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Air Quality and Greenhouse Gas Technical Report
Soda Mountain Solar Project
San Bernardino County, California

JULY 2025

PREPARED FOR

Soda Mountain Solar, LLC

PREPARED BY

SWCA Environmental Consultants

AIR QUALITY AND GREENHOUSE GAS TECHNICAL REPORT SODA MOUNTAIN SOLAR PROJECT SAN BERNARDINO COUNTY, CALIFORNIA

Prepared for

Soda Mountain Solar, LLC
604 Sutter Street, Suite 250
Folsom, California 95630

Prepared by

Brad Sohm, Principal Air Quality Team Lead
Erin Wielenga, Air Quality Specialist

SWCA Environmental Consultants
320 North Halstead Street, Suite 120
Pasadena, California 91107
(626) 240-0587
www.swca.com

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ACRONYMS AND ABBREVIATIONS

$\mu g/m^3$	micrograms per cubic meter
AB	Assembly Bill
AC	alternating current
APCO	Air Pollution Control Officer
APM	applicant-proposed measure
AQMP	Air Quality Management Plan
AVERT	AVoided Emissions and geneRation Tool
BESS	battery energy storage system
BLM	Bureau of Land Management
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emission Estimator Model
CalEPA	California Environmental Protection Agency
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	California Action Team
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
DC	direct current
DCP	Dust Control Plan
DPM	diesel particulate matter
EO	Executive Order
EPA	U.S. Environmental Protection Agency
GHG	greenhouse gas
GHG Plan	San Bernardino County Greenhouse Gas Reduction Plan
GWP	global warming potential
H_2S	hydrogen sulfide
HFC	hydrofluorocarbon

HVAC	heating, ventilation, and air conditioning
I-15	Interstate 15
IPCC	Intergovernmental Panel on Climate Change
kV	kilovolt
LADWP	Los Angeles Department of Water and Power
LCFS	Low Carbon Fuel Standard
MDAB	Mojave Desert Air Basin
MDAQMD	Mojave Desert Air Quality Management District
MMT	million metric tons
MT	metric ton
MW	megawatt
MWh	megawatt-hour
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
O_3	ozone
OEHHA	California Office of Environmental Health Hazard Assessment
OPR	Governor's Office of Planning and Research
PFC	perfluorocarbon
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
PM_{10}	particulate matter less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
project	Soda Mountain Solar Project
PV	photovoltaic
RPS	Renewable Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCOTUS	Supreme Court of the United States
SCS	Sustainable Communities Strategy
SF_6	sulfur hexafluoride
SIP	State Implementation Plan

SO_2	sulfur dioxide
SO_x	sulfur oxides
SWCA	SWCA Environmental Consultants
TAC	toxic air contaminant
TRU	transport refrigeration unit
TSCA	Toxic Substances Control Act
VOC	volatile organic compound
ZEV	Zero Emission Vehicle

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EXECUTIVE SUMMARY

This report analyzes potential air quality and climate change impacts related to the Soda Mountain Solar Project. All analyses have been conducted to comply with Mojave Desert Air Quality Management District (MDAQMD) requirements for air quality and climate change assessments and satisfy the requirements of the California Environmental Quality Act (CEQA). The findings are as follows:

- The project's unmitigated emissions during construction and operations would not exceed MDAQMD annual or daily significance emissions thresholds.
- The project includes an applicant committed measures (APM1-9) to further reduce emissions and comply with MDAQMD rules.
- The project would not result in significant elevated health risks at sensitive receptors due to proximity to nearby pollution sources.
- The project's carbon monoxide (CO) emissions during long-term project operations would not create any new or exacerbate any existing CO hot spots.
- The project would be consistent with rules, regulations, emission control strategies and air quality plans set forth by MDAQMD.
- The project would be consistent with the AB 32 scoping plan strategies, CARB's emission reduction strategy presented in the Scoping Plans, and the San Bernardino County Policy Plan and GHG Plan.
- The project implementation would help California meet its RPS requirements.
- The project would not result in a cumulatively considerable air quality or greenhouse gas impact.

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1 INTRODUCTION

SWCA Environmental Consultants (SWCA) prepared this air quality and greenhouse gas (GHG) emissions technical report in support of the proposed Soda Mountain Solar Project (project). The project would be developed by Soda Mountain Solar, LLC (applicant). The project site is located in unincorporated San Bernardino County, California, approximately 50 miles northeast of Barstow (Figure 1).

The purpose of this report is to explain the methodologies used to evaluate the effects of the proposed construction, operation, maintenance, and decommissioning of a utility-scale solar photovoltaic (PV) electrical generating and storage facility and associated infrastructure project on ambient air quality and GHG emissions. This air quality technical report provides a summary of the air pollutant and GHG emissions calculation methodologies, a summary of the mitigation measures assumed, and the results of the air pollutant and GHG emissions calculations.

The project site is located within the Mojave Desert Air Basin (MDAB), under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). The evaluation of project impacts was conducted as recommended by the MDAQMD California Environmental Quality Act (CEQA) guidance dated February 2020 (MDAQMD 2020), which is incorporated into this technical document by reference.

2 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The project is located entirely on federally owned land managed by the BLM. The 2,670-acre project site is located approximately 7 miles southwest of the community of Baker in unincorporated San Bernardino County, California (Figures 2-3 and 2-4), approximately 50 miles northeast of Barstow. The project site is located in portions of Sections 1 and 11–14, Township 12 North, Range 7 East; Sections 25, Township 13 North, Range 7 East; Sections 6, 7, and 18, Township 12 North, Range 8 East; Sections 17 – 21, 29-32, Township 13 North, Range 8 East,, San Bernardino Meridian, California.

The project would occupy the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert. The project site is composed of rural desert land and is almost entirely undeveloped.

The project is bounded directly to the east by the Mojave National Preserve (administered by the National Park Service) and BLM-managed land, including the Rasor Off-Highway Vehicle (OHV) recreation area at the southeast corner. Rasor Road, an unimproved BLM public access road, runs from the southwest corner of the site and splits into two forks. I-15, the former Arrowhead Trail Highway, runs along the western boundary of the project site, with Rasor Road Services Shell Oil gas station located off I-15 southwest of the project site, along the access road to the project site.

The project is not situated close to any non-residential sensitive receptors, such as schools, hospitals, daycare centers, or long-term care establishments. The nearest schools, Baker Elementary, Middle, and High Schools, are over 6.5 miles away, situated in the northeastern part of Baker. The closest residences to the project location can be found next to the Rasor Road service station, roughly 260 feet southwest of the proposed boundary. This area encompasses a stand-alone house and accommodation for four workers.

2.2 Project Description

The project proposes to construct, operate, maintain, and decommission a proposed 300-megawatt (MW) photovoltaic (PV) solar facility located on approximately 2,670 acres. The approximate disturbance acreage for the project would be 2,112 acres. As shown in Figure 2, the project components are as follows:

1. The solar plant site (i.e., all facilities that create a footprint in and around the field of solar panels, including the solar field consisting of solar power arrays identified as the East Array and South Arrays 1, 2, and 3), operation and maintenance (O&M) buildings and structures, stormwater infrastructure, and related infrastructure and improvements.
2. A substation and switchyard for interconnection to the existing transmission system.
3. Gen-tie line connecting project substation, switchyard, and 500-kV Mead-Adelanto line.
4. Approximately 300 MW/1,200 MWh of battery energy storage system (BESS) across 18 acres.

The project would operate 24 hours per day year-round and would generate electricity during daylight hours when the sun is shining. The project would generate up to 300 MW of renewable energy and include up to 300 MW of battery storage. The project would generate and deliver solar-generated power to the regional electrical grid through an interconnection with the existing Mead-Adelanto 500- kilovolt (kV) transmission line operated by Los Angeles Department of Water and Power (LADWP).

2.2.1 Solar Panel Arrays and Support Structures

Solar cells, also called photovoltaic (PV) cells, convert sunlight directly into electricity (voltage), which is called the “PV effect.” PV cells are located on panels; rows of solar panels form an array. The PV modules are uniformly dark in color, non-reflective, and designed to be highly absorptive of all light that strikes their glass surfaces. Arrays controlled by a single motor create a system called a single-axis solar tracker, which rotates throughout the day to increase total solar exposure. For the project, hundreds of solar trackers would be interconnected to form a utility-scale PV system.

The single-axis solar tracker would be mounted on structures supported by steel piles (e.g., cylindrical pipes, H-beams, or similar), which would be driven into the soil using pile/vibratory/rotary driving technique. Driven pier foundations are a “concrete-free” foundation solution that would result in minimal site disturbance and facilitate site reclamation during decommissioning. Most pier foundations would be driven to approximate depths of 6 to 12 feet deep depending upon the required embedment depth. The piles would be spaced 10 to 15 feet apart. The support structure would be elevated at least 1 foot above the base flood elevation and approximately 6 to 12 feet tall, depending on site topography.

Solar panels would be electrically connected using string wiring secured to the panel support system. String wiring terminates at PV array combiner boxes or load break disconnect boxes, which are lockable electrical boxes mounted on or near an array’s support structure. Output wires from combiner boxes would be routed along an underground trench system approximately 3 to 6 feet deep and 1 to 6 feet wide, including trench and disturbed area, to the central inverter pads. Inverters are a key component of solar PV power-generating facilities because they convert the solar panel's direct current (DC) power into AC power and step up the voltage for use with the transmission network. The output voltage of the inverters would be stepped up from 600 to 1,200V DC to 34.5kV AC power and transmitted by underground collection lines to the project substation..

2.2.2 Substation and Switchyard

The 140,000-square-foot high-voltage substation would be located adjacent to Area 1 and Area 2 on a raised gravel pad and would have a maximum height of 35 feet (see Figure 2). The substation would include the main Generation Step Up (GSU) transformer, high-voltage circuit breakers, switches, meters, instrumentation transformers, relay equipment, a control enclosure, and related equipment. The substation equipment would be mounted on concrete foundations and steel structures (hot dip galvanized or weathering steel).

All the underground 34.5-kV collection lines would be combined at the substation, and the voltage would be stepped up to 500 kV via the GSU transformer. All interconnection equipment, including the control room, would be installed aboveground on concrete foundations and steel structures within the substation footprint.

Power to the project substation control enclosure would be provided primarily by a station service transformer (roughly 50 kilovolt amps [kVA]) located within the substation yard. The control enclosure would be equipped with a backup battery and an energy management system capable of powering the control enclosure for 48 hours in the event of an outage. In the event of a prolonged outage, a secondary power source will be provided via an underground connection to Kramer 115-kV sub-transmission line owned by SCE, which runs parallel to I-15.

The switchyard would be set on an approximately 234,300-square-foot raised gravel pad and would have a maximum height of 100 feet. The switchyard would be located 0.8-mile northwest of I-15, adjacent to the LADWP Mead-Adelanto 500-kV transmission line ROW. The switchyard would include the High Voltage Bus Structure, high-voltage circuit breakers, switches, instrumentation transformers, relay equipment, a control enclosure, and related equipment. Like the substation, the switchyard equipment would be mounted on concrete foundations and steel structures (hot dip galvanized or weathering steel).

Power to the switching station control enclosure would be provided primarily by a station service transformer (roughly 50 kVA) located within the substation yard. The control enclosure would be equipped with a backup battery and an energy management system capable of powering the control enclosure for 48 hours in the event of an outage. In the event of a prolonged outage, a secondary power source will be provided via an underground connection to Kramer 115-kV sub-transmission line owned by SCE, which runs parallel to I-15.

2.2.3 Gen-tie Line

The approximately 1-mile 500-kV gen-tie line would be designed in accordance with LADWP design standards including required right-of-way (ROW) width. The gen-tie would also use eleven tubular steel pole support structures and six lattice towers, all of which would be approximately 160 feet high. A small segment of the gen-tie line, approximately 450 feet, would go under I-15 near an existing Caltrans culvert. On either end of this underground section there would be riser towers and transition to overhead tower structures. Both the underground section of the gen-tie line and the riser towers would be designed in accordance with General Order 128.

2.2.4 Battery Energy Storage System

A BESS absorbs, holds, and then reinjects electricity into the electrical grid. The project is anticipated to include up to 300 MW/1,200 MWh of BESS for dispatch into the local electrical grid via the same point of interconnection as the solar arrays. The BESS would be located adjacent to the substation and Area 1. Up to 18 acres may be utilized for the BESS throughout the project site at full buildout.

The BESS containers would house the batteries described above, as well as the BESS unit controllers. There would also be a site controller, located in a pad mount enclosure within the BESS yard. The BESS site controller is a multilevel control system for the battery modules, power conversion system, medium-voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the BESS effectively mimics conventional turbine generators when responding to grid emergency conditions. The BESS enclosure would also house required heating, ventilation, and air conditioning (HVAC) and fire protection systems. The battery storage containers would be built using standard International Organization for Standardization (ISO) shipping containers, and each would measure approximately 20 feet in length, 6 feet in width, and 8 feet in height, although other smaller form-factor structures exist that may be used. The containers would be painted Sudan Brown.

The safety system would include a fire detection, alarm, and suppression control system that would be triggered automatically when the system senses imminent fire danger. A fire suppression control system would be provided within each on-site battery enclosure. The safety system would use either a waterless evaporating fluid, a sustainable clean agent (not a hydrofluorocarbon clean agent), or an alternative suppression agent, such as an inert gas. The control system would also notify the project operators and could be configured to notify local first responders as well.

The battery energy storage system (BESS) units are fully certified to the most rigorous international safety standards including UL 9540A - Standard Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems. The BESS that will be utilized for this project is the Tesla MegaPack 2XL and a copy of the UL 9540A report, including measured emissions of criteria air pollutants, toxic air contaminants, greenhouse gases (GHG), and hazardous materials, is provided in Attachment A of Appendix C (confidential).

2.2.5 Operations and Maintenance

The following permanent buildings would be constructed as part of the project:

1. Operation and maintenance building (approximate dimensions: 5,000 square feet, 30 feet high)
2. Maintenance facility (approximate dimensions: 2,400 square feet, 35 feet high)
3. Warehouse facility (approximate dimensions: 5,000 square feet, 35 feet high)
4. Substation (approximate dimensions: 140,000 square feet)

The operation and maintenance building, maintenance facility, and warehouse facility would all be located at the southwest corner of the site. The operation and maintenance building may consist of offices, a restroom, and a storage area and would include an HVAC system. Parking areas would be located adjacent to the buildings described above, in the southwest corner of the site. The parking areas are not expected to exceed approximately 0.33 acre, or 13,200 square feet. Parking would be provided for the anticipated regular employees during project operation, for visitors, and for other equipment anticipated to be on-site at any time.

Primary operational access to the project site would be provided via a gated entrance off Rasor Road, which can be accessed approximately 250 feet south from the I-15 northbound off-ramp. The project would maintain and improve the existing Rasor Road that runs from I-15 eastward to the Rasor OHV recreation area. Northwest of I-15, the project would construct an access road up to 26 feet wide underneath the gen-tie line to access the gen-tie line and switchyard. All project components would be surrounded by warning signage, perimeter security fencing, desert tortoise exclusionary fencing, and perimeter security cameras.

Lighting would be provided at the Rasor Road site entrance, operation and maintenance building, substation, and switchyard. Exterior security lighting would be installed to provide safe access to project facilities as well as visual surveillance. Some portable lighting also could be required for essential nighttime maintenance activities. All lighting would be kept to the minimum required for safety and security; sensors, motion detectors, and switches would be used to keep lighting turned off when not required. All lights would be downward, shielded, and directed so as to minimize light exposure.

Operational needs at the site include monitoring and optimizing the power generated by the solar arrays and interconnection with the transmission lines, operating the Supervisory Control and Data Acquisition (SCADA) system, troubleshooting the collector lines and repairing damaged cables, replacing PV panels, and conducting panel-washing activities periodically through the year. Additional maintenance would be required to maintain the administrative buildings, fencing and signage, roadways, and other ancillary facilities at the site. The project substation would be uncrewed during operation; however, a workforce of approximately 2 to 4 personnel would visit the substation as needed for maintenance, equipment operation, and/or security.

Project operation would require water for dust control, panel washing, and fire protection. Water used for construction would be supplied by a private groundwater well in Baker, San Bernardino County. This water would be trucked in from these wells and installed in three permanent water storage tanks to support project operations. Approximately three 10,000-gallon water tanks would be installed on a high point near the operation and maintenance building to provide storage of panel-washing water. Water would be used to clean the PV panels; dust and dirt buildup reduces the amount of incoming solar radiation striking the active PV layer within the panel. To reduce this effect, panel washing with water stored in the three 10,000-gallon water tanks would be conducted three times per year over a 3-week period during operations, or additionally as necessitated. The water would drain by gravity to panel-washing trucks for use. The project estimates that each panel washing, including additional miscellaneous operational water needs, would require approximately 2.8 acre-feet (912,384 gallons) of water per year. In total, an estimated 5.6 acre-feet per year of water would be used for panel washing, dust control and suppression during operation.

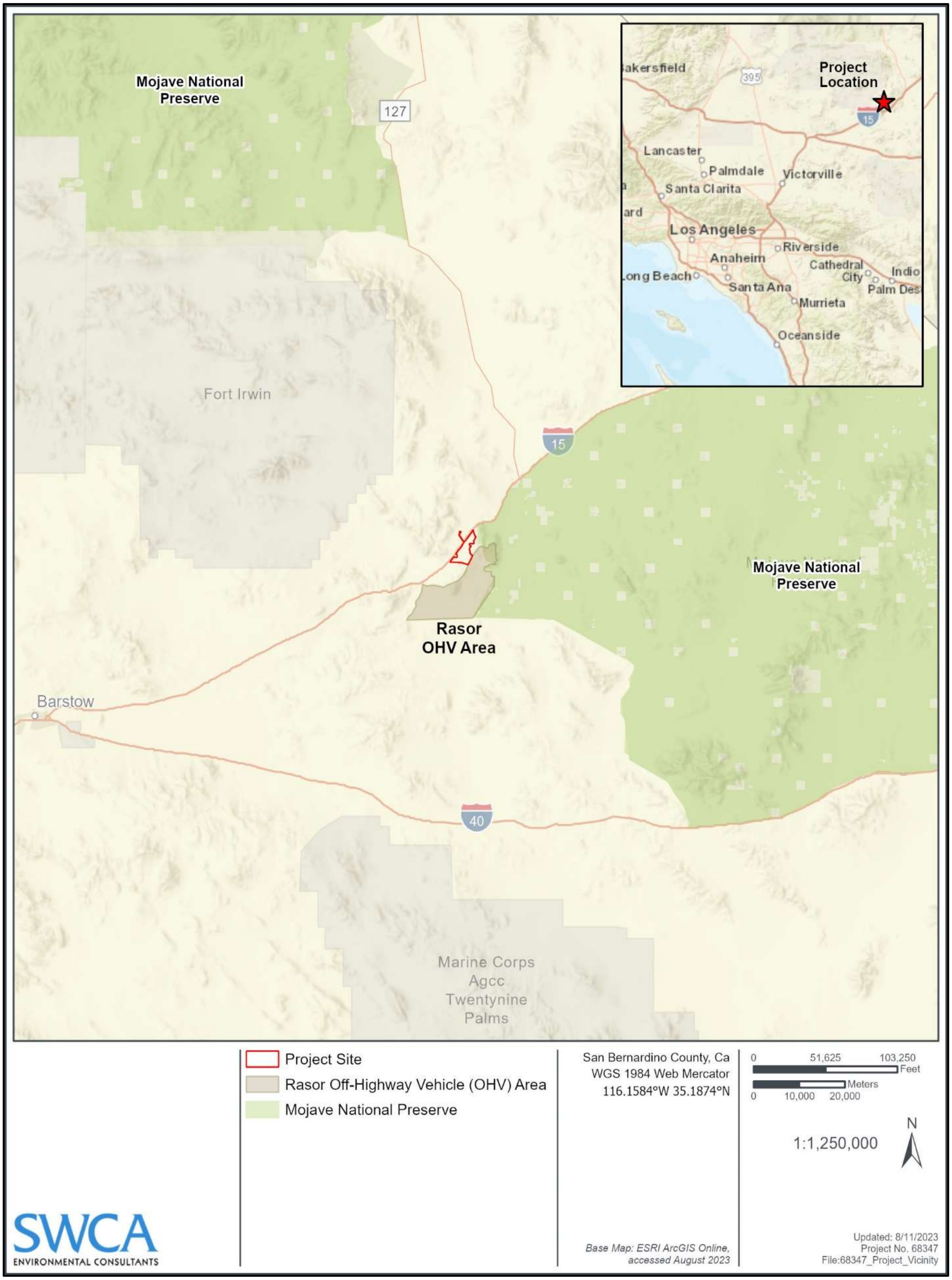

Figure 1. Project site vicinity.

