electricity use. Project-specific details of these emission sources are provided in this section, as available.

Project Stationary Combustion Sources. The standby and administrative generators will be operated only for testing and maintenance purposes, with non-emergency operation of each generator limited by permit to 42 hours per year. If all 42 generators were operated at full load for the full 42 hours per year, the generators will consume 8,205[42] barrels per year (bbl/year) of diesel fuel. The proposed consumption of diesel fuel by the generators will be approximately 0.002[43] percent of the total California capacity.

Project Cooling Units. As stated previously, the cooling-related fugitive emissions will result from use of refrigerants in operation of five 18-ton Daikin variable refrigerant flow cooling units, two 4.5-ton variable refrigerant flow cooling units, and one 14-ton cooling unit. Based upon manufacturer data, the facility's total capacity will be 315.4 pounds of R-410A. Using a conservative allowable annual leak rate of 20 percent for commercial cooling equipment, per 40 CFR 82.157(c)(2)(i), the maximum expected refrigerant leak mass will be approximately 63 pounds of R-410A per year or 55 metric tons of CO_2e per year.

Project Electricity Usage. The primary function of the data center is to house computer servers, which require electricity 24 hours a day to operate. The projected maximum demand for the entire project is 91.75 megawatts (MW). On an annual basis, the project will consume up to the maximum electrical usage of 803,730 MWh per year. However, to provide maximum project flexibility, emission estimates for energy use were based on a maximum demand of 99 MW, or 867,240 MWh per year, which is the maximum allowed for projects eligible for the Small Power Plant Exemption under California Energy Commission regulations.

Project Mobile Emission Sources. Approximately 100 employees will be employed at the project site on a daily basis, split over three shifts, with approximately 30 daily vendor trips.

Project Water Consumption and Waste Generation. Water consumption results in indirect emissions from electricity usage for water conveyance and wastewater treatment. Indoor uses at the project site will generate a water demand of approximately 29.1 acre-feet per year with recycled water being the primary source, based on availability from the City. Daily operations at the data center will generate waste, which will result in fugitive GHG emissions during decomposition.

Summary of GHG Emissions. Emissions from stationary combustion sources, namely diesel generator testing and maintenance, are presented in Table 3.8-2. Estimated emissions from energy

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[42] Calculated as: 202.0 gallons per hour x 42 hours per year x 40 3-MW generators + 90.5 gallons per hour x 42 hours per year x 1 1.25-MW generator + 34.4 gallons per hour x 42 hours per year x 1 0.5-MW generator = 344,606 gallons per year = 8,205 bbl/yr.

[43] Calculated as follows, based on the California Energy Commission's 2018 Weekly Fuels Watch Report: 8,205 bbl/yr / 341,036,000 (calculated as the sum of total distillates for refinery stocks and refinery production) bbl/yr = 0.002 percent. Report is available at https://www.energy.ca.gov/almanac/petroleum_data/fuels_watch/, and was accessed September 9, 2019.

use, cooling units, mobile and area sources, water use, and waste generation (i.e., project operation) are summarized in Table 3.8-3.

Table 3.8-3. Greenhouse Gas Emissions from Energy Use, Cooling Units, Mobile Sources, Area Sources, Water Use, and Waste Generation During Project Operation

Source	Annual Emissions (Metric Tons per Year of CO_2e)
Energy Use[a]	253,279
Cooling Units	55.2
Mobile Sources[b]	457
Area Sources[c]	0.01
Water Use	27.9
Waste Generation	303
Total	254,122

[a] Energy use emissions include emissions from electricity use.

[b] Mobile source emissions include emissions from worker commute and vendor trips.

[c] Area source emissions include emissions from architectural coatings, consumer products, and landscaping.

As compared to the CO_2e emissions in Table 3.8-1, the standby and administrative generators will comprise less than 1 percent of the total City GHG emissions. As shown in Table 3.8-3, operation of the project will generate 254,122 metric tons of CO_2e per year. Inclusion of emissions from the project's maximum possible electricity use, refrigerant leakage from cooling units, and other non-stationary sources will bring the project's contribution to a maximum of 5 percent of the total City GHG emissions. This emissions estimate does not include efficiency measures that will be pursued as part of the project, nor does it reflect implementation of applicable state and local measures to reduce GHG emissions (for example, SB 350 and SB 100). The project will be required to comply with all applicable City and state green building measures, including Title 24, Part 6, California Energy Code baseline standard requirements for energy efficiency, based on the 2016 Energy Efficiency Standards requirements, and the 2016 California Green Building Standards Code, commonly referred to as CALGreen (California Code of Regulations, Part 11). In addition, the project will include electrical vehicle charging stations as required. All required water use reduction measures will also be incorporated in the building design, including the use of recycled water in the fluid coolers when evaporative cooling is required[44].