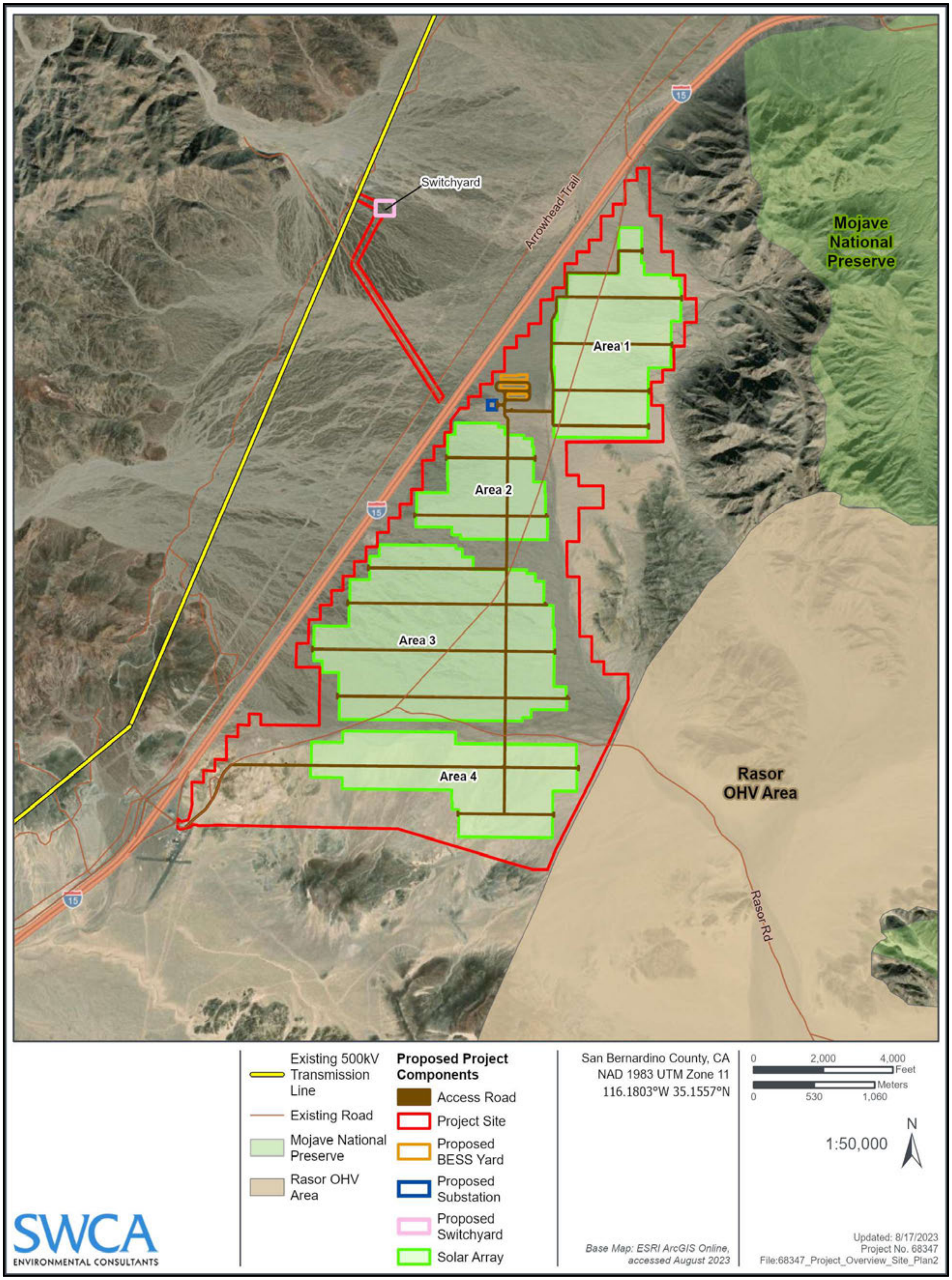

Figure 2. Site plan.

2.3 Construction Time Frame and Phasing

Construction of the project, from mobilization to the site to final completion, is expected to occur over an approximately 18-month period, assumed to occur from March 2026 until the end of August 2027.[1] The project would be constructed in four stages: 1) site preparation and grading (including mobilization, site preparation, grading, fencing, preparation of roads and laydown areas, and installation of measures in the Stormwater Pollution Prevention Plan (SWPPP) as well as erosion control features); 2) structural construction (including the installation of solar array structural components including piles, racking systems, and foundations); 3) solar array installation (including installation of solar and BESS inverters, solar panels, battery storage systems, and ancillary equipment, and would also include trenching activities to install cables and other electrical equipment); and 4) inspections, testing, and commissioning. Stage 1 would be from months 1 to 8, Stage 2 would be from months 4 to 12, Stage 3 would occur during months 10 to 16, and Stage 4 would occur during months 15 to 18. The typical construction work schedule is expected to be from 6:00 a.m. to 6:00 p.m., Monday through Friday.

All construction activities, including construction staging of equipment, would be situated entirely within the project site, and access to the site will be from a north-bound exit off I-15 via a gated entrance off Rasor Road. Typical construction equipment would be used during all phases of project construction; would be stored within the staging area; and would potentially include air compressors, backhoes, cranes, a drill rig, loaders, trenchers, and water trucks. Grading of up to 2,112 acres and other types of ground treatment would be conducted outside of existing major drainage channels and would not involve substantial changes to site topography. Once construction is complete, the topography beneath the solar panels would generally be the same as the baseline condition except in areas where soil has been compacted or rocks and isolated surface undulations have been removed by grading. Native vegetation would be allowed to reestablish naturally and would be trimmed during operation as necessary. Grubbing and grading would be required across a majority of the site to level rough or undulating areas of the site and to prepare soils for concrete foundations for substation equipment, inverters, BESS, and the operation and maintenance buildings. Grubbing would involve the removal of vegetation from the construction site, while grading would include earthwork to achieve a certain base or slope. There would be approximately 630,000 cubic yards of cut and 180,100 cubic yards of fill, thus requiring approximately 449,900 cubic yards of export. Construction would generate solid waste. All waste generated during construction would be stored in wind-proof and wildlife-proof containers that periodically would be transported to an off-site disposal facility authorized to accept the waste.

Construction of the solar arrays would begin with the installation of array support posts. Once the support structures are in place, solar panels would be attached to the support frame. The assembled groups of solar panels would be wired together into strings through connectors on the back of the modules. Assembled panel sections then would be connected to combiner boxes located throughout the arrays that would deliver power to the inverter. Output wires from combiner boxes would be routed along an underground trench system, approximately 3 to 4 feet deep and 1 to 3 feet wide, to the inverters and transformer pads. Inverters would be mounted on concrete pads or driven piles. Inverters and transformers would be brought in by tractor-trailers through the Rasor Road site entrance and delivered directly to the mounting pad sites. Construction of the project substation, switchyard, and interconnection to the Mead-Adelanto 500-kV transmission line would occur concurrently with the construction of the solar arrays.

[1] The analysis assumes a construction start date of March 2025, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the conservative-case scenario for criteria air pollutant emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Buried electrical lines for DC array wiring and AC wiring between inverters and transformers would then be installed using trenching machines.

As described in Section 7 below, the applicant would develop a Dust Control Plan (DCP) that describes all applicable dust control measures to address construction-related dust (MDAQMD 2020). Dust control measures would include watering roads twice per day and enforcing a maximum speed limit of 15 miles per hour on unpaved roads. Water would be needed primarily for dust control and soil compaction during the first 90 days of grading activities, with small amounts used for sanitary and other purposes. During Stage 1 and Stage 2 of construction, which includes the 90-day grading period, the project would require approximately 200,000 gpd, or approximately 336 acre-feet per year. Water requirements in the second year of construction are expected to be less than 110 acre-feet per year, or half of the requirement of the first year of construction. Five temporary water tanks of 100,000 gallons each would be brought on-site by truck to store water in anticipation of construction water needs. The tanks would be housed on trailers located along access roads or within areas that have been cleared for installation of project components. The tanks may be moved around the site as construction progresses and would be used to fill on-site water trucks. Water used for construction would be supplied by a private groundwater well in Baker, San Bernardino County. The water storage tanks would be removed after construction. According to the project's transportation analysis, there would be a maximum of 600 one-way worker trips and 234 one-way haul truck trips (200 heavy duty and 34 water trucks) per day for project construction (Appendix A).

3 ENVIRONMENTAL SETTING

The project is located in unincorporated San Bernardino County within the MDAB, which encompasses a 21,000-square-mile area that includes the majority of San Bernardino County, the eastern portion of Kern County, the eastern portion of Riverside County, and the northeastern portion of Los Angeles County. The MDAB is composed of four California air districts: MDAQMD, the Antelope Valley Air Quality Management District, the Eastern Kern Air Pollution Control District, and the eastern portion of the South Coast Air Quality Management District (SCAQMD). MDAQMD has jurisdiction within the San Bernardino County portion of MDAB. The ambient concentrations of air pollutants are determined by the amount of emissions released by the sources of air pollutants and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the emissions released by existing air pollutant sources.

3.1 Overview of Air Pollution and Potential Health Effects

3.1.1 Criteria Air Pollutants

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants in order to protect public health and welfare. These pollutants are referred to as "criteria air pollutants," and the national and state standards have been set at levels considered safe to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly, with a margin of safety; and to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Certain air pollutants have been recognized to cause notable health problems and consequential damage to the environment, either directly or in reaction with other pollutants due to their presence in elevated concentrations in the atmosphere. Such pollutants have been identified and regulated as part of the overall endeavor to prevent further deterioration and facilitate improvement in the air quality with the MDAB. The criteria air pollutants for which national and state standards have been promulgated and which are most relevant to current air quality planning and regulation in the MDAB and MDAQMD include carbon monoxide (CO), ozone (O_3), particulate matter, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, sulfates, and hydrogen sulfide (H_2S). These pollutants, as well as volatile organic compounds (VOCs) and toxic air contaminants (TACs), are discussed in the following paragraphs. The national and state criteria pollutants and the applicable ambient air quality standards are listed in Table 1.

3.1.1.1 OZONE

O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric ozone) and at the Earth's surface in the troposphere (ozone). The O_3 regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good" O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2022a). These health problems are particularly acute in sensitive receptors such as the sick, the elderly, and young children.

3.1.1.2 NITROGEN DIOXIDE

NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (N_2O), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2022a).

3.1.1.3 CARBON MONOXIDE

CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions (EPA 2022a).

3.1.1.4 SULFUR DIOXIDE

SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

SO_2 is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished ventilator function in children. When combined with particulate matter, SO_2 can injure lung tissue and reduce visibility and the level of sunlight. SO_2 can also yellow plant leaves and erode iron and steel (EPA 2022a).

3.1.1.5 PARTICULATE MATTER

Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. Particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) and particulate matter less than 10 microns in diameter (PM_{10}) represent fractions of particulate matter. Coarse particulate matter (PM_{10}) is 10 microns or less in diameter and is about $^1/_7$ the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush and waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) is 2.5 microns or less in diameter and is roughly $^1/_{28}$ the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience a decline in lung function due to breathing in $PM_{2.5}$ and PM_{10} (EPA 2022a).

3.1.1.6 LEAD

Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead (EPA 2022a).

3.1.1.7 OTHERS

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. H_2S is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of H_2S include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to H_2S can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

3.1.2 Volatile Organic Compounds

VOCs are typically formed from combustion of fuels and/or released through evaporation of organic liquids. Some VOCs are also classified by the state of California as TACs. Although there are no specific VOC ambient air quality standards, VOC is a prime component (along with NO_x) of the photochemical processes by which such criteria pollutants as O_3, NO_2, and certain fine particles are formed. They are, thus, regulated as "precursors" to the formation of those criteria pollutants.

3.1.3 Toxic Air Contaminants

TACs refer to a diverse group of "non-criteria" air pollutants that can affect human health but have not had ambient air quality standards established for them. This is not because they are fundamentally different from the pollutants discussed above but because their effects tend to be local rather than regional. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in

1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the state legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hot spots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

The federal TACs are air pollutants that may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health, although there are no ambient standards established for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or other acute (short-term) or chronic (long-term) health problems. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk free. Individual TACs vary greatly in the risks they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health effects, a similar factor, called a Hazard Index, is used to evaluate risk. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment (OEHHA). Examples of TAC sources include industrial processes, dry cleaners, gasoline stations, paint and solvent operations, and fossil fuel combustion sources. The TAC that is relevant to the implementation of the project is diesel particulate matter (DPM).

DPM was identified as a TAC by CARB in August 1998 (CARB 1998). DPM is emitted from both mobile and stationary sources. In California, on-road, diesel-fueled vehicles contribute approximately 40% of the statewide total, with an additional 57% attributed to other mobile sources such as construction and mining equipment, agricultural equipment, and transport refrigeration units (TRUs). Stationary sources, contributing about 3% of emissions, include shipyards, warehouses, heavy-equipment repair yards, and oil and gas production operations. Emissions from these sources are from diesel-fueled internal combustion engines. Stationary sources that report DPM emissions also include heavy construction, manufacturers of asphalt paving materials and blocks, and diesel-fueled electrical generation facilities.

Exposure to DPM can have immediate health effects. DPM can have a range of health effects including irritation of eyes, throat, and lungs, causing headaches, lightheadedness, and nausea. Exposure to DPM also causes inflammation in the lungs, which may aggravate chronic respiratory symptoms and increase the frequency or intensity of asthma attacks. Children, the elderly, and people with emphysema, asthma, and chronic heart and lung disease are especially sensitive to fine-particle pollution. In California, DPM has been identified as a carcinogen.

CARB has adopted and implemented a number of regulations to reduce emissions of DPM from stationary and mobile sources. Several of these regulatory programs affect medium- and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. These regulations include the solid waste collection vehicle rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and NO_x from existing on-road, heavy-duty, diesel-fueled vehicles, including those used at construction sites. The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. Therefore, as of January 1, 2023, all trucks and buses are 2010 or newer model year engines.

Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos-containing rocks found in California are ultramafic rocks, including serpentine rocks. Asbestos has been designated a TAC by CARB and is a known carcinogen. When this material is disturbed in connection with construction, grading, quarrying, or surface mining operations, asbestos containing dust can be generated. Exposure to asbestos can result in adverse health effects such as lung cancer, mesothelioma (cancer of the linings of the lungs and abdomen), and asbestosis (scarring of lung tissues that results in constricted breathing) (Van Gosen and Clinkenbeard 2011).

Naturally occurring asbestos is prevalent in at least 44 of California's 58 counties. Asbestos is the name for a group of naturally occurring silicate minerals. Asbestos may be found in serpentine, other ultramafic, and volcanic rock. When rock containing naturally occurring asbestos is broken or crushed, asbestos may become released and become airborne, causing a potential health hazard. To reduce exposure to asbestos when these soils are disturbed, CARB adopted the Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations. This statewide regulation is applicable to grading or any other projects disturbing soil in areas of California where asbestos may exist, as determined by the California Geological Survey. The Airborne Toxic Control Measure applies to any size construction project, although there are additional notification requirements for projects that exceed 1 acre. The project is not located in a geologic setting with a potential for asbestos to occur; therefore, asbestos will not be an issue for this project (CARB 2000a).

Table 1. State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	National Standards	
			Primary	Secondary
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	–	Same as Primary
	8 hour	0.070 ppm (137 µg/m³)	0.070 ppm (137µg/m³)	
Respirable particulate matter (PM_{10})	24 hour	50 µg/m³	150 µg/m³	Same as Primary
	Annual mean	20 µg/m³	–	
Fine particulatematter ($PM_{2.5}$)	24 hour	–	35 µg/m³	Same as Primary
	Annual mean	12 µg/m³	9.0 µg/m³	15 µg/m³
Carbon monoxide (CO)	1 hour	20 ppm (23 µg/m³)	35 ppm (40 mg/m³)	–
	8 hour	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	–
Nitrogen dioxide(NO_2)	1 hour	0.18 ppm (339 µg/m³)	100 ppb (188 µg/m³)	–
	Annual mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	Same as Primary
Sulfur dioxide (SO_2)	1 hour	0.25 ppm (655 µg/m³)	75 ppb (196 µg/m³)	–
	3 hour	–	–	0.5 ppm (1,300 µg/m³)
	24 hour	0.04 ppm (105 µg/m³)	0.14 ppm	–
	Annual mean	–	0.030 ppm	–
Lead	30-day average	1.5 µg/m³	–	–
	Calendarquarter	–	1.5 µg/m³	Same as Primary
	Rolling 3-month average	–	0.15 µg/m³	Same as Primary
Visibility-reducing particles	8 hour	10-mile visibility standard, extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m³		
Hydrogen sulfide (H_2S)	1 hour	0.03 ppm (42 µg/m³)		

Vinyl chloride	24 hour	0.01 ppm (265 µg/m³)

Source: CARB (2016).
Notes: ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; – = no standard.
National annual PM2.5 primary standard is currently being proposed to be reduced to 9–10 µg/m3.

3.1.4 Odors

A qualitative assessment should be made as to whether a project has the potential to generate odorous emissions of a type or quantity that could meet the statutory definition for nuisance, i.e., odors "which cause detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a natural tendency to cause, injury or damage to business or property" (Health and Safety Code 41700). Although offensive odors usually do not cause any physical harm, they can be unpleasant enough to lead to considerable distress among the public and generate citizen complaints to local governments and MDAQMD. MDAQMD's Rule 402 (Nuisance) also prohibits any person or source from emitting air contaminants that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

3.2 Existing Air Quality Conditions at the Project Site

3.2.1 Regional Air Quality

CARB divides the state into air basins that share similar meteorological and topographical features. The MDAB includes the desert portion of San Bernardino County and the eastern portion of Riverside County. The MDAB is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds in the MDAB are out of the west and southwest. These prevailing winds are due to the proximity of the MDAB to coastal and central regions and the blocking nature of the Sierra Nevada to the north; air masses pushed onshore in Southern California by differential heating are channeled through the MDAB. The MDAB is separated from the Southern California Coastal and Central California valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevadas in the north by the Tehachapi Pass (3,800 feet in elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet).

The Mojave Desert is bordered in the southwest by the San Bernardino Mountains, separated from the San Gabriel Mountains by the Cajon Pass (4,200 feet). A lesser channel lies between the San Bernardino Mountains and the Little San Bernardino Mountains (the Morongo Valley).

The Palo Verde Valley portion of the Mojave Desert lies in the low desert, at the eastern end of a series of valleys (notably the Coachella Valley) whose primary channel is the San Gorgonio Pass (2,300 feet) between the San Bernardino and San Jacinto Mountains.

During the summer, the MDAB is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The MDAB is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse prior to reaching the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. The MDAB averages between 3 and 7 inches of precipitation per year (from 16 to 30 days with at least 0.01 inch of precipitation). The MDAB is classified as a dry-hot desert climate (BWh), with portions classified as dry-very hot desert (BWhh), to indicate at least 3 months have maximum average temperatures over 100.4° F.

The MDAB experiences changes with the seasons including in the winter freezing temperatures, strong winds and precipitation in the form of snow primarily above 5,000 feet in elevation, and rain below 5,000 feet. Most precipitation occurs between November and April. During summer, brief, high-intensity thunderstorms may occur suddenly and can cause high winds and localized flash flooding.

The local meteorology of the project site and surrounding area is represented by measurements recorded at the National Climatic Data Center (NCDC) Baker Station meteorological station. The normal annual precipitation is approximately 4.48 inches. December temperatures range from a normal minimum of 34.2°F to a normal maximum of 47.6°F. July temperatures range from a normal minimum of 78.2°F to a normal maximum of 109.2°F (NCDC 2023). The prevailing wind direction is from the west-southwest (Western Regional Climate Center 2002).

3.2.2 Regional Attainment Status

Depending on whether the applicable ambient air quality standards are met or exceeded, MDAQMD is classified on a federal and state level as being in "attainment" or "nonattainment." EPA and CARB determine the air quality attainment status of designated areas by comparing ambient air quality measurements from state and local ambient air monitoring stations with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). These designations are determined on a pollutant-by-pollutant basis. Consistent with federal requirements, an unclassifiable or unclassified designation is treated as an attainment designation. The project region is designated as a nonattainment area for the federal and state O_3, nonattainment for federal and state PM_{10}, and nonattainment for state $PM_{2.5}$ standards. Therefore, as shown in Table 2, the region is considered an "attainment/unclassified" area for all other pollutants (EPA 2023a). Thus, the General Conformity Rule, which is designed to protect ambient air quality within nonattainment and maintenance areas against further degradation applies and the de minimis thresholds are outlined in 40 CFR 93.153(b)(1).

Table 2. Federal and State Ambient Air Quality Attainment Status

Pollutant	Federal	State
O_3	Nonattainment	Nonattainment
NO_2	Unclassified/Attainment	Attainment
CO	Attainment	Attainment
SO_2	Unclassified/Attainment	Attainment
PM_{10}	Nonattainment	Nonattainment
$PM_{2.5}$	Unclassified/Attainment	Nonattainment

Source: EPA 2023a

3.2.3 Local Air Quality

Air pollutant emissions are generated in the local vicinity by mobile sources primarily consisting of automobile traffic. Area-wide sources are the primary source of pollutants in the local vicinity.

3.2.3.1 EXISTING CRITERIA POLLUTANT LEVELS AT NEARBY MONITORING STATIONS

Existing levels of ambient air quality and historical trends and projections in the vicinity of the project site have been documented and measured at six air quality monitoring stations throughout the MDAQMD area. MDAQMD and CARB monitors and collects information 24 hours per day, 7 days per week on ambient levels of pollutants. The nearest stations with meteorological conditions representative of the project site are the Trona, California, Station (Trona - Athol/Telescope #2), the Barstow, California, Station, the Ridgecrest – Ward, California, Station, and the Fontana, California, Station which monitor O_3, NO_2, SO_2, CO, PM_{10}, and $PM_{2.5}$. Data from these monitoring stations are summarized in Table 3 and Table 4. The data show violations of the state PM_{10} standard and federal and state O_3. The high desert's proximity to South Coast Air Basin and the prevailing southwest winds that transport pollutants from more congested urban areas south of the Cajon Pass into the region causes concern over ground-level O_3 impacting ambient air. Violations of the federal O_3 standard occur several times each summer, as do violations of the state standard for particulate matter (PM_{10}), usually in the fall and winter.

Table 5 and Table 6 shows the data from the Ridgecrest – Ward monitoring station and the Fontana, California, Station, which is not considered as representative as the Trona and Barstow monitoring station as these have similar complexity of the terrain and surrounding land use. This air quality data collected by CARB include exceptional events, including wind and wildfires. The GHG inventory for California for years 2016 through 2020 is presented in Table 7. The national and state criteria pollutants and the applicable ambient air quality standards are listed above in Table 1.

Table 3. Summary of Ambient Air Quality Monitoring Summary – Trona Monitoring Station

Criteria Pollutant		Year		
		2021	2022	2023
O_3	Maximum 1-hour concentration (ppm)	0.094	0.099	0.075
	Days exceeding CAAQS (0.09 ppm)	0	1	0
	Maximum 8-hour concentration (ppm)	0.078	0.084	0.070
	Days exceeding NAAQS (0.07 ppm)	5	1	0
	Days exceeding CAAQS (0.07 ppm)	5	1	0
PM10	Maximum 24-hour concentration (µg/m^3)	184.1	357.6	97.3
	Days exceeding NAAQS (150 µg/m^3)	2	2	0
	Days exceeding CAAQS (50 µg/m^3)	*	*	*
NOx	Maximum 1-hour concentration (ppb)	43.6	41.1	43.0
	Days exceeding NAAQS (100 ppb)	0	0	0
	Days exceeding CAAQS (180 ppb)	0	0	0
	Maximum Annual concentration (ppb)	3	3	3
	Days exceeding NAAQS (53 ppb)	0	0	0
	Days exceeding CAAQS (30 ppb)	0	0	0

Source: CARB (2023a).

Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter.

*Insufficient data

Data for O_3, NO_2, and PM_{10} were obtained from the CARB Trona - Athol/Telescope #2 Monitoring Station.

Table 4. Summary of Ambient Air Quality Monitoring Summary – Barstow Monitoring Station

Criteria Pollutant		Year		
		2021	2022	2023
O_3	Maximum 1-hour concentration (ppm)	0.099	0.095	0.085
	Days exceeding CAAQS (0.09 ppm)	2	1	0
	Maximum 8-hour concentration (ppm)	0.087	0.084	0.077
	Days exceeding NAAQS (0.07 ppm)	20	13	16
	Days exceeding CAAQS (0.07 ppm)	20	13	16
PM10	Maximum 24-hour concentration (µg/m^3)	372.7	225.1	318.7
	Days exceeding NAAQS (150 µg/m^3)	1	6	3
	Days exceeding CAAQS (50 µg/m^3)	*	*	*
NOx	Maximum 1-hour concentration (ppb)	62.4	59.8	60.3
	Days exceeding NAAQS (100 ppb)	0	0	0
	Days exceeding CAAQS (180 ppb)	0	0	0
	Maximum Annual concentration (ppb)	14	14	13
	Days exceeding NAAQS (53 ppb)	0	0	0
	Days exceeding CAAQS (30 ppb)	0	0	0

Source: CARB (2023a).
Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter.
*Insufficient data
Data for O_3, NO_2, and PM_{10} were obtained from the CARB Barstow Monitoring Station.

Table 5. Summary of Ambient Air Quality Monitoring Summary - Ridgecrest – Ward Monitoring Station

Criteria Pollutant		Year		
		2021	2022	2023
PM10	Maximum 24-hour concentration (µg/m^3)	285.6	416.8	176.5
	Days exceeding NAAQS (150 µg/m^3)	3	2	1
	Days exceeding CAAQS (50 µg/m^3)	25	11	4
PM2.5	Maximum 24-hour concentration (µg/m^3)	178.0	32.3	13.3
	Days exceeding NAAQS (35 µg/m^3)	12	0	0
	Maximum Annual concentration (µg/m^3)	8.3	4.0	4.5
	Days exceeding NAAQS (9 µg/m^3)	0	0	0

Source: CARB (2023a).
Notes: ppm = parts per million; µg/m^3 = micrograms per cubic meter.
Data for PM_{10} and $PM_{2.5}$ were obtained from the CARB Ridgecrest – Ward Monitoring Station.

Table 6. Summary of Ambient Air Quality Monitoring Summary - Fontana Monitoring Station

Criteria Pollutant		Year		
		2021	2022	2023
SO2	Maximum 1-hour concentration (ppb)	5.0	2.7	3.3
	Days exceeding NAAQS (75 ppb)	0	0	0
	Maximum 24-hour concentration (ppb)	0.24	0.46	0.22

Criteria Pollutant		Year		
		2021	2022	2023
	Days exceeding NAAQS (140 μg/m³)	0	0	0
CO	Maximum 1-hour concentration (ppm)	1.9	1.6	1.5
	Days exceeding NAAQS (35 ppm)	0	0	0
	Maximum 8-hour concentration ppm)	1.4	1.0	1.0
	Days exceeding NAAQS (9 ppm)	0	0	0

Source: CARB (2023a).

Notes: ppm = parts per million; μg/m³ = micrograms per cubic meter.

Data for SO_2 and CO were obtained from the CARB Fontana Monitoring Station.

Table 7. California Greenhouse Gas Inventory

Parameter	Unit*	Year				
		2018	2019	2020	2021	2022
Transportation	MMT CO_2e	164.8	161.7	135.2	145.1	139.9
	Percentage	40.2%	40.1%	36.7%	38.2%	37.7%
Electric power	MMT CO_2e	65.0	60.2	59.5	62.3	59.8
	Percentage	15.8%	14.9%	16.1%	16.4%	16.1%
Industrial	MMT CO_2e	82.3	80.9	73.6	74.2	72.7
	Percentage	20.0%	20.0%	20.0%	19.5%	19.6%
Commercial and residential	MMT CO_2e	37.5	40.6	39.0	38.8	39.5
	Percentage	9.1%	10.1%	10.6%	10.2%	10.6%
Agriculture	MMT CO_2e	32.0	31.2	31.4	30.4	29.8
	Percentage	7.8%	7.7%	8.5%	8.0%	8.0%
Recycling and Waste	MMT CO_2e	20.6	20.8	21.3	21.3	21.3
	Percentage	5.0%	5.1%	5.8%	5.6%	5.7%
High global warming potential (GWP)	MMT CO_2e	8.2	8.3	8.5	8.3	8.2
	Percentage	2.0%	2.0%	2.3%	2.2%	2.2%
Total Net Emissions	MMT CO_2e	**410.5**	**403.7**	**368.5**	**380.4**	**371.1**

Source: California GHG Inventory for 2000–2022 (CARB 2024).

* MMT CO2e = million metric tons carbon dioxide equivalent.

3.2.3.2 EXISTING HEALTH RISK IN THE PROJECT VICINITY

OEHHA, on behalf of the California Environmental Protection Agency (CalEPA), provides a screening tool called CalEnviroScreen that can be used to help identify California communities disproportionately burdened by multiple sources of pollution. The project is located in Census Tract 6071010300, which has 3,547 people. To determine the existing level of TACs in the area, the CalEnviroScreen indicator that represents modeled air concentration of chemical releases from large facility emissions in and nearby the census tract was identified. This indicator takes the air concentration and toxicity of the chemical to determine the toxic release score. The data are averaged over 2017 to 2019, and the toxic release indicator scores range from 0 to 96,985. The score for this census tract is 0.13, which means the toxic release percentile for this census tract is 3, or higher than 3% of the census tracts in California (OEHHA 2021).

The CalEnviroScreen for DPM was determined, as DPM is also a TAC. This indicator represents how much DPM is emitted into the air within and near the populated parts of the census tracts. The data from 2016 indicate that sources of DPM within and nearby the populated parts of this census tract emit 0.009 tons per year. The DPM percentile for this census tract is 4, meaning it is higher than 4% of the census tracts in California. Diesel emissions in California counties range between 0 and 15 tons per year. These indicators show that health risk in the project vicinity is low for DPM and toxic releases. Similarly, for O_3, the indicator is the mean of summer months (May–October) of the daily maximum 8-hour O_3 concentration (parts per million [ppm]). This measurement is used to represent short-term O_3 health impacts. The census tract has a summed concentration of 0.058 ppm. O_3 concentrations in California range between 0.03 and 0.07 ppm. Overall, according to CalEnviroScreen, the project is located in the 77th percentile for O_3, which means the project site has levels of O_3 that are higher than 77% of the census tracts in California (OEHHA 2021). Overall, according to CalEnviroScreen, the project is located in the 75th percentile, which means that the project site is higher than average in comparison to other communities within California (OEHHA 2021).

3.2.3.3 SENSITIVE USES

Some population groups, including children, elderly, and acutely and chronically ill persons (especially those with cardiorespiratory diseases), are considered more sensitive to air pollution than others. A sensitive receptor is a person in the population who is particularly susceptible to health effects due to exposure to an air contaminant. The following are land uses where sensitive receptors are typically located:

- Schools, playgrounds, and childcare centers
- Long-term health care facilities
- Rehabilitation centers
- Convalescent centers
- Hospitals
- Retirement homes
- Residences

The project site is composed of rural desert land and is almost entirely undeveloped. There is the nearby Mojave National Preserve (administered by the National Park Service) and BLM-managed lands, including the Rasor OHV recreation area at the southeast corner. I-15, the former Arrowhead Trail Highway, runs along the western boundary of the project site, with Rasor Road Services Shell Oil gas station located off I-15 southwest of the project site, along the access road to the project site. The nearest schools, Baker Elementary, Middle, and High Schools, are over 6.5 miles away, situated in the northeastern part of Baker. The closest residences to the project location can be found next to the Rasor Road service station, roughly 260 feet southwest of the proposed boundary. This area encompasses a stand-alone house and accommodation for four workers. There are no other sensitive receptors within 1,500 feet of the project site and actual construction occurs more than 3,500 feet from this stand-alone home. Implementation of the proposed project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. Short-term (18 months) construction activities could result in temporary increases in pollutant concentrations.

3.3 Greenhouse Gas Setting

Global climate change refers to the changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation, and storms. Global warming, a related concept, is the observed increase in the average temperature of the Earth's atmosphere and oceans in recent decades. There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. The Earth's climate is changing because human activities, primarily the combustion of fossil fuels, are altering the chemical composition of the atmosphere through the buildup of GHGs. GHGs are released by the combustion of fossil fuels, land clearing, agriculture, and other activities, and lead to an increase in the greenhouse effect. Although climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy.

Regarding the adverse effects of global warming, as reported by AB 2538: "Global warming poses a serious threat to the economic well-being, public health, natural resources and the environment of California." Over the past few decades, the energy intensity of the national and state economy has been declining due to the shift to a more service-oriented economy. California ranked fifth lowest among the states in carbon dioxide (CO_2) emissions from fossil fuel consumption per unit of gross state product. However, in terms of total CO_2 emissions, California is second only to Texas in the nation and is the 16th largest source of climate change emissions in the world, exceeding most nations.

3.3.1 Greenhouse Gas Background

GHGs include CO_2, methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Carbon is the most abundant GHG. Other GHGs are less abundant but have higher global warming potential (GWP) than CO_2. Thus, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as carbon dioxide equivalent (CO_2e). Forest fires, decomposition, industrial processes, landfills, and consumption of fossil fuels for power generation, transportation, heating, and cooking are the primary sources of GHG emissions. The primary GHGs attributed to global climate change are described below.

3.3.1.1 CARBON DIOXIDE

In the atmosphere, carbon generally exists in its oxidized form, as CO_2. Natural sources of CO_2 include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Anthropogenic sources of CO_2 include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. Anthropogenic sources of CO_2 amount to over 30 billion tons per year, globally (Friedlingstein et al. 2022). Natural sources release substantially larger amounts of CO_2. However, natural removal processes, such as photosynthesis by land- and ocean-dwelling plant species, cannot keep pace with this extra input of human-made CO_2. Consequently, the gas is building up in the atmosphere.

3.3.1.1.1 Methane

CH_4 is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources include wetlands, termites, and oceans. Decomposition occurring in landfills accounts for the majority of human-generated CH_4 emissions in California and in the United States as a whole. Agricultural processes such as intestinal fermentation in livestock, manure management, and rice cultivation are also significant sources of CH_4 in California.

3.3.1.1.2 Nitrous Oxide

N_2O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N_2O is a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion produce N_2O, and the quantity emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N_2O emissions in California.

3.3.1.1.3 Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride

HFCs are used primarily as substitutes for O_3-depleting substances regulated under the Montreal Protocol (1987), an international treaty that was approved on January 1, 1989, and was designated to protect the O_3 layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O_3 depletion. PFCs and SF_6 are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no primary aluminum or magnesium production in California; however, the rapid growth in the semiconductor industry leads to greater use of PFCs.

The use of SF_6 in electric utility systems and switchgear, including circuit breakers, poses a concern because this pollutant has an extremely high GWP (one pound of SF_6 is the equivalent warming potential of approximately 24,600 pounds of CO_2) (IPCC 2021a).[2] SF_6 is inert and non-toxic, and is encapsulated in circuit breaker assemblies. SF_6 is a GHG with substantial global warming potential because of its chemical nature and long residency time within the atmosphere. However, under normal conditions, it would be completely contained in the equipment and SF_6 would only be released in the unlikely event of a failure, leak, or crack in the circuit breaker housing. New circuit breaker designs have been developed over the past several years to minimize the potential for leakage, compared to that of past designs.

The magnitude of the impact on global warming differs among the GHGs. The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its GWP. GWPs are one type of simplified index based upon radiative properties used to estimate the potential future impacts of emissions of different gases upon the climate system, expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2e. GWP are based on a number of factors, including the radiative efficiency (heat-absorbing ability) of each gas relative to that of CO_2, as well as the decay rate of each gas (the amount removed from the atmosphere over a given number of years) relative to that of CO_2. The larger GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. HFCs, PFCs, and SF_6 have a greater GWP than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per-mass basis. However, CO_2 has the greatest impact on global warming because of the relatively large quantities of CO_2 emitted into the atmosphere.

A summary of the atmospheric lifetime and GWP of selected gases is presented in Table 8. As indicated in this table, GWPs range from 1 to 23,500 based on IPCC assessment reports. IPCC has released three assessment reports (AR4, AR5, and AR6) with updated GWPs; however, CARB reports the statewide GHG inventory using the AR4 GWPs, which is consistent with international reporting standards. By applying the GWP ratios, project-related equivalent mass of CO_2, denoted as CO_2e emissions can be tabulated in metric tons per year.

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[2] A global warming potential of 23,900 was used to convert emissions to CO_2e. This value is based on the global warming potential in the USEPA Mandatory Reporting Program Regulations (40 Code of Federal Regulations Part 98, Subpart A), and deviates from the use of GWPs from the IPCC 6th Assessment Report which was used for the conversion of CH_4 and N_2O.

Table 8. Global Warming Potentials

Greenhouse Gas	GWP Values for 100-year Time Horizon		
	AR4*	AR5	AR6
Carbon dioxide (CO_2)	1	1	1
Methane (CH_4)	25	28	Fossil origin – 29.8 Non-fossil origin – 27.2
Nitrous oxide (N_2O)	298	265	273
Select hydrofluorocarbons (HFCs)	124–14,800	4–12,400	–
Sulfur hexafluoride (SF_6)	22,800	23,500	24,600

Sources: IPCC (2007, 2013, 2021b).

* For consistency with EPA and its Inventory of Greenhouse Gas Reporting, we have represented values from AR4 of the IPCC report in this report.

3.3.2 Greenhouse Gas Emissions Inventories

3.3.2.1 U.S. GREENHOUSE GAS EMISSIONS

Per the EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022* (EPA 2024), In 2022, total gross U.S. greenhouse gas emissions were 6,343.2 million metric tons of CO_2e. Total gross U.S. emissions decreased by 3.0% from 1990 to 2022, down from a high of 15.2% above 1990 levels in 2007. Gross emissions increased from 2021 to 2022 by 0.2% (14.4 MMT CO_2e). Net emissions (including sinks) were 5,489.0 MMT CO_2 Eq. in 2022. Overall, net emissions increased by 1.3 percent from 2021 to 2022 and decreased by 16.7% from 2005 levels. Between 2021 and 2022, the increase in total greenhouse gas emissions was driven largely by an increase in CO_2 emissions from fossil fuel combustion across most end-use sectors due in part to increased energy use from the continued rebound of economic activity after the height of the COVID-19 pandemic. In 2022, CO_2 emissions from fossil fuel combustion increased by 1.0 percent relative to the previous year and were 1.1 percent below emissions in 1990. Carbon dioxide emissions from natural gas use increased by 5.2% (84.8 MMT CO_2e.) from 2021, while CO_2 emissions from coal consumption decreased by 6.1% (58.6 MMT CO_2e.) from 2021 to 2022. The increase in natural gas consumption and associated emissions in 2022 is observed across all sectors except U.S. Territories, while the coal decrease is due to reduced use in the electric power sector. Emissions from petroleum use also increased by 0.9% (19.0 MMT CO_2e.) from 2021 to 2022.

3.3.2.2 STATEWIDE GHG EMISSIONS

According to California's 2000–2022 GHG emissions inventory, California emitted 371.1 MMT CO_2e in 2022 (CARB 2024). The sources of GHG emissions in California include transportation, industrial uses, electric power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high global-warming potential substances, and recycling and waste. The California GHG emission source categories (as defined in CARB's 2008 Scoping Plan [CARB 2009]) and their relative contributions in 2022 are presented in Table 7. Total GHG emissions in 2022 were approximately 42.9 MMT CO_2e less than 2016 emissions. The 2016 statewide GHG inventory fell below 1990 levels, consistent with AB 32. The declining trend in GHG emissions, coupled with programs that will continue to provide additional GHG reductions going forward, demonstrates that California will continue to reduce emissions below the 2020 target of 431 MMTCO_2e (CARB 2024) and toward the 2050 target (80% below 1990 levels by 2050 [consistent with Executive Order S-3-05]). The California GHG inventory for 2018 through 2022 is presented in Table 7.

4 REGULATORY SETTING

Federal, state, and local agencies have set ambient air quality standards for certain air pollutants through statutory requirements and have established regulations and various plans and policies to maintain and improve air quality, as described below.

4.1 Federal

4.1.1 Federal Clean Air Act

4.1.1.1 AIR QUALITY

The federal Clean Air Act (CAA), which was passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The CAA delegates primary responsibility for clean air to EPA. The EPA develops rules and regulations to preserve and improve air quality and delegates specific responsibilities to state and local agencies. Under the act, EPA has established the NAAQS for six criteria air pollutants that are pervasive in urban environments and for which state and national health based ambient air quality standards have been established. O_3, CO, NO_2, SO_2, lead, and particulate matter (PM_{10} and $PM_{2.5}$) are the six criteria air pollutants. O_3 is a secondary pollutant; NO_x and VOCs are of particular interest as they are precursors to O_3 formation. The NAAQS are divided into primary and secondary standards; the primary standards are set to protect human health within an adequate margin of safety, and the secondary standards are set to protect environmental values, such as plant and animal life. The standards for all criteria pollutants are presented in Table 1.

The CAA requires EPA to designate areas as attainment, nonattainment, or maintenance (previously nonattainment and currently attainment) for each criteria pollutant based on whether the NAAQS have been achieved. The act also mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

4.1.1.2 GREENHOUSE GAS EMISSIONS

The Supreme Court of the United States (SCOTUS) ruled in Massachusetts v. Environmental Protection Agency, 127 S.Ct. 1438 (2007), that CO_2 and other GHGs are pollutants under the federal CAA, which EPA must regulate if it determines they pose an endangerment to public health or welfare. SCOTUS did not mandate that EPA enact regulations to reduce GHG emissions. Instead, SCOTUS found that EPA could avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change.