Conclusion

Based on the BAAQMD's CEQA guidance for stationary-source projects, the threshold to determine the significance of an impact from GHG emissions is 10,000 metric tons of CO_2e per year. Stationary-source projects include land uses that will accommodate processes and equipment that emit GHG emissions and will require a BAAQMD permit to operate. If estimated annual emissions of operational-related GHGs exceed these levels, the project will result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change. For the project, estimated stationary source emissions (i.e., the 42 standby generators) will be less than the 10,000 metric tons of CO_2e per year threshold and will not be cumulatively significant.

I) 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 Impact. The project will not conflict with any applicable plan, policy, or regulation adopted to reduce GHG emissions. The *City of San José 2030 GHG Reduction Strategy*, which builds upon the goals outlined in the *Envision San José 2040 General Plan* and the *City of San*

[44] The fluid coolers are of a hybrid design, meaning that they normally operate in air cooling only mode, but will enable evaporative cooling when ambient temperatures exceed 75 degrees Fahrenheit.

Jose 2015 GHG Reduction Strategy, identifies a series of GHG emissions reduction measures to be implemented by development projects that will allow the City to achieve its GHG reduction goals by 2030. The measures are sorted into four key categories: buildings and energy; land use and transportation; recycling and waste; and other GHG reduction areas. The GHG Reduction Strategy includes measures applicable to City government and existing and new development projects in the City. Discussion of the project's conformance with the applicable reduction measures for new development in the GHG Reduction Strategy are provided in subsequent text.

Energy Efficiency Measures. Measure MS-2.8 of the *Envision San José 2040 General Plan* requires evaluation of operational energy efficiency and inclusion of operational design measures consistent with benchmarks, such as those in EPA's EnergyStar Program for new data centers. The EnergyStar score for data centers applies to spaces specifically designed and equipped to meet the needs of high-density computing equipment, such as server racks used for data storage and processing. The objective of the EnergyStar score is to provide a fair assessment of the energy performance of a property relative to its peers, taking into account the climate, weather, and business activities at the property (EPA 2019). Based on current designs, the project will have an EnergyStar score indicating better-than-average performance relative to other data centers, because, for instance, the project incorporates the following design features: use of recycled water, all electric comfort and water heating, drought-tolerant, native landscaping, and minimal glazing to reduce energy loses.

Power Usage Effectiveness (PUE) is another metric used to compare the efficiency of facilities that house computer servers. PUE is defined as the ratio of total facility energy use to Information Technology (IT) (server) power draw (for example, PUE = Total Facility Source Energy/IT Source Energy), and generally ranges from 1.25 to 3.0 for most data centers (EPA 2019). 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/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 project's PUE will be 1.25 or better.

Water Conservation Measures. Development standards for water conservation will be applied to increase efficiency in indoor and outdoor water use areas in accordance with all applicable requirements and standards. Specifically, the project will comply with all applicable City and state water conservation (indoor and outdoor) measures, including Title 24, Part 6, California Energy Code baseline standard requirements for energy efficiency, based on the 2016 Energy Efficiency Standards requirements, and CALGreen. For the project, these measures will include the following:

- Water efficient landscaping with low-usage plant material to minimize irrigation requirements
- Sourcing of site irrigation from 100 percent non-potable water, based on availability of recycled water
- Use of recycled water in fluid coolers when evaporative cooling is required
- Use of ultra-low flow toilets and plumbing fixtures consistent with CALGreen mandatory measures for water reduction

Applicable General Plan Policies. The City adopted the *Envision San José 2040 General Plan* to accommodate planned housing and employment growth through 2035. The General Plan includes goals and policies to address sustainability aimed at reducing the City's contribution to GHG emissions, many of which are specifically repeated in the City's GHG Reduction Strategy. For the project, implementation of policies that increase energy efficiency or reduce energy use (through confirmation of compliance with all applicable requirements, criteria, and standards) will effectively reduce indirect GHG emissions associated with energy generation. The consistency of the project with the applicable buildings and energy, land use and transportation, recycling and waste, and other GHG reduction area policies in the GHG Reduction Strategy is analyzed in Table 3.8-4. As shown, the project will be consistent with the applicable sustainability policies in the GHG Reduction Strategy.