On April 17, 2009, EPA issued a proposed finding that GHGs contribute to air pollution that may endanger public health or welfare. On April 24, 2009, the proposed rule was published in the *Federal Register* under Docket ID No. EPA-HQ-OAR-2009-0171. The EPA stated that high atmospheric levels of GHGs "are the unambiguous result of human emissions and are very likely the cause of the observed increase in average temperatures and other climatic changes." The EPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The findings were signed by the EPA Administrator on December 7, 2009. The final findings were published in the *Federal Register* on December 15, 2009. The final rule was effective on January 14, 2010. Although these findings alone do not impose any requirements on industry or other entities, this action is a prerequisite to regulatory actions by EPA, including, but not limited to, GHG emissions standards for light-duty vehicles.

On July 20, 2011, EPA published its final rule deferring GHG permitting requirements for CO_2 emissions from biomass-fired and other biogenic sources until July 21, 2014. Environmental groups challenged the deferral. In September 2011, EPA released *Accounting Framework for Biogenic CO_2 Emissions from Stationary Sources*, which analyzes accounting methodologies and suggests implementation for biogenic CO_2 emitted from stationary sources (EPA 2011).

On April 4, 2012, EPA published a proposed rule to establish, for the first time, a new source performance standard for GHG emissions. Under the proposed rule, new fossil fuel–fired generating units larger than 25 MW are required to limit emissions to 1,000 pounds of CO_2 per megawatt-hour on an average annual basis, subject to certain exceptions.

On April 17, 2022, EPA issued emission rules for oil production and natural gas production and processing operations, which are required by the CAA under 40 Code of Federal Regulations Parts 60 and 63. The final rules include the first federal air standards for natural gas wells that are hydraulically fractured, along with requirements for several other sources of pollution in the oil and gas industry that currently are not regulated at the federal level.

4.1.2 Toxic Substance Control Act

The Toxic Substances Control Act (TSCA) provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA became law on October 11, 1976, and it became effective on January 1, 1977. The TSCA authorized EPA to secure information on all new and existing chemical substances, as well as to control any of the substances that were determined to cause unreasonable risk to public health or the environment. Congress later added additional titles to the TSCA, with this original part designated at Title I – Control of Hazardous Substances. TSCA regulatory authority and program implementation rests predominantly with the federal government (i.e., EPA). However, EPA can authorize states to operate their own, EPA-authorized programs for some portions of the statute. TSCA Title IV allows states the flexibility to develop accreditation and certification programs and work practice standards for lead-related inspection, risk assessment, renovation, and abatement that are at least as protective as existing federal standards.

4.1.3 National Emission Standards for Hazardous Air Pollutants (Asbestos)

The EPA's air toxics regulation for asbestos is intended to minimize the release of asbestos fibers during activities involving the handling of asbestos. Asbestos was one of the first hazardous air pollutants regulated under the air toxics program, as there are major health effects associated with asbestos exposure (lung cancer, mesothelioma, and asbestosis). On March 31, 1971, EPA identified asbestos as a hazardous pollutant, and on April 6, 1973, EPA promulgated the Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), currently found in 40 Code of Federal Regulations Part 61(M). The Asbestos NESHAP has been amended several times, most comprehensively in November 1990. In 1995, the rule was amended to correct cross-reference citations to Occupational Safety and Health Administration, Department of Transportation, and other EPA rules governing asbestos. Air toxics regulations under the CAA have guidance on reducing asbestos in renovation and demolition of buildings; institutional, commercial, and industrial buildings; large-scale residential demolition; exceptions to the asbestos removal requirements; asbestos control methods; waste disposal and transportation; and milling, manufacturing, and fabrication.

4.2 State

4.2.1 California Clean Air Act

The California Clean Air Act (CCAA) was adopted by CARB in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain CAAQS for O_3, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing the emissions from transportation and area-wide emission sources, and the CCAA provides districts with authority to regulate indirect sources. CARB and local air districts are responsible for achieving CAAQS, which are to be achieved through district-level Air Quality Management Plans (AQMPs) that would be incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which in turn, has delegated that authority to individual air districts. Each district plan is required to either 1) achieve a 5% annual reduction, averaged over consecutive 3-year periods, in districtwide emissions of each nonattainment pollutant or its precursors, or 2) to provide for implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

The State of California began to set its ambient air quality standards (i.e., CAAQS) in 1969, under the mandate of the Mulford-Carrell Act. The CCAA requires all air districts of the state to achieve and maintain the CAAQS by the earliest practical date. Table 1 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 1, the CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, H_2S, vinyl chloride, and visibility-reducing particles.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including the following:

- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

The project buildings will comply with any applicable requirements including the requirements for insulation, nonresidential indoor lighting standards, mandatory lighting controls, mechanical (HVAC) requirements, and hot water requirements. In addition, solar PV panels will be mounted to the roof of the O&M buildings.

4.2.2 California Code of Regulations

The CCR is the official compilation and publication of regulations adopted, amended, or repealed by the state agencies pursuant to the Administrative Procedure Act. The CCR includes regulations that pertain to air quality emissions. Specifically, 13 CCR 2485 states that the idling of all diesel-fueled commercial vehicles (weighing over 10,000 pounds) during construction shall be limited to 5 minutes at any location. In addition, 17 CCR 93115 states that operation of any stationary, diesel-fueled, compression-ignition engine shall meet specified fuel and fuel additive requirements and emission standards.

4.2.3 Toxic Air Contaminants Regulations

California regulates TACs primarily through the Toxic Air Contaminant Identification and Control Act of 1983 (AB 1807, also known as the Tanner Air Toxics Act) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588 – Connelly). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Air Toxics Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks (CARB 2011).

In August 1998, CARB identified DPM emissions from diesel-fueled engines as a TAC. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles (CARB 2000b). The goal of the plan is to reduce diesel PM_{10} (inhalable particulate matter) emissions and the associated health risk by 75% in 2010, and by 85% by 2020. The plan identified 14 measures that target new and existing on-road vehicles (e.g., heavy-duty trucks and buses, etc.), off-road equipment (e.g., graders, tractors, forklifts, sweepers, and boats), portable equipment (e.g., pumps, etc.), and stationary engines (e.g., stand-by power generators, etc.). During the control measure phase, specific statewide regulations designed to further reduce DPM emissions from diesel-fueled engines and vehicles were evaluated and developed. The goal of each regulation is to make diesel engines as clean as possible by establishing state-of-the-art technology requirements or emission standards to reduce DPM emissions. The project would be required to comply with applicable diesel control measures.

Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High-priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, to communicate the results to the public through notices and public meetings.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling
- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled TRUs and TRU Generator Sets and Facilities Where TRUs Operate

The proposed project would be required to comply with the applicable diesel control measures.

4.2.4 Executive Order S-3-05, Executive Order B-30-15, and Executive Order B-55-18

In 2005, the governor issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets, as well as a process to ensure the targets are met. The order directed the Secretary of the CalEPA to report every 2 years on the state's progress toward meeting the governor's GHG emission reduction targets. The statewide GHG targets established by EO S-3-05 are as follows:

- By 2010, reduce to 2000 emission levels.
- By 2020, reduce to 1990 emission levels.
- By 2050, reduce to 80% below 1990 levels.

EO B-30-15, issued by Governor Brown in April 2015, established an additional statewide policy goal to reduce GHG emissions 40% below their 1990 levels by 2030. Reducing GHG emissions by 40% below 1990 levels in 2030 and by 80% below 1990 levels by 2050 (consistent with EO S-3-05) aligns with scientifically established levels needed in the United States to limit global warming below 2 degrees Celsius.

The state legislature adopted equivalent 2020 and 2030 statewide targets in the California Global Warming Solutions Act of 2006 (also known as AB 32) and Senate Bill (SB) 32, respectively, both of which are discussed below. However, the legislature has not yet adopted a target for the 2050 horizon year. As a result of EO S-3-05, the California Action Team (CAT), led by the Secretary of CalEPA, was formed. The CAT is made of representatives from a number of state agencies and was formed to implement global warming emission reduction programs and to report on the progress made toward meeting statewide targets established under the EO. The CAT reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the EO.

The CAT stated that "smart" land use is an umbrella term for strategies that integrate transportation and land use decisions. Such strategies generally encourage jobs and housing proximity, promote transit-oriented development, and encourage high-density residential and commercial development along transit corridors. These strategies develop more efficient land use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. "Intelligent transportation systems" is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and the movement of people, goods, and service.

EO B-55-18, issued by Governor Brown in September 2018, establishes a new statewide goal to achieve carbon neutrality as soon as possible, but no later than 2045, and achieve and maintain net negative emissions thereafter. Based on this EO, CARB would work with relevant state agencies to develop a framework for implementation and accounting that tracks progress toward this goal, as well as ensuring future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

4.2.5 Assembly Bill 32 – California Global Warming Solution Act

The California Global Warming Solutions Act of 2006 (also known as AB 32) commits the State to achieving the following:

- By 2010, reduce to 2000 GHG emission levels.
- By 2020, reduce to 1990 levels.

To achieve these goals, which are consistent with the California CAT GHG targets for 2010 and 2020, AB 32 mandates that CARB establish a quantified emissions cap; institute a schedule to meet the cap; implement regulations to reduce statewide GHG emissions from stationary sources consistent with the CAT strategies; and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved. In order to achieve the reductions, AB 32 requires CARB to adopt rules and regulations in an open, public process that achieves the maximum technologically feasible and cost-effective GHG reductions.

SB 32, signed on September 8, 2016, updates AB 32 to include an emissions reduction goal for the year 2030. Specifically, SB 32 requires CARB to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. The new plan, outlined in SB 32, involves increasing renewable energy use, imposing tighter limits on the carbon content of gasoline and diesel fuel, putting more electric cars on the road, improving energy efficiency, and curbing emissions from key industries.

4.2.6 Climate Change Scoping Plan

In 2008, CARB approved a Climate Change Scoping Plan, as required by AB 32. Subsequently, CARB approved updates of the Climate Change Scoping Plan in 2014 (First Update) and 2017 (2017 Update), with the 2017 Update considering SB 32 (adopted in 2016) in addition to AB 32 (CARB 2014, 2017). The First Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals (to the level of 427 MMT CO_2e) defined in the original Scoping Plan. It also evaluates how to align the state's longer-term GHG reduction strategies with other state policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use. In November 2022, the final *2022 Scoping Plan Update and Appendices* (2022 Scoping Plan Update) was released. This 2022 Scoping Plan Update assesses progress toward the statutory 2030 target and lays out a path to achieving carbon neutrality no later than 2045 (CARB 2022b). The 2022 Scoping Plan Update focuses on outcomes needed to achieve carbon neutrality by assessing paths for clean technology, energy deployment, natural and working lands, and others, and is designed to meet the state's long-term climate objectives and support a range of economic, environmental, energy security, environmental justice, and public health priorities.

4.2.7 Assembly Bill 197

AB 197, signed on September 8, 2016, is a bill linked to SB 32 that prioritizes efforts to reduce GHG emissions in low-income and minority communities. AB 197 requires CARB to make available, and update at least annually on its website, the emissions of GHGs, criteria pollutants, and TACs for each facility that reports to CARB and air districts. In addition, AB 197 adds two members of the legislature to the CARB board as ex officio, non-voting members, and also creates the Joint Legislative Committee on Climate Change Policies to ascertain facts and make recommendations to the legislature concerning the state's programs, policies, and investments related to climate change.

4.2.8 Cap-and-Trade Program

The 2008 Climate Change Scoping Plan identified a cap-and-trade program as one of the strategies for California to reduce GHG emissions. The cap-and-trade program is a key element in California's climate plan. It sets a statewide limit on sources responsible for 85% of California's GHG emissions and establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy. The cap-and-trade rules came into effect on January 1, 2013, and they apply to large electric power plants and large industrial plants. In 2015, fuel distributors, including distributors of heating and transportation fuels, also became subject to the cap-and-trade rules. At that stage, the program will encompass approximately 360 businesses throughout California and nearly 85% of the state's total GHG emissions. Covered entities subject to the cap-and-trade program are sources that emit more than 25,000 metric tons CO_2e per year. Triggering of the 25,000 metric tons CO_2e per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions.

Under the cap-and-trade regulation, companies must hold enough emission allowances to cover their emissions and are free to buy and sell allowances on the open market. California held its first auction of GHG allowances on November 14, 2012. California's GHG cap-and-trade system has reduced GHG emissions to 1990 levels by the year 2020 and would achieve an approximate 80% reduction from 1990 levels by 2050.

4.2.9 Senate Bill 1078 (California Renewables Portfolio Standard)

SB 1078 established California's Renewable Portfolio Standard (RPS) program in 2002. The RPS program requires electrical corporations and electric service providers to purchase a specified minimum percentage of electricity generated by eligible renewable energy resources. The bill requires the California Energy Commission (CEC) to certify eligible renewable energy resources, to design and implement an accounting system to verify compliance with the RPS by retail sellers, and to allocate and award supplemental energy payments to cover above-market costs of renewable energy. Under SB 1078, each electrical corporation was required to increase its total procurement of eligible renewable energy resources by at least 1% per year so that 20% of its retail sales were procured from eligible renewable energy resources.

In 2006, SB 107 accelerated the RPS program by establishing a deadline of December 31, 2010, for achieving the goal of having 20% of total electricity sold to retail customers in California per year generated from eligible renewable energy resources.

The RPS goal was increased to 33% when Governor Schwarzenegger signed EO S-14-08 in November 2008. EO S-14-08 was later superseded by EO S-21-09 on September 15, 2009. EO S-21-09 directed CARB to adopt regulations requiring 33% of electricity sold in the state to come from renewable energy by 2020. This EO was superseded by Statute SB X1-2 in 2011, which modified the California RPS program to require that both public- and investor-owned utilities in California receive at least 33% of their electricity from renewable sources by the year 2020. SB 2X also requires regulated sellers of electricity to meet an interim milestone of procuring 25% of their energy supply from certified renewable sources by 2016.

4.2.10 Senate Bill 350

SB 350, signed on October 7, 2015, is the Clean Energy and Pollution Reduction Act of 2015. The objectives of SB 350 are 1) to increase the procurement of electricity from renewable sources from 33% to 50% by the end of 2030; and 2) to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

4.2.11 Senate Bill 100

SB 100, signed on September 10, 2018, is the 100 Percent Clean Energy Act of 2018. SB 100 updates the goals of California's RPS and SB 350, as discussed above, to the following: achieve a 50% renewable resources target by December 31, 2026; and achieve a 60% target by December 31, 2030. SB 100 also requires that eligible renewable energy resources and zero-carbon resources supply 100% of retail sales of electricity to California end-use customers and 100% procured to serve all state agencies by December 31, 2045.

4.2.12 Senate Bill 1368

SB 1368, signed on September 29, 2006, is a companion bill to AB 32, which requires the California Public Utilities Commission and the CEC to establish GHG emission performance standards for the generation of electricity. These standards also generally apply to power that is generated outside of California and imported into the state. SB 1368 provides a mechanism for reducing the emissions from electricity providers, thereby assisting CARB to meet its mandate under AB 32. On January 25, 2007, the California Public Utilities Commission adopted an interim GHG emissions performance standard, which is a facility-based emission standard requiring that all new long-term commitments for baseload generation to serve California customers be with power plants that have GHG emissions no greater than a combined-cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. Furthermore, on May 23, 2007, the CEC adopted regulations that establish and implement an identical emissions performance standard of 1,100 pounds of CO_2 per megawatt-hour.

4.2.13 Assembly Bill 1493 (Pavley I)

AB 1493, passed in 2002, requires the development and adoption of regulations to achieve the maximum feasible reduction in GHGs emitted by noncommercial passenger vehicles, light-duty trucks, and other vehicles used primarily for personal transportation in the state. CARB originally approved regulations to reduce GHGs from passenger vehicles in September 2004, which took effect in 2009. On September 24, 2009, CARB adopted amendments to these regulations that reduce GHG emissions and new passenger vehicles from 2009 through 2016. Although setting emission standards on automobiles is solely the responsibility of EPA, the federal CAA allows California to set state-specific emission standards on automobiles, and the state first obtains a waiver from EPA. EPA granted California that waiver until July 1, 2009. The comparison between the AB 1493 standards and the federal Corporate Average Fuel Economy standards was completed by CARB, and the analysis determined that the California emission standards were 16% more stringent through the 2016 model year and 18% more stringent for the 2020 model year. CARB is also committed to further strengthening these standards beginning with 2020 model year vehicles, to obtain a 45% GHG reduction in comparison to 2009 model years.

In March 2020, EPA issued the Safer Affordable Fuel-Efficient Vehicles Rule, which would roll back fuel economy standards and revoke California's waiver. Under this rule, EPA would amend certain average fuel economy and GHG standards for passenger cars covering model years 2021 through 2026. In September 2019, EPA withdrew the waiver it had previously provided in California for the state's GHG and Zero Emission Vehicle (ZEV) programs under Section 209 of the CAA. The withdrawal of the waiver went into effect on November 26, 2019. In response, several states, including California, have filed a lawsuit challenging the withdrawal of the EPA waiver. These actions continue to be challenged in court. As noted above, on January 20, 2021, President Biden issued an EO directing all executive departments and agencies to take action, as appropriate, to address federal regulations and other actions taken during the last 4 years that conflict with the administration's climate and environmental justice goals, which include the Safer Affordable Fuel-Efficient Vehicles Rule.

4.2.14 California Code of Regulations Section 95350 et seq.

In 2010, CARB adopted the Regulation for Reducing Sulfur Hexafluoride Emissions From Gas Insulated Switchgear (Section 17 CCR Section 95350 et seq.). The purpose of this regulation is to achieve GHG emission reductions by reducing SF_6 emissions from gas-insulated switchgear. Owners of such switchgear must not exceed maximum allowable annual emissions rates, reduced each year until 2020, after which annual emissions must not exceed 1 percent. Owners must regularly inventory gas insulated switchgear equipment, measure quantities of SF_6, and maintain records of these for at least three years. Additionally, by June 1 each year, owners also must submit an annual report to CARB's Executive Officer for emissions that occurred during the previous calendar year.

In December 2021, CARB adopted amendments to the Regulation for Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear, to update the phase out of SF_6 in gas-insulated switchgear. The new phase out schedule begins in January 2025 with all switchgear needing to be SF_6 free by January 2033. Under this resolution, CARB has developed a timeline for phasing out SF_6 equipment in California and created incentives to encourage owners to replace SF_6 equipment. The California Office of Administrative Law approved this rulemaking in December 2021 and the Resolution went into effect January 1, 2022.

4.2.15 Executive Order S-01-07 (California Low Carbon Fuel Standard)

EO S-01-07, the Low Carbon Fuel Standard (LCFS) (issued January 18, 2007), requires a reduction of at least 10% in the carbon intensity of California transportation fuels by 2020. Regulatory proceedings and implementation of the LCFS were directed to CARB. CARB released a draft version of the LCFS in October 2008. The final regulation was approved by the Office of Administrative Law and filed with the Secretary of State on January 12, 2010; the LCFS became effective on the same day.

The 2017 Update has identified LCFS as a regulatory measure to reduce GHG emissions to meet the 2030 emissions target. In calculating statewide emissions and targets, the 2017 Update has assumed the LCFS be extended to an 18% reduction in carbon intensity beyond 2020. On September 27, 2018, CARB approved a rulemaking package that amended the LCFS to relax the 2020 carbon intensity reduction from 10% to 7.5%, and to require a carbon intensity reduction of 20% by 2030.

4.2.16 Advanced Clean Car Regulations

In 2012, CARB approved the Advanced Clean Cars program, a new emissions control program for model years 2015 through 2025. The components of the advance clean car standards include the Low-Emission Vehicle regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the ZEV regulation, which requires manufacturers to produce an increasing number of pure ZEVs, with provisions to also produce plug-in hybrid electric vehicles in the 2018 through 2025 model years period. In March 2017, CARB voted unanimously to continue with the vehicle GHG emission standards and the ZEV programs for cars and light trucks sold in California through 2025.

4.2.17 Senate Bill 375

SB 375 requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization for each region must then develop a Sustainable Communities Strategy (SCS) that integrates transportation, land use, and housing policies to plan how it will achieve the emissions target for its region. If the SCS is unable to achieve the regional GHG emissions reductions targets, the Metropolitan Planning Organization is required to prepare an alternative planning strategy that shows how the GHG emissions reduction target can be achieved through alternative development patterns, infrastructure, and/or transportation measures.

As required under SB 375, CARB is required to update regional GHG emission targets every 8 years, with the last update formally adopted in March 2018. As part of the 2018 update, CARB adopted a passenger vehicle–related GHG reduction target of 19% by 2035 for the Southern California Association of Governments (SCAG) region, which is more stringent than the previous reduction target of 13% for 2035.

4.2.18 Senate Bill 97

SB 97 was enacted in 2007. SB 97 required the Governor’s Office of Planning and Research (OPR) to develop, and the California Natural Resources Agency to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of GHG emissions (OPR 2008, 2018). Those CEQA Guidelines amendments clarified several points, including the following:

- Lead agencies must analyze the GHG emissions of proposed projects and must reach a conclusion regarding the significance of those emissions.

- When a project's GHG emissions may be significant, lead agencies must consider a range of potential mitigation measures to reduce those emissions.
- Lead agencies must analyze potentially significant impacts associated with placing projects in hazardous locations, including locations potentially affected by climate change.
- Lead agencies may significantly streamline the analysis of GHGs on a project level by using a programmatic GHG emissions reduction plan meeting certain criteria.
- CEQA mandates analysis of a proposed project's potential energy use (including transportation-related energy), sources of energy supply, and ways to reduce energy demand, including through the use of efficient transportation alternatives.

As part of the administrative rulemaking process, the California Natural Resources Agency developed a Final Statement of Reasons explaining the legal and factual bases, intent, and purpose of the CEQA Guidelines amendments. The amendments to the CEQA Guidelines implementing SB 97 became effective on March 18, 2010. SB 97 applies to any environmental impact report, negative declaration, mitigated negative declaration, or other document required by CEQA, which has not been finalized.

4.3 Local

4.3.1 Mojave Desert Air Quality Management District

MDAQMD maintains a set of rules and regulations to improve and maintain healthy air quality for the entire population within its jurisdiction (MDAQMD 2023). When developing new regulations, MDAQMD must comply with complex procedures established by statutes in federal and state codes. The following are some of the rules that would apply to the project:

- *Rule 201 Permit to Construct:* A person shall not build, erect, install, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Air Pollution Control Officer. A permit to construct shall remain in effect until the permit to operate the equipment for which the application was filed is granted or denied, or the application is canceled.
- *Rule 203 Permit to Operate:* A person shall not operate or use any equipment, the use of which may cause the issuance of air contaminants or the use of which may reduce or control the issuance of air contaminants, without first obtaining a written permit from the Air Pollution Control Office. The equipment shall not be operated contrary to the conditions specified in the permit to operate.
- *Rule 204 Permit Conditions:* To assure compliance with all applicable regulations, the Air Pollution Control Officer may impose written conditions on any permit. Commencing work or operation under such a permit shall be deemed acceptance of all the conditions so specified.
- *Rule 401 Visible Emissions:* The purpose of the Rule is to provide limits for the visible emissions from sources within the District.
- *Rule 402 Nuisance:* A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

- *Rule 403 Fugitive Dust Control:* The purpose of this rule is to reduce the amount of PM_{10} entrained in the ambient air from anthropogenic Fugitive Dust sources within the District by requiring actions to prevent, reduce, or mitigate Fugitive Dust.
- *Rule 1113 Architectural Coatings*. The purpose of this rule is to limit the quantity of Volatile Organic Compounds (VOC) in Architectural Coatings.

MDAQMD is the local air quality agency and shares responsibility with CARB for ensuring that state and federal ambient air quality standards are achieved and maintained in the MDAB. Furthermore, MDAQMD adopts and enforces controls on stationary sources of air pollutants through its permit and inspection programs and regulates agricultural burning. Other MDAQMD responsibilities include monitoring ambient air quality, preparing clean air plans, planning activities such as modeling and maintenance of the emission inventory, and responding to citizen air quality complaints.

MDAQMD adopted its *California Environmental Quality Act (CEQA) and Federal Conformity Guidelines* in February 2020 (MDAQMD 2020). The MDAQMD CEQA Guidelines provides guidance on how to determine the significance of impacts, including air pollutant emissions, related to the development of residential, commercial, and industrial projects. Where impacts are determined to be significant, the MDAQMD CEQA Guidelines provide guidance to mitigate adverse impacts to air quality from development projects. MDAQMD is the agency principally responsible for comprehensive air pollution control in the region.

Currently, the NAAQS and CAAQS are exceeded in most parts of MDAB. In regard to the NAAQS, the project region within MDAB is in nonattainment for O_3 (8-hour) and PM_{10}. For the CAAQS, the project region within MDAB is in nonattainment for O_3 (1-hour and 8-hour), PM_{10}, and $PM_{2.5}$. In response, MDAQMD has adopted a series of AQMPs to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and minimize any negative fiscal impacts of air pollution control on the economy.

MDAQMD has adopted a variety of attainment plans for a variety of nonattainment pollutants. The latest plans include the following:

- 1995 Mojave Desert Planning Area PM_{10} Attainment Plan
- 2004 Southeast Desert Modified Air Quality Maintenance Area Ozone Plan
- 2007 Western Mojave Desert Ozone Attainment Plan
- February 2008 Ozone Early Progress Plans
- 2014 Updates to the 1997 8-Hour Ozone Standard SIPs
- 2015 8-Hour Ozone Reasonable Achievable Control Technology SIP Analysis: MDAQMD
- 2016 8-Hour Ozone SIP
- 2022 8-Hour Ozone SIP

To achieve and maintain ambient air quality standards, MDAQMD has adopted various rules and regulations for the control of airborne pollutants. Those rules applicable to this project include, but are not limited to, MDAQMD Rule 403 Fugitive Dust Control. The purpose of this rule is to reduce the amount of PM_{10} entrained in the ambient air as a result of emissions generated from construction and other earth-moving activities by requiring actions to prevent, reduce, or mitigate PM_{10} emissions. In addition, the project is required to adopt best available control measures to minimize emissions from surface-disturbing activities to comply with MDAQMD Rule 403, detailed in Section 7.3 of this report.

In addition, there are other MDAQMD rules and regulations, not detailed here, that may apply to the project but are administrative or descriptive in nature. These include rules associated with fees, enforcement and penalty actions, and variance procedures.

4.3.2 Southern California Association of Governments

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties, and addresses regional issues relating to transportation, the economy, community development, and the environment. SCAG coordinates with various air quality and transportation stakeholders in Southern California to ensure compliance with the federal and state air quality requirements, including applicable federal, state, and air district laws and regulations. As the federally designated Metropolitan Planning Organization for the six-county Southern California region, SCAG is required by law to ensure that transportation activities conform to, and are supportive of, the goals of regional and state air quality plans to attain the NAAQS. In addition, SCAG is a co-producer, with SCAQMD, of the transportation strategy and transportation control measure sections of the 2016 AQMP. The development of the 2016 AQMP relies on population and transportation growth projections contained in SCAG's 2016 through 2040 Regional Transportation Plan (RTP)/SCS.

On September 3, 2020, SCAG's Regional Council adopted an updated RTP/SCS known as the 2020–2045 RTP/SCS or Connect SoCal. As with the 2016–2020 RTP/SCS, the purpose of the 2020–2045 RTP/SCS is to meet the mobility needs of the six-county SCAG region over the subject planning period through a roadmap identifying sensible ways to expand transportation options, improve air quality, and bolster Southern California long-term economic viability. On October 30, 2020, CARB accepted SCAG's determination that the SCS met the applicable state GHG emissions targets. The goals and policies of the 2020–2045 RTP/SCS are similar to, and consistent with, those of the 2016–2040 RTP/SCS. In addition, CARB's new target requiring a 19% reduction in per-capita GHG emissions has been included in the 2020–2045 RTP/SCS, to fulfill SB 375 compliance with respect to meeting the state's GHG emission reduction goals.

4.3.3 San Bernardino County Policy Plan

The San Bernardino County Policy Plan (Policy Plan) contains the long-term goals and policies that will guide County decisions, investments, and improvements toward achieving the countywide vision. The Policy Plan represents a unique approach to county planning. It serves as the County's General Plan for the unincorporated areas, which is mandated by state law, but it also includes policy direction for adult and child supportive services, healthcare, public safety, and other regional services the County administers in both incorporated and unincorporated areas. Applicable County Policy Plan components are those that set policies regarding natural resources and renewable energy and conservation. Goal NR-1 Air Quality includes but not limited to encouraging collaboration with air quality management districts and other local agencies to monitor and reduce major pollutants affecting the county at the emission source (Policy NR-1.3), considering recommendations from the California Air Resources Board on the siting of new sensitive land uses and exposure to specific source categories (Policy NR-1.5), encouraging coordination with air quality management districts on requirements for dust control plans, revegetation, and soil compaction to prevent fugitive dust emissions (Policy NR-1.6), focusing on meeting 2040 and 2050 greenhouse gas emission reduction targets in accordance with state law (Policy NR-1.7), and encouraging builders and developers to use low-emission construction vehicles and equipment to improve air quality and reduce emissions (Policy NR-1.8).

The renewable energy and conservation policy goals are to achieve a clean energy future that minimizes negative effects consistent with local values. The County has considered how to reduce energy use through energy efficiency and conservation measures, and identified renewable energy facility standards that concentrate on community-oriented RE facilities that produce electricity for local consumption through goals like Goal RE-2 Renewable Energy Systems, which strives for the County to be home to diverse and innovative renewable energy systems that provide reliable and affordable energy to the valley, mountain, and desert regions.

4.3.4 County of San Bernardino Regional Greenhouse Gas Reduction Plan

In September 2011, San Bernardino County adopted the County of San Bernardino Greenhouse Gas Emissions Reduction Plan (GHG Plan), which outlines a strategy to use energy more efficiently, harness renewable energy to power buildings, enhance access to sustainable transportation modes, and recycle waste in response to CARB SB 32 Scoping Plan, which charted a path towards the GHG reduction goal using all technologically feasible and cost-effective. In 2021, a new version of the GHG Plan was released and there has been commitment to undertake the following actions that will reduce GHG emissions associated with its regional (or countywide) activities.

- Prepare a baseline (2016) GHG emissions inventory for each of the 25 partnership jurisdictions in the county.
- Prepare future year (2020, 2030, and 2045) GHG emissions forecasts for each of the jurisdictions.
- Develop general GHG reduction measures and jurisdiction-specific measures appropriate for each jurisdiction.
- Develop consistent baseline information for jurisdictions to use for their development of community climate action plans (CAPs) meeting jurisdiction-identified reduction goals.

4.4 California Energy Commission's (CEC) Opt-in Certification Program

In 2022, Assembly Bill 205 established a new Opt-in Certification program for eligible non-fossil-fueled power plants, energy storage, and manufacturing and assembly facilities to optionally seek certification through the CEC. If CEC approves a project, the certification would be in lieu of any permit, certificate, or similar document required by any state, local, or regional agency, or federal agency to the extent permitted by federal law, with some exceptions. The following types of facilities are eligible to apply for Opt-in Certification Program:

- Solar photovoltaic or terrestrial wind electrical generating power plants (50 MW or greater).
- Energy storage system (capable of storing 200 megawatt-hours (MWh) or more).
- A stationary power plant using any source of thermal energy, excluding fossil or nuclear fuels (50 MW or greater).
- Certain transmission lines associated with these generating and storage facilities.
- Specified facilities that manufacture or assemble clean energy or storage technologies or related components.

The project is a solar facility and therefore is eligible if certain requirements are fulfilled. These requirements are outlined in the Appendix B Information Requirements for an Application for Certification (AFC) or Small Power Plant Exemption (SPPE) to support an Application for Certification (AFC) (20 CCR, Div. 2, Ch. 5 App. B). This technical report, which includes additional analysis by Baseline Environmental Consulting as Appendix B, provides the necessary information for the CEC, focusing on the CEC requirements in Appendix B of the AFC Program Guidance under air sections (g)(8)(A) through (g)(8)(K) and public health sections (g)(9)(A) through (g)(9)(D).

5 THRESHOLDS OF SIGNIFICANCE

5.1 Air Quality

Based on the environmental checklist presented in Appendix G of the State CEQA Guidelines, the project would have a significant impact on air quality if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under applicable federal or state ambient air quality standards;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

A discussion of applicable thresholds of significance and significance determination follows.

MDAQMD's *CEQA and Federal Conformity Guidelines* was prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the project site (MDAQMD 2020). The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. MDAQMD's air quality thresholds of significance are tied to achieving or maintaining attainment designations with the NAAQS and CAAQS, which are scientifically substantiated, numerical concentrations of criteria air pollutants considered to be protective of human health. MDAQMD's *CEQA and Federal Conformity Guidelines* (February 2020) indicate that any projects in the MDAB with daily regional emissions that exceed any of the indicated thresholds in Table 9 should be considered as having an individually and cumulatively significant air quality impacts.

Table 9. MDAQMD Air Quality Significance Thresholds

Pollutant	Annual Threshold (short tons)	Daily Threshold (pounds)
Carbon dioxide equivalent (CO_2e)	100,000	<548,000
Nitrogen oxides (NO_x)	25	<137
Volatile organic compounds (VOCs)	25	<137
Particulate matter 10 microns in diameter or smaller (PM_{10})	15	<82
Particulate matter 2.5 microns in diameter of smaller ($PM_{2.5}$)	12	<65
Sulfur oxides (SO_x)	25	<137
Carbon monoxide (CO)	100	<548
Hydrogen sulfide (H_2S)	10	<54
Lead (Pb)	0.6	<3

In any case, regardless of the size of the project, the standard control measures for construction equipment and fugitive PM_{10} must be implemented at all construction sites. Additional measures are required by

MDAQMD Rule 403 for sites with 10 or more acres disturbed, and solar projects in particular. The list of control measures that would be implemented for the project (derived from MDAQMD Rule 403) is provided in Section 7.3 of this report.

Projects that do not exceed the thresholds above would not cumulatively contribute to health effects in the MDAQMD. If projects exceed the thresholds above, emissions would contribute cumulatively to the nonattainment status and would contribute to elevating health effects associated with these criteria air pollutants. Known health effects related to O_3 include worsening of bronchitis, asthma, and emphysema and a decrease in lung function. Health effects associated with particulate matter include premature death of people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, decreased lung function, and increased respiratory symptoms. Reducing emissions would further contribute to reducing possible health effects related to criteria air pollutants.

Impacts related to odors were also assessed qualitatively, based on proposed construction activities, equipment types and duration of use, overall construction schedule, proposed operational activities, and distance to nearby sensitive receptors.

5.1.1 Carbon Monoxide Hotspots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or “hot spots,” are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections.

However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (requirements for certain vehicles are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the MDAB is designated as in attainment. Detailed modeling of project-specific CO hot spots is not necessary, and thus this potential impact is addressed qualitatively.

A CO hot spot would occur if an exceedance of the state 1-hour standard of 20 ppm or the 8-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the SCAQMD 1992 Federal Attainment Plan for Carbon Monoxide in Los Angeles County and a Modeling and Attainment Demonstration prepared by SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. SCAQMD is the air pollution control officer for much of Southern California (SCAQMD 2003a). SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). In order to establish a more accurate record of baseline CO concentrations affecting Los Angeles, a CO “hot spot” analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods which is the most recent analysis conducted that addresses CO concentrations. This "hot spot" analysis did not predict any violation of CO standards. The highest 1-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue, and the highest 8-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway. Thus, there was no violation of CO standards.

Similar considerations are employed by other air districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District, the air pollution control officer for the San Francisco Bay Area, concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix in order to generate a significant CO impact.

The project substation would be uncrewed during operation; however, a workforce of approximately 25 to 40 personnel would visit the substation as needed for maintenance, equipment operation, and/or security. Vehicle access would be infrequent and many days will have no operational related vehicle trips. Thus, the project would not generate traffic volumes at any intersection of more than 100,000 vehicles per day (or 44,000 vehicles per day), and there is no likelihood of the project traffic exceeding CO values.

5.1.2 Toxic Air Contaminants

MDAQMD has not established a quantitative threshold of significance for construction-related TAC emissions and recommends that lead agencies address this issue on a case-by-case basis, taking into consideration the specific construction-related characteristics of each project and its proximity to off-site receptors. Information regarding the project's construction emissions and DPM has been provided in Appendix A and explained in more detail in Section 7.2. Furthermore, implementation of the CEQA rules to limit TAC emissions described in Section 4.2.3 and APM-9 described in Section 7.1, would result in the reduction of DPM exhaust emissions in addition to criteria pollutant emissions, particularly the measures to minimize engine idling time and maintain construction equipment in proper working condition and according to manufacturer's specifications.

5.2 Greenhouse Gases

Consistent with Appendix G of the State CEQA Guidelines, a project would have a significant GHG impact if it would:

- Generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

State CEQA Guidelines Section 15064.4 recommends that lead agencies quantify GHG emissions projects and consider several other factors that may be used in the determination of significance of project-related GHG emissions, including the extent to which the project may increase or reduce GHG emissions, whether the project exceeds an applicable significant threshold, and the extent to which the project complies with the regulations or requirements adopted to implement a reduction or mitigation of GHG.

State CEQA Guidelines Section 15064.4 does not establish a threshold of significance. Lead agencies have the discretion to establish significance thresholds for their respective jurisdictions, and in establishing those thresholds, a lead agency may appropriately look at thresholds developed by other public agencies, or suggested by other experts, such as the California Air Pollution Control Officers Association (CAPCOA), as long as any threshold chosen is supported by substantial evidence (State CEQA Guidelines Section 15064.7(c)). The State CEQA Guidelines also clarify that the events of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (State CEQA Guidelines Section 15130(f)). It is noted that the State CEQA Guidelines were amended in response to SB 97. In particular, the State CEQA Guidelines were amended to specify that compliance with the GHG emissions reduction plan renders a cumulative impact less than significant.

Per State CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions" (14 CCR 15064(h)(3)). Put another way, State CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies, and/or other regulatory strategies to reduce GHG emissions.

Per State CEQA Guidelines Section 15064.4(b), "in determining the significance of a project's greenhouse gas emissions, the lead agency should focus its analysis on the reasonably foreseeable incremental contribution of the project's emissions to the effects of climate change. A project's incremental contribution may be cumulatively considerable even if it appears relatively small compared to statewide, national, or global emissions." When determining the significance of GHG impacts, lead agencies should consider the project's impact compared with the existing environmental setting, whether the project exceeds a threshold of significance, and compliance with relevant GHG-related plans (e.g., State CEQA Guidelines Section 15064.4(b)). Regarding the latter criterion, lead agencies should consider "the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions (e.g., State CEQA Guidelines Section 15183.5(b))." Per State CEQA Guidelines Section 15064.4(b)(3), such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of GHG emissions.

MDAQMD has adopted a threshold of significance for project GHG emissions, which are presented in Table 5. If a project's emissions exceed the thresholds of significance, the project emissions may have a cumulatively considerable contribution to a significant cumulative environmental impact, answering Appendix G of the State CEQA Guidelines first GHG-related question on whether the project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The second GHG-related question in Appendix G of the State CEQA Guidelines asks if the project will conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. In order to answer this question, project emissions should be evaluated with respect to consistency with the plans and policies, if applicable, that have been adopted to reduce GHG emissions.

5.3 Displaced Grid Electricity Emissions

Indirect sources of emissions can be of different forms. The project generates electricity from solar energy, a renewable source, and as such, is an indirect source of reduction in fossil fuel-powered electricity generation. The project would provide a renewable energy resource that would displace generation from higher GHG emitting sources. There would be a small amount of indirect GHG emissions from the project water use. As discussed, periodic washing of the PV modules may be necessary three times per year, and the amount of water needed for this purpose is conservatively estimated at a total of up to 20 acre-feet per year of water would be used for panel washing, dust control and suppression during operation . Other operational emission sources include travel to the site by maintenance workers, operation of the maintenance buildings, and operation of other buildings at the site (energy, water, waste, refrigeration).

The GHG emissions from these operational sources has been determined in the project's California Emission Estimator Model (CalEEMod) operational calculations. The Greenhouse Gas Equivalencies Calculator was used, which uses the AVoided Emissions and geneRation Tool (AVERT) U.S. national weighted average CO_2 marginal emission rate to convert reductions of kilowatt-hours into avoided units of CO_2 emissions (EPA 2025). For a 300-MW solar facility, AVERT calculates that 331,560 tons (300,786 metric tons) per year would be avoided by placing the project into operation.

6 METHODOLOGY

This analysis focuses on the potential change in the air quality environment due to implementation of the project. Air pollution emissions would result from both construction and operation of the project. Specific methodologies used to evaluate these emissions are discussed below.

The analysis is based on project specifics and default values in the latest versions of CalEEMod. Accordingly, this analysis has been conducted with the most recent available tools prepared and accepted by the regulatory agencies. The project's SF_6 consumption has also been estimated.

6.1 Construction Emissions

The project's emissions will be evaluated based on significance thresholds and CEQA guidance established by MDAQMD, as discussed above. Daily emissions during construction are estimated by assuming a conservative construction schedule and applying the multiple source and fugitive dust emission factors derived from MDAQMD-recommended CalEEMod version 2022.1.1.29. Details of the modeling assumptions and emission factors are provided in Appendix A. The calculations of the emissions generated during project construction activities reflect the types and quantities of construction equipment that would be used to complete the project.

6.1.1 Construction Assumptions

Construction emissions associated with the project, including emissions associated with the operation of off-road equipment, haul-truck trips, on-road worker vehicle trips, vehicle travel on paved and unpaved surfaces, and fugitive dust from material handling activities, were calculated using CalEEMod version 2022.1.1.29 (CAPCOA 2023). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operation of a variety of land use projects. The model uses widely accepted federal and state models for emission estimates and default data from sources such as EPA AP-42 emission factors, CARB vehicle emission models, and studies from California agencies such as CEC. The model quantifies direct emissions from construction and operations, as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The model was developed in collaboration with the air districts in California. Default data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) have been provided by the various California air districts to account for local requirements and conditions.