Table 3.8-4. Project Consistency with GHG Reduction Strategy Sustainability Policies

Emission Reduction Policies	Project Consistency
Buildings and Energy Policies	
MS-2.3: Encourage consideration of solar orientation, including building placement, landscaping, design, and construction techniques for new construction to minimize energy consumption.	Consistent. The project will use lighting control to reduce energy usage for new exterior lighting and air economization for building cooling, when feasible. Water-efficient landscaping and ultra-low flow plumbing fixtures in the proposed buildings will limit water consumption. Furthermore, the project will use materials (wallboard partitions, ceiling tiles, and floor surfaces) that include post-consumer waste.
MS-2.7: Encourage the installation of solar panels or other clean energy power generation sources over parking areas.	
MS-2.11: Require new development to incorporate green building practices, including those required by the Green Building Ordinance.	
MS-14.4: Implement the City's Green Building Policies, so that new construction and rehabilitation of existing buildings fully implements industry best practices, including the use of optimized energy systems, selection of materials and resources, water efficiency, sustainable site selection, passive solar building design, and planting of trees and other landscape materials to reduce energy consumption.	
MS-2.8: Develop policies which promote energy reduction for energy-intensive industries. For facilities such as data centers, which have high energy demand and indirect GHG emissions, require evaluation of operational energy efficiency and inclusion of operational design measures as part of development review consistent with benchmarks such as those in EPA's EnergyStar Program for new data centers. Also require consideration of distributed power production for those facilities to reduce GHG emissions.	Consistent. The project will be designed to have a PUE of 1.25 or better and an EnergyStar score indicating better-than-average performance relative to other data centers.
MS-17.2: Ensure that development within San José is planned and built in a manner consistent with sustainable use of current and future water supplies by encouraging sustainable development practices, including low-impact development, water-efficient development, and green building techniques.	Consistent. The project will use recycled water for landscape irrigation and the fluid coolers. Ultra-low flow plumbing fixtures in the proposed buildings will also limit potable water consumption, consistent with water-efficient development.
MS-19.4: Require the use of recycled water wherever feasible and cost-effective to serve existing and new development.	
Land Use and Transportation Policies	
TR-7.1: Require large employers to develop programs to reduce the vehicle trips and vehicle miles generated by their employees through the use of shuttles, provision for car-sharing, bicycle sharing, carpool, parking strategies, transit incentives, and other measures.	Consistent. The project will include bicycle and pedestrian amenities and promote employee vehicle trip reductions consistent with the City's requirements.
TR-8.5: Promote participation in car share programs to minimize the need for parking spaces in new and existing development.	
TR-6.7: As part of the project development review process, ensure that adequate off-street loading areas in new large commercial, industrial, and residential developments are provided, and that they do not conflict with pedestrian, bicycle, or transit access and circulation.	Consistent. The project will provide off-street loading areas for material haul trucks and delivery vendors during both demolition/construction/reconductoring and operation.

Table 3.8-4. Project Consistency with GHG Reduction Strategy Sustainability Policies

Emission Reduction Policies	Project Consistency
Recycling and Waste Policies	
MS-6.5: Reduce the amount of waste disposed in landfills through waste prevention, reuse, and recycling of materials at venues, facilities, and special events.	Consistent. The project will promote waste prevention, reuse, and recycling in accordance with applicable requirements and standards.
Other GHG Reduction Areas	
MS-3.1: Require water-efficient landscaping, which conforms to the State's Model Water Efficient Landscape Ordinance, for all new commercial, institutional, industrial, and developer-installed residential development unless for recreation needs or other area functions.	Consistent. The project will include water-efficient landscaping.
MS-26.1: As a condition of new development, require the planting and maintenance of both street trees and trees on private property to achieve a level of tree coverage in compliance with and that implements City laws, policies, or guidelines.	Consistent. The project will include a landscaping plan that will include the planting of trees on the property in accordance with applicable requirements and standards.

While not specifically identified as sustainability policies in the City's GHG Reduction Strategy, the *Envision San José 2040 General Plan* also includes a number of policies intended to minimize air pollutant and toxic air contaminant emissions from new and existing development, including during demolition, construction, and reconductoring activities. As demonstrated in Section 3.3, the project will be consistent with these policies as follows:

- Assessing projected air emissions in conformance with the BAAQMD CEQA Guidelines and applicable state and federal standards, including preparation of a health risk assessment
- Identifying and implementing feasible air emission reduction measures
- Including dust, particulate matter, and construction equipment exhaust control measures, consistent with the mitigation measures recommended in the BAAQMD CEQA Guidelines

City of Santa Clara Climate Action Plan. The *City of Santa Clara Climate Action Plan*, which is part of the *City of Santa Clara 2010-2035 General Plan*, identifies a series of GHG emissions reduction measures to be implemented by development projects that will allow the City to achieve its GHG reduction goals by 2020. The measures are sorted into the following 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 *City of Santa Clara Climate Action Plan* includes measures applicable to City government and existing and new development projects in the City. Because only reconductoring activities will occur within the City of Santa Clara, only construction-related GHG reduction measures were considered applicable for determining the project's conformance with the *City of Santa Clara Climate Action Plan*. These measures are summarized in Table 3.8-5 below. As shown, the project's reconductoring activities will be consistent with the applicable sustainability policies in the *City of Santa Clara Climate Action Plan*.

Table 3.8-5. Project Consistency with City of Santa Clara GHG Reduction Policies

Emission Reduction Policies	Project Consistency
Climate Action Plan Policies	
5.2, Alternative Construction Fuels: Require construction projects to comply with BAAQMD best	Consistent. During reconductoring activities, the project will implement construction equipment exhaust control measures consistent with the mitigation measures recommended in the

Table 3.8-5. Project Consistency with City of Santa Clara GHG Reduction Policies

Emission Reduction Policies	Project Consistency
management practices, including alternative-fueled vehicles and equipment.	BAAQMD CEQA Guidelines, including the use of alternative fuels, where feasible.
General Plan Policies	
5.10.1-P7: Encourage the use of local recycling facilities to divert waste from landfills.	Consistent. The project will promote waste prevention, reuse, and recycling during reconductoring activities in accordance with applicable requirements and standards.
5.10.2-P6: Require “Best Management Practices” for construction dust abatement.	Consistent. During reconductoring activities, the project will implement dust control measures consistent with the mitigation measures recommended in the BAAQMD CEQA Guidelines.

City of Fremont Climate Action Plan. The *City of Fremont Climate Action Plan*, along with the *City of Fremont General Plan*, identifies a series of GHG emissions reduction measures to be implemented by development projects that will allow the City to achieve its GHG reduction goals by 2020. The measures are sorted into the following focus areas: land use and mobility; energy; solid waste; water; and municipal services and operations. The *City of Fremont Climate Action Plan* includes measures applicable to City government and existing and new development projects in the City. Because only reconductoring activities will occur within the City of Fremont, only construction-related GHG reduction measures were considered applicable for determining the project’s conformance with the *City of Fremont Climate Action Plan*. These measures are summarized in Table 3.8-6 below. As shown, the project’s reconductoring activities will be consistent with the applicable sustainability policies in the *City of Fremont Climate Action Plan*.

Table 3.8-6. Project Consistency with City of Fremont GHG Reduction Policies

Emission Reduction Policies	Project Consistency
Climate Action Plan Policies	
SW-A5: Increase the amount of construction and demolition debris recycled from private-sector projects.	Consistent. The project will promote waste prevention, reuse, and recycling during reconductoring activities in accordance with applicable requirements and standards.
M1: Continue replacing gasoline- and diesel-powered fleet vehicles with alternative fuel vehicles, such as hybrids, compressed natural gas, and electric vehicles.	Although this policy is intended for City of Fremont operations, the project will be consistent with the intent of this policy during reconductoring activities as it will implement construction equipment exhaust control measures in accordance with the mitigation measures recommended in the BAAQMD CEQA Guidelines, including the use of alternative fuels, where feasible.

Bay Area 2017 Clean Air Plan. The *2017 Bay Area 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 project, energy efficiency measures will be included in the design and operation of the onsite electrical and mechanical systems.

Plan Bay Area 2040/California SB 375. Under the requirements of SB 375, the MTC and ABAG developed an 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 only intended for projects associated with land use and transportation strategies. The project will generate 130 total daily vehicle trips, including vendors and employee trips. Due to the limited number of employees and visitors at the project site, the project will have less-than-significant traffic impacts during operation. Thus, the project will 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. This requirement applies to PG&E, which will be the project's primary source of electricity supply.

AB 32 Scoping Plan. The vast majority of the project's GHG emissions will 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, will account for GHG emissions from the project and require emissions from covered sectors to be reduced by the amounts needed to achieve AB 32's 2030 goal. Additionally, reconductoring activities will increase the capacity of PG&E's transmission line, thereby increasing electricity reliability in the region. Although the project will not be linked directly to a renewable energy project, improving the region's electricity infrastructure will have a co-benefit of supporting existing or future renewable electric generation (such as wind, solar, hydroelectric, and thermal), which may help reduce regional GHG emissions consistent with the goals of AB 32.

Conclusion. With implementation of the project's efficiency measures in accordance with all applicable laws and regulations, GHG emissions related to the project, including emissions associated with demolition, construction, reconductoring activities, operations, and maintenance, will be less than significant. The project will not conflict with the *City of San José 2030 GHG Reduction Strategy* or other plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. Stationary source emissions will also be less than BAAQMD's threshold of 10,000 metric tons of CO_2e per year.

Previously Identified Mitigation Measures: None.

New Proposed Mitigation Measures: None

3.8.4 References

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