Emissions modeling, including emissions generated during the project, have been grouped into four stages in CalEEMod based on the types of equipment and workload: 1) site preparation and grading (including mobilization, site preparation, grading, fencing, preparation of roads and laydown areas, and installation of measures in the Stormwater Pollution Prevention Plan (SWPPP) as well as erosion control features); 2) structural construction (including the installation of solar array structural components including piles, racking systems, and foundations); 3) solar array installation (including installation of solar and BESS inverters, solar panels, battery storage systems, and ancillary equipment, and would also include trenching activities to install cables and other electrical equipment); and 4) inspections, testing, and commissioning. The project is within a 2,670-acre area with a parking area and several buildings. The following CalEEMod land uses were used to represent the project:

- Industrial - user defined for the 2,670 acres
- 0.33-acre parking lot
- 5,000-square-foot general light industry building to represent the operation and maintenance building
- 140,000-square-foot general heavy industry to represent the substation area
- 2,400-square-foot unrefrigerated warehouse – no rail to represent the maintenance facility
- 5,000-square-foot unrefrigerated warehouse – no rail to represent the warehouse facility

Modeling input data were based on this anticipated construction schedule and phasing. Construction equipment and usage required for each phase were obtained using CalEEMod defaults for the land use types that make up the project site, information provided by the applicant, and default parameters contained in the model for the project site (San Bernardino County) and land uses.

The construction duration is assumed to be approximately 18 months, assumed to occur from March 2026 through the end of August 2027. Project construction would consist of different activities undertaken in phases, through to the operation of the project. Typical construction equipment would be used during all phases of project construction and would be stored within the staging area, potentially including bulldozers, backhoes, graders, and water trucks. Table 10 shows the project's anticipated construction schedule, presents an estimate of the maximum number of pieces of equipment for each construction phase, and conservatively assumes that equipment would be operating 10 hours per day, 5 days per week for the duration of the construction phase. The unmitigated construction emissions from CalEEMod include controls to comply with any MDAQMD fugitive dust control rules, discussed further in Section 7.4, and/or applicant-committed measures, APM-1 through APM-9, discussed further in Section 7.1. In CalEEMod, to reflect these fugitive dust controls the following controls were included in the unmitigated model since they required controls: reduce speed on unpaved roads to 25 miles per hour, water exposed areas two times per day, and water the unpaved roads traveled to the project a minimum of two times per day.

Table 10. Construction Anticipated Schedule, Trips, and Equipment

Phase (Duration)	Equipment Used			Daily Vehicle Trips
	Type	Number	Hours/Day	
1. Stage 1	Tractors/loaders/backhoes	4	10	
	Off-highway truck	1	10	

March 1, 2026–October 31, 2026 (175 working days)	Plate compactors	2	10	
	Excavators	1	10	
	Graders	1	10	
	Rubber-tired bulldozers	2	10	
2. Stage 2* June 1, 2026–February 28, 2027 (195 working days)	Cranes	2	10	
	Forklifts	5	10	
	Trenchers	1	10	
	Rubber-tired loaders	1	10	Assumed a maximum of 600 one-way worker trips for all phases at any time. No one-way vendor trips for all phases at any time. 234 one-way on-site haul truck trips for all phases at any time. Assumed 3 miles of on-site truck travel for each phase.
	Generator sets	15	10	
	Off-highway truck	1	10	
	Excavators	4	10	
	Bore/drill rigs	1	10	
	Rubber tired dozers	1	10	
	Tractors/loaders/backhoes	5	10	
	Welders	12	10	
3. Stage 3* December 1, 2026–June 30, 2027 (152 working days)	Off-highway truck	1	10	
	Forklifts	3	10	
	Excavator	1	10	
	Skid steer loader	1	10	
	Tractors/loaders/backhoes	1	10	
4. Stage 4* June 1, 2027–August 31, 2027 (66 working days)	Off-highway truck	1	5	
	Forklifts	1	10	
	Skid steer loader	1	10	
	Tractors/loaders/backhoes	1	10	
5. Paving June 17, 2026–June 30, 2026 (10 working days)	Pavers	1	8	
	Paving equipment	1	8	
	Sweepers/scrubbers	1	8	
	Rollers	1	8	
6. Architectural Coating July 1, 2026–July 14, 2026 (10 working days)	Air compressors	5	8	

Source: Appendix A

Notes: The CalEEMod one-way trips lengths for workers and haul trucks have been increased to 28 miles per one way trip, which is a weighted average accounting for the trips from varying distances. For the other parameters not provided in the table (e.g., equipment horsepower and load factor), CalEEMod defaults were used.

*Due to the overlap of the 4 Stages, Stage 2 and Stage 3 were broken down into ‘Stage 2’ and ‘Stage 2-Phase 2’, ‘Stage 3’ and ‘Stage 3- Phase 2’, and ‘Stage 4’ and ‘Stage 4- Phase 2’. in the CalEEMod Appendix A to ensure that works and haul truck trips are not double counted. The equipment in these phases are identical.

In addition to MDAQMD Rule 403 detailed in Section 7.4 of this report, California regulations also limit idling from both on-road and off-road diesel-powered equipment.

6.2 Operational Emissions

When construction is completed, the project would be an operational 300-MW, 2,670-acre solar project with a 300-MW BESS. Criteria pollutant and GHG emissions from the operation of the project were estimated using CalEEMod version 2022.1.1.29. Year 2028 was assumed as the first full year of operations after completion of construction. The operational emissions were calculated based on CalEEMod defaults associated with the project's land use types. Analysis of the project's likely impact on regional air quality during project operation takes into consideration four types of sources: 1) area, 2) energy, 3) mobile, and 4) off-road.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from architectural coatings and landscape maintenance equipment. Emissions associated with electricity use and air conditioning are calculated as part of building energy use in CalEEMod. The project would not include woodstoves or fireplaces (wood or natural gas). Therefore, area source emissions associated with consumer products, hearths and consumer products were not included.

CalEEMod calculates the VOC evaporative emissions from application of residential and nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings and no reapplication is assumed. Coating for the parking surface area was also estimated with CalEEMod defaults.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For San Bernardino County, the average annual "summer" days are estimated to be 180 days. Emissions associated with potential landscape maintenance equipment were included, and no emission reduction features related to electric landscape equipment were assumed, to conservatively capture potential project operational emission sources.

Energy Sources, Waste, Water, and Refrigeration

As represented in CalEEMod, energy sources include emissions associated with building electricity, with no natural gas included. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use and refrigeration are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off-site. Electricity use is calculated using CalEEMod defaults for all on-site buildings. Emissions from waste and air conditioning have been calculated for the operation and maintenance building, maintenance facility, and warehouse facility.

The air conditioning units will use R-32 or a similar reclaimed refrigerant, compliant with the Prohibitions on Use of Certain Hydrofluorocarbons in Stationary Refrigeration, Stationary Air-conditioning and Other End-Uses (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10 on Climate Change, Article 4, Subarticle 5, Section 95374). It meets technical requirements, with a Global Warming Potential less than 750, and regulatory safety standards, as R-32 is classified as A2L (mildly flammable). The proposed refrigerant would comply with the sale and distribution prohibition timelines established in SB 1206 (Skinner, Chapter 884, Statutes of 2022) (Health and Safety Code, section 39735) since it is a reclaimed refrigerant with a GWP under 750.

Emissions from water are calculated for both the outdoor water use and the water use associated with the operation and maintenance building. Outdoor water use during operations is conservatively estimated at a total of up to 20 acre-feet per year (a conservative estimate given that only an estimated 5.6 acre-feet per year of water is anticipated for panel washing, dust control and suppression during operation).

Mobile Sources

The project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of project operations. The project requires minimal operation and maintenance activities and would not require the presence of full-time employees. However, for estimation of operational emissions, it is conservatively assumed that for maintenance, some employees would commute to the site. These are very conservative assumptions because no daily travel to the site is anticipated during operations. The annual operations are assumed to be as follows:

- Routine maintenance activities would include panel washing, which is expected to occur three times annually over a 3-week period. Panel washing activities and workers visiting the substation as needed for maintenance, equipment operation, and/or security are estimated to require additional daily trips of up to 40 workers (which includes the truck transporting the water) during each event for a total of 80 one-way worker trips per day (weekdays) during a peak operational maintenance event. However, this does not occur on a daily basis and will only occur during such maintenance events.
- The default model generated trip lengths for commercial-work were used for the workers' commute; medium heavy-duty trucks and heavy-duty trucks were chosen to represent the worker vehicles and the truck transporting the water, and trip purpose was designated as 100% primary trips.

SF_6 Emissions

CEC Appendix B Item (E) GHG requires "The emission rates of criteria pollutants and greenhouse gases (CO2, CH4, N2O, and SF_6) from the stack, cooling towers, fuels and materials handling processes, delivery and storage systems, and from all onsite secondary emission sources". The project does not include stacks, cooling towers, fuels and materials handling processes or delivery and storage systems. The project would have the potential for fugitive emissions of SF_6 from circuit breakers and emissions factors for SF_6 consumption are discussed in Section 7.2.

The project would include 500-kV circuit breakers that contain SF_6. New circuit breaker designs have been developed over the past several years to minimize the potential for leakage (CARB 2018). In addition, the equipment would comply with CARB's Reducing Sulfur Hexafluoride Emissions from Gas Insulated Switchgear regulations. CARB's current regulations require that switchgear does not exceed a maximum allowable annual SF_6 emissions rate (leakage rate) of 1 percent. The only equipment within the substations and switchyards that would have SF_6 gas would be the six 500-kV circuit breakers. The utility switchyard would require five circuit breakers and the substation would require one breaker.

BESS Refrigerant

[redacted]

[redacted]

[redacted]

BESS Efficiency

The average loss in round-trip efficiency for the life of a lithium-ion BESS is approximately 15%, although loss in round trip efficiency is dropping as the technology is getting more efficient (Grimaldi, et al 2023). Assuming the 300 megawatt-hour (MWh) BESS completes 1 full cycle per day and is entirely charged from the grid, this would require approximately 3.6 hours of charging at full capacity per day and would result in approximately 45MWh of lost round-trip efficiency per day, or 16,425 MWh of lost round-trip efficiency per year. LADWP is the energy provider that would serve the project during times when solar power is unavailable. The most current available Power Content Label published by the California Energy Commission for LADWP indicates that the GHG emissions intensity factor under the base plan is 499 pounds of CO_2e per MWh (LADWP 2023). With California's anticipated achievement of carbon neutrality by 2045, an annual reduction of 24.95 pounds CO_2e per MWh is applied to the 499 pounds of CO_2e per MWh GHG emissions intensity factor. The cumulative impact of the annual incremental reduction accounts for additional renewable energy facilities built during the life of the project, and subsequent exponential decay of natural gas power generation by 2045.Therefore, total indirect GHG emissions from round-trip efficiency loss would total approximately 39,035 MT CO_2e, if the BESS were charged only by the grid (Appendix A). This is a conservative estimate as the BESS would be charged by the project's solar arrays. This estimate also is based on the 2023 emission intensity factors for electricity provided by LADWP and does take into account reductions in emission intensity factors over the life of the project as additional renewable energy is added to LADWP's power mix.

6.3 Greenhouse Gas

This analysis quantifies the project's total annual GHG emissions from construction. This analysis evaluates the significance of the project's GHG emissions by assessing the project's consistency with CEQA guidance.

6.4 Toxic Air Contaminants Impacts (Construction and Operations)

Potential TAC impacts were evaluated in this analysis by conducting a qualitative analysis. The TAC that is the focus of this analysis is DPM because it is known that DPM would be emitted during project construction and operation. Construction-related activities that would result in temporary, intermittent emissions of DPM would be from the exhaust of off-road equipment and on-road heavy-duty trucks. On-road diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive DPM emissions. The project is consistent with TAC-related rules and regulations, and the CalEEMod modeling shows the low-exhaust DPM during construction and operation (see Appendix A). Furthermore, implementation of MDAQMD Rule 403, discussed in Section 7.4, and applicant-committed control measure APM-9, discussed in Section 7.1, would result in the reduction of DPM exhaust emissions in addition to criteria pollutant emissions, particularly the measures to minimize engine idling time and maintain construction equipment in proper working condition and according to manufacturer's specifications.

7 IMPACT ANALYSIS

7.1 Applicant-Proposed Measures

The applicant identified and committed to implementing the following Applicant-Proposed Measures (APMs) as part of the proposed project to avoid or substantially lessen potentially significant impacts to air quality, to the extent feasible. The APMs, where applicable, are discussed in the impact analysis section below. These measures include the following:

- **APM AIR-1:** The applicant shall use periodic watering for short-term stabilization of disturbed areas to minimize visible fugitive dust emissions. Use of a water truck to maintain surface moisture on disturbed areas and surface application of water during visible dusting episodes shall be considered sufficient to maintain compliance.
- **APM AIR-2:** The applicant shall apply Best Management Practices (BMPs) to prevent project-related visible bulk materials transport (trackout) onto paved surfaces. BMPs may include, but not be limited to, the following:
  - Use of wheel-washers (or equivalent) installed at all access points and laydown areas where trackout onto paved public roads could occur.
  - Construction of stabilized construction site entrance/exit areas.
  - Implementation of regular street sweeping/cleaning of paved surfaces.
  - Installation of corrugated steel panels at all site exits.
- **APM AIR-3:** The applicant shall cover haul vehicles maintained paved surfaces loaded with earthen materials while operating on publicly maintained paved surfaces.
- **APM AIR-4:** The applicant shall stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than 14 days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions.
- **APM AIR-5:** The applicant shall cleanup project-related visible bulk materials transport (trackout) or spills on publicly maintained paved surfaces within 24 hours.
- **APM AIR-6:** The applicant shall discontinue non-essential earth-moving activities under high wind conditions when wind speeds exceed 25 miles per hour and those activities result in visible dust plumes. All grading activities shall be suspended when wind speeds are greater than 30 miles per hour.
- **APM AIR-7:** The applicant shall limit the speed of vehicles traveling on unpaved roads and disturbed areas to 15 miles per hour.
- **APM AIR-8:** The applicant shall apply water to all unpaved roads and unpaved parking areas actively used during construction, except when moisture remains in the soils such that dust is not produced when driving on unpaved roads.

- **APM AIR-9:** The applicant, when entering into construction contracts or when procuring off-road equipment or vehicles for on-site construction or operations and maintenance activities, shall ensure that only new model year equipment or vehicles are obtained. An Exhaust Emissions Control Plan that identifies each off-road unit's certified tier specification, Best Available Control Technology, as well as the model year of all haul trucks to be used on the project that are under direct control of the applicant or its construction contractor shall be submitted to BLM for review and approval at least 30 days prior to commencement of construction activities. The following measures would be included with contract or procurement specifications and in the Exhaust Emissions Control Plan:
  - All construction diesel engines not registered under California Air Resources Board's Statewide Portable Equipment Registration Program, with a rating of 50 hp or higher shall meet the Tier 4 California Emission Standards for Off-Road Compression-Ignition Engines, as specified in California Code of Regulations, Title 13, Section 2423(b)(1), unless a good faith effort demonstrates that such engine is not available for a particular item of equipment. If a Tier 4 engine is not available for any off-road equipment larger than 50 hp, a Tier 3 engine shall be used or that equipment shall be equipped with retrofit controls to reduce exhaust emissions of nitrogen oxides and diesel particulate matter to no more than Tier 3 levels unless certified by the engine manufacturers that the use of such devices is not practical for specific engine types.
  - All diesel-fueled engines used in the construction of the facility shall have clearly visible tags showing that the engine meets the standards of this measure.
  - All equipment and trucks used in the construction or operation and maintenance of the facility shall be properly maintained and the engines tuned to the engine manufacturer's specifications.
  - All diesel heavy construction equipment shall not idle for more than five minutes. Vehicles that need to idle as part of their normal operation (such as concrete trucks) are exempted from this requirement.

7.2 Environmental Impacts

Impact AQ-1 Would the project conflict with or obstruct implementation of the applicable air quality plan? (Less than Significant)

A project would conform with applicable adopted plans if it complies with the rules, regulations, and emission control strategies in the applicable air quality attainment plans. The project would comply with the applicable rules and regulations, including the use of standard control measures for construction equipment and fugitive PM_{10}.

Consistency with air quality plans is typically conducted based on a comparison of project-generated growth in employment, population, and vehicle miles traveled within the region, which is used for development of the emissions inventories contained in the air quality plans. The region's SIP comprises the MDAQMD air quality plans: 2022 8-Hour Ozone SIP, 2016 8-Hour Ozone SIP, 2015 8-Hour Ozone Reasonable Available Control Technology SIP, 2014 Updates to the 1997 8-Hour Ozone SIP, February 2008 Ozone Early Progress Plan, 2004 Southeast Desert Modified Air Quality Maintenance Area Ozone Plan, and 1995 Mojave Desert Planning Area PM10 Attainment Plan. Project compliance with all MDAQMD rules and regulations results in conformance with MDAQMD air quality plans. These air quality attainment plans are a compilation of new and previously submitted plans, programs (e.g., monitoring, modeling, permitting, etc.), district rules, state regulations, and federal controls describing how the state will attain ambient air quality standards. These SIPs and associated control measures are based on information derived from projected growth in the air district in order to project future emissions and then determine strategies and regulatory controls for the reduction of emissions. Growth projections are based on the general plans developed by the counties and incorporated cities in each county.

Although the project would contribute to energy supply, which is one factor of population growth, the project would not significantly increase employment, population, or growth within the region. The project does not include residential development or large local or regional employment centers, and thus would not result in significant population or employment growth. Furthermore, the operation of the project would create renewable energy over its planned lifetime, helping California meet its RPS, and decrease the need for energy from fossil fuel–based power plants in the state, which is considered a beneficial impact to statewide air quality. The energy produced by the project would displace the criteria pollutant emissions that would otherwise be produced by existing, business-as-usual power generation resources (including natural gas and coal).

The thresholds of significance, adopted by MDAQMD, determine compliance with the goals of attainment plans in the region. As such, emissions below MDAQMD daily and annual significance emissions thresholds would not conflict with or obstruct implementation of the applicable air quality plans. The project implementation would generate emissions of criteria air pollutants during construction and operation. The emissions from project construction (Table 11) and operation (Table 12) are below the thresholds of significance; therefore, the project does not conflict with implementation of MDAQMD applicable air quality plans. The detailed assumptions and calculations, as well as CalEEMod outputs, are provided in Appendix A of this report. Therefore, the project would have less-than-significant impacts and no mitigation measures are required.

Impact AQ-2 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)

MDAQMD's thresholds of significance represent the allowable emissions a project can generate without generating a cumulatively considerable contribution to regional air quality impacts. Therefore, a project that would not exceed MDAQMD's thresholds of significance on a project level also would not be considered to result in a cumulatively considerable contribution to these regional air quality impacts. The region is designated as nonattainment for federal and state 8-hour O_3 standards, federal and state 24-hour PM_{10} standards, and state $PM_{2.5}$ standards. Impacts related to construction and operation of the project are addressed separately below.

Construction

Project implementation would generate emissions of criteria air pollutants during construction. The estimated unmitigated emissions from construction of the project are summarized in Table 11. The detailed assumptions and calculations, as well as CalEEMod outputs, are provided in Appendix A of this report.

Table 11. Unmitigated Construction Emissions Summary

Construction Year	Unmitigated Construction Emissions					
	VOC	NO_x	CO	PM_{10}	$PM_{2.5}$	SO_2
Pollutant Emission (pounds per day)						
2026 peak daily emission	16.1	129.2	190.8	31.1	11.8	0.37

Construction Year	Unmitigated Construction Emissions					
	VOC	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**
2027 peak daily emission	12.5	106.6	140.6	23.2	7.5	0.33
MDAQMD daily significance thresholds	*137*	*137*	*548*	*82*	*65*	*137*
Threshold exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
Pollutant Emission (short tons per year)						
2026 annual emissions	*1.32*	*11.37*	*15.28*	*3.08*	*1.11*	*0.03*
2027 annual emissions	*0.53*	*4.62*	*7.17*	*1.77*	*0.49*	*0.02*
MDAQMD annual significance thresholds	*25*	*25*	*100*	*15*	*12*	*25*
Threshold exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
General Conformity De Minimis thresholds	*25*	*25*	*n/a*	*70*	*70*	*n/a*
Threshold exceeded?	***No***	***No***	***n/a***	***No***	***No***	***n/a***

Source: Emissions were quantified using CalEEMod version 2022.1.1.29 (CAPCOA 2023). Maximum winter reported for pound/day emissions.

Note: Model results (summer, winter, and annual) and assumptions are provided in Appendix A of this report. n/a – not applicable

As shown in Table 11, even without incorporation of dust control practices (APM AIR-1 through AIR-8) and for off-road equipment engine standards (APM AIR-9), estimated unmitigated construction emissions for all pollutants are below MDAQMD daily and annual significance thresholds. The annual emissions are also below the applicable General Conformity De Minimis thresholds. The combined construction emissions from all components of the project are below the recommended MDAQMD thresholds of significance. Therefore, project construction would have a less-than-significant impact. In CalEEMod, the following measures were included in this unmitigated model to reflect common measures for fugitive dust control discussed further in Section 7.1 (APM AIR-1 through AIR-8) and Section 7.4 (MDAQMD Rule 403): reduce speed on unpaved roads to 15 miles per hour, water exposed areas two times per day, and water the unpaved roads traveled to the project a minimum of two times per day. As presented above, the project would not violate any air quality significance thresholds or contribute substantially to an existing or projected air quality violation and the project would have a less-than-significant impact with respect to community risk caused by construction activities.

Operations

Project operations are limited to panel washing and maintenance, which are conservatively assumed to be up to 80 one-way employee vehicle trips per weekday. Project operations would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources and water use. The estimated emissions from operation of the project are summarized in Table 12. Complete details of the emissions calculations are provided in Appendix A.

Table 12. Unmitigated Operational Emissions Summary

Operation Year 2028	Unmitigated Operational Emissions Summary					
	VOC	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**
Pollutant Emission (pounds per day)						
Mobile	0.19	5.24	2.49	2.91	0.82	0.09
Area	1.08	0.06	6.62	0.01	0.01	<0.005
Energy	0	0	0	0	0	0
Water	0	0	0	0	0	0
Water	0	0	0	0	0	0

Operation Year 2028	Unmitigated Operational Emissions Summary					
	VOC	**NO_x**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**
Refrigeration	0	0	0	0	0	0
Total	**1.28**	**5.29**	**9.12**	**2.93**	**0.83**	**0.09**
MDAQMD significance thresholds	*137*	*137*	*448*	*82*	*64*	*137*
Threshold exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
Pollutant Emission (short tons per year)						
Mobile	*0.02*	*0.73*	*0.32*	*0.38*	*0.11*	*0.01*
Area	*0.10*	*0.005*	*0.59*	*0.001*	*<0.005*	*<0.005*
Energy	*0*	*0*	*0*	*0*	*0*	*0*
Water	0	0	0	0	0	0
Water	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0
Total	***0.12***	***0.74***	***0.92***	***0.38***	***0.11***	***0.01***
MDAQMD significance thresholds	*25*	*25*	*100*	*15*	*12*	*25*
Threshold exceeded?	***No***	***No***	***No***	***No***	***No***	***No***
General Conformity De Minimis thresholds	*25*	*25*	*n/a*	*70*	*70*	*n/a*
Threshold exceeded?	***No***	***No***	***n/a***	***No***	***No***	***n/a***

Source: Emissions were quantified using CalEEMod version 2022.1.1.29 (CAPCOA 2023). Maximum summer reported for pound/day emissions.

Note: Model results (summer, winter, and annual) and assumptions are provided in Appendix A.

Once construction is complete, the project would operate for approximately 40 years. At the end of the project site operational term, the applicant may determine that the project site should be decommissioned and deconstructed, or it may seek an extension of its conditional use permit. The emissions associated with decommissioning of the project are not quantitatively estimated, as the extent of activities and emissions factors for equipment and vehicles at the time of decommissioning are unknown. The overall activity would be anticipated to be somewhat less than project construction, and the emissions from off- and on-road equipment are expected to be much lower than those for the project construction. However, without changes in fugitive dust control methods, it is likely that fugitive dust emissions would be closer to those estimated for construction. Overall, similar to construction, emissions associated with decommissioning would be less than significant.

As Table 12 shows, estimated unmitigated operational emissions for all pollutants are below MDAQMD significance thresholds; and MDAQMD rules would be implemented during construction and operation of the project, including an operational DCP outlining strategies for controlling dust emissions during project operations. The project APMs are listed in Section 7.1 and the MDAQMD (Rule 403.2) requirements are listed in Section 7.4 of this report. The annual emissions are also below the applicable General Conformity De Minimis thresholds. Also, project operations would not affect traffic volumes at any affected intersection. Therefore, the project would not exceed the CO screening criteria or the General Conformity de minimis thresholds. Therefore, based on the above criteria, the project would have a less-than-significant impact related to CO hotspots. The combined construction emissions and combined operational emissions from all components of the project are below the recommended MDAQMD thresholds of significance. Therefore, the project would not be anticipated to exceed any significance thresholds and would have a less-than-significant contribution to cumulative impacts.

Impact AQ-3 Would the project expose sensitive receptors to substantial pollutant concentrations? (Less than Significant Impact)

Some population groups, such as children, the elderly, and acutely and chronically ill persons are considered more sensitive to air pollution than others. Sensitive receptor locations typically include residential areas, hospitals, elder-care facilities, rehabilitation centers, daycare centers, and parks. The project site is composed of rural desert land and is almost entirely undeveloped. The proposed project location is not situated close to any non-residential areas that might be sensitive to noise, such as schools, hospitals, daycare centers, or long-term care establishments. The nearest schools, Baker Elementary, Middle, and High Schools, are over 6.5 miles away, situated in the northeastern part of Baker. The closest residences to the project location can be found next to the Rasor Road service station, roughly 260 feet southwest of the proposed boundary. This area encompasses a stand-alone house and accommodation for four workers. There are no other sensitive receptors within 1,500 feet of the project site and actual construction occurs more than 3,500 feet from this stand-alone home.

The project would not produce high doses of any TACs during construction or operation. Implementation of the project would not result in the long-term operation of any emission sources that would adversely affect nearby sensitive receptors. Short-term construction activities (18 months) could result in temporary increases in pollutant concentrations. Emissions of all criteria pollutants are below the MDAQMD thresholds and would not have any significant impact. The project's emissions of TACs would be minimal and would consist of DPM emissions during construction activities. Although other TACs exist (e.g., benzene, 1,3-butadiene, hexavalent chromium, formaldehyde, methylene chloride), they are primarily associated with industrial operations and the project would not include any industrial sources of other TACs.

Construction-related activities that would result in temporary, intermittent emissions of DPM would be from the exhaust of off-road equipment and on-road, heavy-duty trucks. On-road, diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive DPM emissions.

Based on the construction-related emission calculations conducted (see Appendix A), maximum daily emissions of exhaust PM_{10} (used as a surrogate for DPM) would be 4.72 pounds during peak construction. A portion of these emissions would be related to haul trucks traveling to and from the project site. In addition, studies show that DPM is highly dispersive and that concentrations of DPM decline with distance from the source (e.g., 500 feet from a freeway, the concentration of DPM decreases by 70%) (Roorda-Knape et al. 1999; Zhu et al. 2002, cited in CARB 2005:9). Additionally, there are no nearby sensitive receptors close to the project site. Although there is a stand-alone house roughly 260 feet southwest of the proposed boundary, this would accommodate four workers. Although the project boundary is 260 feet from this house, the nearest construction location actually occurs between 3,500 feet and 20,000 feet from the house. As such, construction would not be limited to only one portion of the project site but would occur throughout the project site in phases. Construction-related TAC emissions would not expose sensitive receptors to an incremental increase in cancer risk greater than 10 in 1 million or a hazard index greater than 1.0 because the low exposure level reflects the 1) relatively low mass of DPM emissions that would be generated by construction activity on the project site (i.e., less than 4.29 pounds per day for 2026 and 3.15 pounds per day for 2027 of exhaust PM_{10}), 2) the relatively short duration of DPM-emitting construction activity at the project site (18 months), and 3) the highly dispersive properties of DPM.

Operation-related TAC emissions would be negligible, and the project would be controlled remotely, with few visits to the site for maintenance. Also, any on-road, diesel-powered haul trucks traveling to and from the construction area to deliver materials and equipment are less of a concern because they do not operate at any one location for extended periods of time such that they would expose a single receptor to excessive DPM emissions. No other TAC emission sources will occur during operations.

Furthermore, to fulfill the CEC requirements in Appendix B of the AFC Program Guidance for public health sections (g)(9)(A) through (g)(9)(D) a health risk assessment including air dispersion modeling has been completed for project construction. Estimates of the health risks at the MEIR from exposure to DPM during project construction are summarized in Appendix B and were below the MDAQMD's thresholds of significance. Therefore, construction of the project would not expose existing sensitive receptors to substantial concentrations of hazardous air pollutants from project construction. Therefore, construction- and operation-generated emissions of TACs would be less than significant.

BESS Thermal Runaway

The BESS would use lithium-ion batteries (LiBs), which are found in myriad consumer products (e.g., phones, computers). Under normal operating conditions, LiBs produce no emissions and are safe. However, in some situations LiBs may fail and then overheat. If the overheating is not interrupted by mitigation measures, the LiB may enter "thermal runaway," a process through which the battery overheats beyond its capacity to dissipate heat. If thermal runaway is not controlled by safety systems, a single battery could catch fire, and that fire could spread to other adjacent batteries. Although redundant safety systems are available to prevent this multi-step process from occurring, the thermal runaway modeling assumes that such systems fail.

To provide a conservative analysis, the worst-case scenario, in terms of the extent and duration of the thermal runaway event, was determined based on the UL 9540A module level and unit level testing results. With all active control measures disabled, the UL 9540A unit level testing forced six cells into thermal runaway, which resulted in propagation to a seventh cell; however, thermal runaway did not propagate beyond the seventh cell. The duration of the UL 9540A unit level testing was 2.5 hours. This analysis conservatively assumed every cell in a battery tray (112 cells) would be affected during a thermal runaway event (16 times the UL 9540A unit level testing result), representing a reasonable worst-case scenario. To be conservative, the amount of time required for a battery tray fire to burn itself out during the UL 9540A module level testing, which was approximately 0.5 hour, was used to estimate the emission rate.

Estimates of acute non-cancer health risks at the nearest sensitive receptor from exposure to thermal runaway emissions are summarized in Table 4 of Appendix C and compared to the thresholds of significance. At the nearest sensitive receptor, the estimated acute HI for all the TACs from a thermal runaway event were below the threshold of significance. As a result, the project would not expose sensitive receptors to substantial concentrations of hazardous air pollutants from a thermal runaway event. As presented in Table 5 of Appendix C, the estimated concentrations of CO at the nearest sensitive receptor from a thermal runaway event would be below the EPA SILs. Therefore, the project's criteria air pollutant emissions during a thermal runaway event would not cause or contribute to an exceedance of the ambient air quality standards. In addition, the project would not expose sensitive receptors to substantial concentrations of hazardous air pollutants from a thermal runaway event.

Fugitive Dust

During construction and operations activities, the project would implement dust control measures as shown in Section 7.1 and Section 7.4 of this report, including an operational DCP, to ensure receptors in the project vicinity would not be impacted by the project's long-term dust emissions during operations.

Naturally Occurring Asbestos

Airborne asbestos is classified as a known human carcinogen; CARB identified asbestos as a TAC in 1986. The project is not located in a geologic setting with a potential to host asbestos and, therefore, the project would not expose sensitive receptors to asbestos (CARB 2000a).

Impact AQ-4 Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people? (Less than Significant Impact)

Land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The project would not be a source of any odors during operations. Construction of the project could result in emission of odors from construction equipment and vehicles. During construction, a limited number of diesel engines would be operated on the project site for limited durations. Diesel exhaust and VOCs from these diesel engines would be emitted; however, the short duration of construction activities is expected to last approximately 18 months, limited in extent at any given time, and distributed through the project site. In addition, emissions would disperse rapidly from the project site and diesel exhaust odors would be consistent with existing vehicle odors in the area.

The project does not include any uses identified as being associated with odors. In addition, beyond one residence adjacent to the project site, there are not substantial numbers of people within the vicinity. Considering this information, construction and operation of the project would not create other emissions or odors adversely affecting a substantial number of people; impacts would be less than significant.

Impact GHG-1 Would the project generate GHG emissions, either directly or indirectly, that may have an adverse effect on the environment? (Less than Significant Impact)

Construction

Construction of the project would result in GHG emissions, which are primarily associated with use of off-road construction equipment, on-road vendor trucks, and worker vehicles. Total GHG emissions from all phases of construction activities were amortized over the estimated 40-year life of the project and added to the annual operational emissions of GHGs. The project would offset GHG emissions through renewable energy generation and thereby result in environmental benefits by lessening the impacts of global climate change; as such, the annual displaced GHG emissions were estimated to include all direct and indirect emissions associated with implementation of the project. Project decommissioning emissions were not calculated as the equipment and fuel types that would exist 40 or more years in the future are unknown. Also, as described above, it is anticipated that the decommissioning emissions would be lower than the construction emissions.

Project construction emissions were calculated and compared to the MDAQMD daily and annual significance thresholds. Construction emissions were also amortized over a 40-year project lifetime. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario described. Construction of the project is anticipated to last approximately 18 months. On-site sources of GHG emissions include off-road equipment and off-site sources including haul trucks, vendor trucks, and worker vehicles. Table 13 presents total construction emissions for the project from on-site and off-site emission sources for the daily and annual time period.

Table 13. Estimated Daily and Annual Construction Greenhouse Gas Emissions

Construction Years	CO_2	CH_4	N_2O	CO_2e
Pounds per Day				
2026	55,476	1.34	4.00	56,792
2027	49,643	0.83	3.97	50,850
Total	105,119	2.17	7.97	107,642
MDAQMD Daily GHG threshold	N/A	N/A	N/A	497,137
Threshold exceeded?	***N/A***	***N/A***	***N/A***	***No***
Tons per Year				
2026	4,870	0.08	0.39	4,993
2027	3,090	0.03	0.31	3,185
Total	7,960	0.11	0.70	8,178
40-year amortized construction emissions				*204*
MDAQMD Annual GHG threshold	N/A	N/A	N/A	90,718
Threshold exceeded?	***N/A***	***N/A***	***N/A***	**No**

Note: N/A = not applicable. See Appendix A of this report. The MDAQMD daily GHG threshold is 548,000 short tons converted to metric tons. The MDAQMD Annual GHG threshold is 100,000 short tons converted to metric tons.

As shown in Table 13, the estimated total GHG emissions during construction would be approximately 8,178 metric tons CO_2e over the construction period, below the MDAQMD threshold. Estimated project-generated construction emissions amortized over 40 years would be approximately 204 metric tons CO_2e per year. As with project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the project would occur only when construction is active, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Therefore, the construction activities would not generate GHG emissions, either directly or indirectly, that would have an adverse effect on the environment.

Operation

Operation of the project would generate GHG emissions through motor vehicle trips to and from the project site and water use. CalEEMod was used to calculate the annual GHG emissions based on the operational assumptions described in Section 6.2 of this report. The estimated operational project-generated GHG daily and annual emissions are shown in Table 14.

Table 14. Estimated Annual Operational GHG Emissions

Sector	GHG Emissions (pounds per day)			
	CO_2	CH_4	N_2O	CO_2e
Mobile	9,711.10	0.03	1.07	10,057.44
Area	27.26	<0.005	<0.005	27.35
Energy	144.40	0.01	0.005	144.95
Water	52.18	0.23	0.01	59.66
Waste	5.34	0.53	0.00	18.67
Refrigeration	N/A	N/A	N/A	1.04
Circuit Breaker SF_6	0	0	0	6.07

Stationary	0	0	0	0
Total	9,914	0.80	1.07	10,315
			Total operational daily GHGs	***10,315***
			MDAQMD Daily Significance threshold	***497,137***
Sector	**GHG Emissions (metric tons per year)**			
	CO_2	**CH_4**	**N_2O**	**CO_2e**
Mobile	1,148	<0.005	0.13	1,188
Area	2.23	<0.005	<0.005	2.23
Energy	23.91	<0.005	<0.005	24.00
Water	8.64	0.04	<0.005	9.88
Waste	0.88	0.09	0.00	3.09
Refrigeration	N/A	N/A	N/A	0.17
Circuit Breaker SF_6	0	0	0	2,214
Stationary	0	0	0	0
Total	**1,184**	**0.13**	**0.13**	**3,441**
			Amortized construction emissions	204
			Total annual operational + amortized construction GHGs	***3,645***
			Total operational (40 years) + amortized construction GHGs	***137,844***
			Displaced annual emissions (from project operation)	***300,786***
			MDAQMD annual significance threshold	***90,718***

Notes: N/A = not applicable. See Appendix A of this report. Emissions reflect operational year 2028. The MDAQMD daily GHG threshold is 548,000 short tons converted to metric tons. The MDAQMD GHG threshold is 100,000 short tons converted to metric tons.

As shown in Table 14, estimated annual project-generated GHG emissions would be approximately 3,441 MT CO_2e per year as a result of project operations only. After summing the amortized project construction emissions, total GHGs generated by the project would be approximately 3,645 MT CO_2e per year. The project's annual indirect GHG emissions from the displacement of fossil fuel fired electricity generation is significantly higher than the project's annualized direct and indirect emissions sources; as such, the overall effect of the project would reduce GHG emissions. Therefore, the project would have a beneficial GHG emissions impact, and impacts would be less than significant.

Approximately 64 percent of total operational emissions are associated with the emissions of SF_6, which is a component in the circuit breakers of the project. The project would include one circuit breaker to support the substation and utility switchyard (five circuit breakers with space to add one additional in the future). As detailed in the methodology section (Section 6.2), the use of SF_6 in electric utility systems and switchgear, including circuit breakers, poses a concern, because this pollutant has an extremely high global warming potential (one pound of SF_6 is the equivalent warming potential of approximately 24,600 pounds of CO_2). The amount of SF_6 in each circuit breaker can vary based on the manufacture. Annual leakage for a typical General Electric 500 kV circuit breaker is ≤0.5% with the total weight around five kilograms per pole. There are three poles per circuit breaker for a total of 18 poles for all six circuit breakers, and total SF_6 gas weight of approximately 90 kilograms or 198 pounds (0.09 MT). Based on the global warming potential of SF_6, the circuit breakers would result in up to 2,214 MT of CO_2e emissions, annually.

In compliance with CARB regulations, the applicant would be required to regularly inventory gas insulated switchgear equipment, measure quantities of SF_6 and submit an annual report to CARB. In addition, the analysis assumed that all circuit breakers would contain SF_6 as a conservative analysis. As discussed in the regulatory section, CARB has implemented phasing requirements for the elimination of SF_6 from electrical equipment, including circuit breakers. While the analysis assumes that all circuit breakers would contain SF_6, it is possible that circuit breakers in the later phases may not contain SF_6 and/or as circuit breakers are replaced they would be replaced with non-SF_6 technology. Additionally, as discussed in the methodology section, the analysis assumed the maximum amount of SF_6 per circuit breaker and depending on the circuit breaker actually used, SF_6 content may be substantially less than assumed in the analysis. Therefore, GHG emissions reported for the project are conservative.

Impact GHG-2 Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Currently, there are no federal, state, or local climate change or GHG emissions regulations that address the GHG emissions during project construction. There are a number of federal, state, and local plans and policies and GHG emissions reduction strategies that are potentially applicable to the project operation, either directly or indirectly. The project operation is consistent with the following:

- The project would be consistent with the AB 32 scoping plan strategies to increase the total amount of renewable energy sources consistent with the goal of the state's RPS.
- The project would be consistent with CARB's emission reduction strategy presented in the Scoping Plans (2022 and 2008). The 2008 Scoping Plan specifically addresses critical measures directed at emission sources that are included in the cap-and-trade program that are designed to achieve cost-effective emissions reductions while accelerating the necessary transition to the low-carbon economy.
- The project would be consistent with the San Bernardino County Policy Plan and GHG Plan.
- The project implementation would help California meet its RPS requirements.

The project would help promote California's GHG policies by creating renewable energy resources and would not exceed applicable GHG screening levels shown in Table 11. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions. Moreover, projects that are consistent with applicable plan, policy, or regulation adopted to reduce GHG emissions are considered less than significant during construction, operation, and reclamation. Furthermore, GHG emissions from the project, as shown in Appendix A, would not generate substantial GHG emissions during construction or operation. Therefore, impacts would be less than significant.

7.3 Cumulative Impacts

7.3.1 Air Quality

MDAQMD relies on SCAQMD guidance for determining cumulative impacts. SCAQMD has recognized that there is typically insufficient information to quantitatively evaluate the cumulative contributions of multiple projects because each project applicant has no control over nearby projects. SCAQMD published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (SCAQMD 2003b). In this report the AQMD clearly states (Page D-3):

> …the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant

(TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003b).

Individual projects that do not generate operational or construction emissions that exceed MDAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the MDAB is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. The project would also not exceed the General Conformity de minimis thresholds for any pollutants in nonattainment. As previously noted, the project construction-source and operational-source air pollutant emissions would not exceed applicable MDAQMD regional thresholds. However, the project would incorporate APMs AIR-1 through AIR-9 and MDAQMD (Rule 403.2) requirements to further reduce potential emissions. A cumulative air quality modeling impacts analysis is not needed since the project does not have any emissive stationary sources that would be combined with other stationary emissions sources within a 6-mile radius that have received construction permits but are not yet operational or are in the permitting process. As such, project construction and operational-source emissions are considered less than significant.

7.3.2 Greenhouse Gas Emissions

The analysis of a project's GHG emissions is inherently a cumulative impacts analysis because climate change is a global problem and the emissions from any single project alone would be negligible. Accordingly, the analysis above considers the potential for the project to contribute to the cumulative impact of global climate change. Table 13 and Table 14 show the estimated annual project-generated GHG emissions as a result of project construction and operation. Given that the project would displace GHG emissions during operations, would generate construction and operation GHG emissions that are below the MDAQMD threshold, that would not conflict with applicable reduction plans and policies; and given that GHG emission impacts are cumulative in nature, the project's incremental contribution to cumulatively significant GHG emissions would be less than significant.

7.4 Air Quality Construction Management Plan

In compliance with MDAQMD requirements, an Air Quality Construction Management Plan would be implemented during construction of the project. No less than 60 days prior to the start of construction, the project applicant would prepare and submit an Air Quality Construction Management Plan to MDAQMD. The plan would describe the fugitive dust control measures that would be implemented and monitored at all locations of proposed facility construction. This plan shall comply with the control measures described in the Fugitive Dust Control Rules enforced by MDAQMD (Rule 403.2). The plan shall be incorporated into all contracts and contract specifications for construction work. The plan shall outline the steps to be taken to minimize fugitive dust generated by construction activities by:

- Obtaining and maintaining a district-approved Dust Control Plan as set forth by MDAQMD Section 403.2(D);
- Using periodic watering for short-term stabilization of the disturbed surface area to minimize visible fugitive dust emissions. For the purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;
- Taking actions sufficient to prevent project-related trackout onto paved surfaces;
- Covering loaded haul vehicles while operating on publicly maintained paved surfaces;
- Stabilizing graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate visible fugitive dust emissions;
- Cleaning up project-related trackout or spills on publicly maintained paved surfaces within 24 hours;
- Reducing non-essential earth-moving activity under high wind conditions. For purposes of this Rule, a reduction in earth-moving activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance;
- Maintaining the natural topography to the extent possible during grading and other earth movement;
- Providing a construction schedule that specifies construction of parking lots and paved roads first, where feasible, and upwind structures prior to downwind structures;
- Covering or otherwise containing bulk material carried on haul trucks operating on paved roads; and
- Removing bulk material tracked onto paved road surfaces.

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APPENDIX A

CalEEMod Results – Air Pollutant and GHG Emission Calculations

Soda Mountain Solar V4 Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Soda Mountain Solar V4
Construction Start Date	3/1/2026
Operational Year	2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	5.00
Precipitation (days)	8.20
Location	35.1450754767025, -116.18597442305969
County	San Bernardino-Mojave Desert
City	Unincorporated
Air District	Mojave Desert AQMD
Air Basin	Mojave Desert
TAZ	5139
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.29

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	2,700	User Defined Unit	2,700	0.00	0.00	0.00	—	—

Parking Lot	0.33	Acre	0.33	0.00	0.00	0.00	—	—
Unrefrigerated Warehouse-No Rail	5.00	1000sqft	0.11	5,000	0.00	0.00	—	—
Unrefrigerated Warehouse-No Rail	2.40	1000sqft	0.06	2,400	0.00	0.00	—	—
General Light Industry	5.00	1000sqft	0.11	5,000	0.00	0.00	—	—
General Heavy Industry	140	1000sqft	3.21	140,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	19.0	16.1	129	191	0.37	4.29	26.8	31.1	3.98	7.85	11.8	—	55,476	55,476	1.34	4.00	89.4	56,792
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.3	14.6	125	159	0.36	4.08	26.8	30.9	3.79	7.85	11.6	—	53,077	53,077	0.94	3.99	2.32	54,294
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	8.58	7.25	62.3	83.7	0.19	1.97	14.9	16.9	1.83	4.26	6.10	—	29,414	29,414	0.47	2.37	23.1	30,155
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.57	1.32	11.4	15.3	0.03	0.36	2.72	3.08	0.33	0.78	1.11	—	4,870	4,870	0.08	0.39	3.82	4,993

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	19.0	16.1	129	191	0.37	4.29	26.8	31.1	3.98	7.85	11.8	—	55,476	55,476	1.34	4.00	89.4	56,792
2027	5.79	5.03	38.8	86.7	0.19	0.88	18.9	19.8	0.84	4.41	5.25	—	38,626	38,626	0.30	3.85	81.7	39,862
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	17.3	14.6	125	159	0.36	4.08	26.8	30.9	3.79	7.85	11.6	—	53,077	53,077	0.94	3.99	2.32	54,294
2027	14.8	12.5	107	141	0.33	3.15	20.0	23.2	2.93	4.52	7.46	—	49,643	49,643	0.83	3.97	2.11	50,850
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	8.58	7.25	62.3	83.7	0.19	1.97	14.9	16.9	1.83	4.26	6.10	—	29,414	29,414	0.47	2.37	23.1	30,155
2027	3.43	2.92	25.3	39.3	0.10	0.62	9.10	9.72	0.59	2.11	2.69	—	18,666	18,666	0.19	1.85	16.8	19,240
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	1.57	1.32	11.4	15.3	0.03	0.36	2.72	3.08	0.33	0.78	1.11	—	4,870	4,870	0.08	0.39	3.82	4,993
2027	0.63	0.53	4.62	7.17	0.02	0.11	1.66	1.77	0.11	0.38	0.49	—	3,090	3,090	0.03	0.31	2.79	3,185

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.42	1.28	5.29	9.12	0.09	0.09	2.83	2.93	0.09	0.74	0.83	7.55	9,933	9,940	0.80	1.07	29.2	10,309
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	0.24	0.18	5.54	2.48	0.09	0.08	2.83	2.91	0.08	0.74	0.82	7.55	9,906	9,914	0.80	1.08	1.77	10,256
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.75	0.67	4.04	5.03	0.07	0.06	2.01	2.08	0.06	0.53	0.59	7.55	7,144	7,152	0.80	0.77	9.72	7,411
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.14	0.12	0.74	0.92	0.01	0.01	0.37	0.38	0.01	0.10	0.11	1.25	1,183	1,184	0.13	0.13	1.61	1,227

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	0.19	5.24	2.49	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,711	9,711	0.03	1.07	28.1	10,057
Area	1.18	1.09	0.06	6.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	144	144	0.01	< 0.005	—	145
Water	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
Waste	—	—	—	—	—	—	—	—	—	—	—	5.34	0.00	5.34	0.53	0.00	—	18.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.04	1.04
Total	1.42	1.28	5.29	9.12	0.09	0.09	2.83	2.93	0.09	0.74	0.83	7.55	9,933	9,940	0.80	1.07	29.2	10,309
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.24	0.18	5.54	2.48	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,712	9,712	0.03	1.07	0.73	10,032
Area	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	144	144	0.01	< 0.005	—	145
Water	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
Waste	—	—	—	—	—	—	—	—	—	—	—	5.34	0.00	5.34	0.53	0.00	—	18.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.04	1.04

Total	0.24	0.18	5.54	2.48	0.09	0.08	2.83	2.91	0.08	0.74	0.82	7.55	9,906	9,914	0.80	1.08	1.77	10,256
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.17	0.13	4.02	1.76	0.07	0.06	2.01	2.07	0.06	0.53	0.58	—	6,937	6,937	0.02	0.76	8.68	7,173
Area	0.58	0.54	0.03	3.27	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	13.4	13.4	< 0.005	< 0.005	—	13.5
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	144	144	0.01	< 0.005	—	145
Water	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
Waste	—	—	—	—	—	—	—	—	—	—	—	5.34	0.00	5.34	0.53	0.00	—	18.7
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.04	1.04
Total	0.75	0.67	4.04	5.03	0.07	0.06	2.01	2.08	0.06	0.53	0.59	7.55	7,144	7,152	0.80	0.77	9.72	7,411
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.03	0.02	0.73	0.32	0.01	0.01	0.37	0.38	0.01	0.10	0.11	—	1,148	1,148	< 0.005	0.13	1.44	1,188
Area	0.11	0.10	0.01	0.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	23.9	23.9	< 0.005	< 0.005	—	24.0
Water	—	—	—	—	—	—	—	—	—	—	—	0.37	8.27	8.64	0.04	< 0.005	—	9.88
Waste	—	—	—	—	—	—	—	—	—	—	—	0.88	0.00	0.88	0.09	0.00	—	3.09
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17
Total	0.14	0.12	0.74	0.92	0.01	0.01	0.37	0.38	0.01	0.10	0.11	1.25	1,183	1,184	0.13	0.13	1.61	1,227

3. Construction Emissions Details

3.1. Stage 1 (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road	4.72	3.96	34.2	37.2	0.07	1.45	—	1.45	1.33	—	1.33	—	7,539	7,539	0.31	0.06	—	7,565
Dust From Material Movement	—	—	—	—	—	—	6.78	6.78	—	3.33	3.33	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.3	16.3	< 0.005	< 0.005	0.02	17.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.72	3.96	34.2	37.2	0.07	1.45	—	1.45	1.33	—	1.33	—	7,539	7,539	0.31	0.06	—	7,565
Dust From Material Movement	—	—	—	—	—	—	6.78	6.78	—	3.33	3.33	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.4	16.4	< 0.005	< 0.005	< 0.005	17.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.26	1.90	16.4	17.9	0.03	0.69	—	0.69	0.64	—	0.64	—	3,615	3,615	0.15	0.03	—	3,627
Dust From Material Movement	—	—	—	—	—	—	3.25	3.25	—	1.60	1.60	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.02	< 0.005	< 0.005	0.52	0.52	< 0.005	0.05	0.05	—	7.83	7.83	< 0.005	< 0.005	< 0.005	8.21
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41	0.35	3.00	3.26	0.01	0.13	—	0.13	0.12	—	0.12	—	598	598	0.02	< 0.005	—	600

Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.29	0.29	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.10	0.10	< 0.005	0.01	0.01	—	1.30	1.30	< 0.005	< 0.005	< 0.005	1.36
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.55	3.12	3.77	67.5	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	12,930	12,930	0.48	0.42	44.0	13,112
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.43	0.39	22.8	4.12	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,671	21,671	0.02	3.40	45.4	22,732
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.23	2.79	4.17	43.7	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	11,442	11,442	0.12	0.42	1.14	11,572
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.39	0.36	24.2	4.23	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,687	21,687	0.02	3.40	1.18	22,703
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.56	1.36	2.18	23.7	0.00	0.00	5.66	5.66	0.00	1.33	1.33	—	5,648	5,648	0.06	0.20	9.09	5,719
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.20	0.18	11.6	2.00	0.07	0.21	2.83	3.04	0.21	0.73	0.93	—	10,394	10,394	0.01	1.63	9.40	10,890
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28	0.25	0.40	4.33	0.00	0.00	1.03	1.03	0.00	0.24	0.24	—	935	935	0.01	0.03	1.51	947
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.03	2.12	0.36	0.01	0.04	0.52	0.55	0.04	0.13	0.17	—	1,721	1,721	< 0.005	0.27	1.56	1,803

3.3. Stage 2 (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.97	7.46	62.5	74.3	0.13	2.20	—	2.20	2.02	—	2.02	—	12,377	12,377	0.50	0.10	—	12,419
Onsite truck	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.3	16.3	< 0.005	< 0.005	0.02	17.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	8.97	7.46	62.5	74.3	0.13	2.20	—	2.20	2.02	—	2.02	—	12,377	12,377	0.50	0.10	—	12,419
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.4	16.4	< 0.005	< 0.005	< 0.005	17.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.70	2.25	18.8	22.4	0.04	0.66	—	0.66	0.61	—	0.61	—	3,730	3,730	0.15	0.03	—	3,743
Onsite truck	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.33	0.33	< 0.005	0.03	0.03	—	4.92	4.92	< 0.005	< 0.005	< 0.005	5.16
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.49	0.41	3.44	4.08	0.01	0.12	—	0.12	0.11	—	0.11	—	618	618	0.03	0.01	—	620
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.06	0.06	< 0.005	0.01	0.01	—	0.81	0.81	< 0.005	< 0.005	< 0.005	0.85
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Stage 3 (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.70	0.59	5.91	9.42	0.01	0.22	—	0.22	0.21	—	0.21	—	1,418	1,418	0.06	0.01	—	1,423
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.4	16.4	< 0.005	< 0.005	< 0.005	17.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.04	0.36	0.57	< 0.005	0.01	—	0.01	0.01	—	0.01	—	86.0	86.0	< 0.005	< 0.005	—	86.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.07	0.07	< 0.005	0.01	0.01	—	0.99	0.99	< 0.005	< 0.005	< 0.005	1.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.07	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	14.2	14.2	< 0.005	< 0.005	—	14.3
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	0.16	0.16	< 0.005	< 0.005	< 0.005	0.17
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.7. Stage 3 (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.56	5.60	9.41	0.01	0.19	—	0.19	0.18	—	0.18	—	1,418	1,418	0.06	0.01	—	1,423
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.1	16.1	< 0.005	< 0.005	< 0.005	16.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.06	0.65	1.09	< 0.005	0.02	—	0.02	0.02	—	0.02	—	164	164	0.01	< 0.005	—	164
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.93
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.01	0.12	0.20	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.1	27.1	< 0.005	< 0.005	—	27.2
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.32
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Stage 3 - Phase 2 (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.33	1.11	8.64	13.1	0.03	0.30	—	0.30	0.27	—	0.27	—	3,084	3,084	0.13	0.03	—	3,095
Onsite truck	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	15.9	15.9	< 0.005	< 0.005	0.02	16.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.33	1.11	8.64	13.1	0.03	0.30	—	0.30	0.27	—	0.27	—	3,084	3,084	0.13	0.03	—	3,095
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.1	16.1	< 0.005	< 0.005	< 0.005	16.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	0.27	2.08	3.16	0.01	0.07	—	0.07	0.07	—	0.07	—	744	744	0.03	0.01	—	746
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.26	0.26	< 0.005	0.03	0.03	—	3.85	3.85	< 0.005	< 0.005	< 0.005	4.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.38	0.58	< 0.005	0.01	—	0.01	0.01	—	0.01	—	123	123	< 0.005	< 0.005	—	124
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.05	0.05	< 0.005	< 0.005	< 0.005	—	0.64	0.64	< 0.005	< 0.005	< 0.005	0.67
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.39	2.98	3.37	62.4	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	12,708	12,708	0.09	0.41	39.7	12,872
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.43	0.39	22.4	3.97	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,163	21,163	0.02	3.40	41.9	22,219

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.12	2.70	3.77	40.7	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	11,248	11,248	0.12	0.42	1.03	11,378
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.39	0.36	23.6	4.08	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,179	21,179	0.02	3.40	1.09	22,195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75	0.65	1.00	11.0	0.00	0.00	2.85	2.85	0.00	0.67	0.67	—	2,792	2,792	0.03	0.10	4.14	2,827
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.10	0.09	5.70	0.97	0.04	0.10	1.42	1.53	0.10	0.36	0.47	—	5,104	5,104	< 0.005	0.82	4.36	5,353
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.12	0.18	2.01	0.00	0.00	0.52	0.52	0.00	0.12	0.12	—	462	462	< 0.005	0.02	0.68	468
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.02	0.02	1.04	0.18	0.01	0.02	0.26	0.28	0.02	0.07	0.09	—	845	845	< 0.005	0.14	0.72	886

3.11. Stage 2 - Phase 2 (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	11.0	9.16	76.1	86.8	0.17	2.77	—	2.77	2.55	—	2.55	—	15,767	15,767	0.64	0.13	—	15,821
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.4	16.4	< 0.005	< 0.005	< 0.005	17.2

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.31	1.09	9.09	10.4	0.02	0.33	—	0.33	0.30	—	0.30	—	1,882	1,882	0.08	0.02	—	1,889
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	1.95	1.95	< 0.005	< 0.005	< 0.005	2.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.24	0.20	1.66	1.89	< 0.005	0.06	—	0.06	0.06	—	0.06	—	312	312	0.01	< 0.005	—	313
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.34
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.23	2.79	4.17	43.7	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	11,442	11,442	0.12	0.42	1.14	11,572
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.39	0.36	24.2	4.23	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,687	21,687	0.02	3.40	1.18	22,703
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.39	0.34	0.54	5.90	0.00	0.00	1.41	1.41	0.00	0.33	0.33	—	1,406	1,406	0.02	0.05	2.26	1,424
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.04	2.90	0.50	0.02	0.05	0.70	0.76	0.05	0.18	0.23	—	2,588	2,588	< 0.005	0.41	2.34	2,711
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.10	1.08	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	233	233	< 0.005	0.01	0.37	236
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.53	0.09	< 0.005	0.01	0.13	0.14	0.01	0.03	0.04	—	428	428	< 0.005	0.07	0.39	449

3.13. Stage 2 - Phase 2 (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	10.6	8.84	73.6	86.3	0.17	2.53	—	2.53	2.32	—	2.32	—	15,766	15,766	0.64	0.13	—	15,820
Onsite truck	< 0.005	< 0.005	0.06	0.05	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	16.1	16.1	< 0.005	< 0.005	< 0.005	16.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.22	1.02	8.49	9.97	0.02	0.29	—	0.29	0.27	—	0.27	—	1,820	1,820	0.07	0.01	—	1,827
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	1.84	1.84	< 0.005	< 0.005	< 0.005	1.93
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.22	0.19	1.55	1.82	< 0.005	0.05	—	0.05	0.05	—	0.05	—	301	301	0.01	< 0.005	—	302
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.31	0.31	< 0.005	< 0.005	< 0.005	0.32
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.12	2.70	3.77	40.7	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	11,248	11,248	0.12	0.42	1.03	11,378
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.39	0.36	23.6	4.08	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,179	21,179	0.02	3.40	1.09	22,195
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.36	0.31	0.48	5.28	0.00	0.00	1.36	1.36	0.00	0.32	0.32	—	1,337	1,337	0.01	0.05	1.98	1,354
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.04	2.73	0.46	0.02	0.05	0.68	0.73	0.05	0.17	0.22	—	2,444	2,444	< 0.005	0.39	2.09	2,564
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.09	0.96	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	221	221	< 0.005	0.01	0.33	224
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.50	0.08	< 0.005	0.01	0.12	0.13	0.01	0.03	0.04	—	405	405	< 0.005	0.07	0.35	424

3.15. Stage 4 - Phase 2 (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.56	4.55	7.41	0.02	0.15	—	0.15	0.14	—	0.14	—	1,693	1,693	0.07	0.01	—	1,699
Onsite truck	< 0.005	< 0.005	0.06	0.04	< 0.005	< 0.005	1.11	1.11	< 0.005	0.11	0.11	—	15.9	15.9	< 0.005	< 0.005	0.02	16.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.07	0.55	0.89	< 0.005	0.02	—	0.02	0.02	—	0.02	—	204	204	0.01	< 0.005	—	205
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.13	0.13	< 0.005	0.01	0.01	—	1.93	1.93	< 0.005	< 0.005	< 0.005	2.02
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.10	0.16	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	33.8	33.8	< 0.005	< 0.005	—	33.9
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	—	0.32	0.32	< 0.005	< 0.005	< 0.005	0.33
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	3.39	2.98	3.37	62.4	0.00	0.00	11.9	11.9	0.00	2.78	2.78	—	12,708	12,708	0.09	0.41	39.7	12,872
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.43	0.39	22.4	3.97	0.15	0.43	5.93	6.36	0.43	1.52	1.95	—	21,163	21,163	0.02	3.40	41.9	22,219
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.38	0.33	0.50	5.51	0.00	0.00	1.42	1.42	0.00	0.33	0.33	—	1,396	1,396	0.01	0.05	2.07	1,414
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.05	0.05	2.85	0.48	0.02	0.05	0.71	0.76	0.05	0.18	0.23	—	2,552	2,552	< 0.005	0.41	2.18	2,677
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.06	0.09	1.01	0.00	0.00	0.26	0.26	0.00	0.06	0.06	—	231	231	< 0.005	0.01	0.34	234
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.01	0.52	0.09	< 0.005	0.01	0.13	0.14	0.01	0.03	0.04	—	423	423	< 0.005	0.07	0.36	443

3.17. Stage 4 (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.64	0.54	4.40	7.16	0.02	0.14	—	0.14	0.13	—	0.13	—	1,655	1,655	0.07	0.01	—	1,660
Onsite 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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.03	0.26	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	99.7	99.7	< 0.005	< 0.005	—	100
Onsite 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.01	0.05	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	16.5	16.5	< 0.005	< 0.005	—	16.6
Onsite 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.19. Paving (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	4.66	6.35	0.01	0.21	—	0.21	0.19	—	0.19	—	927	927	0.04	0.01	—	930
Paving	0.09	0.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.02	0.13	0.17	< 0.005	0.01	—	0.01	0.01	—	0.01	—	25.4	25.4	< 0.005	< 0.005	—	25.5
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.20	4.20	< 0.005	< 0.005	—	4.22
Paving	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.21. Architectural Coating (2026) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.97	0.80	5.71	7.55	0.01	0.15	—	0.15	0.14	—	0.14	—	890	890	0.04	0.01	—	893
Architectural Coatings	0.40	0.40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.02	0.16	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	24.4	24.4	< 0.005	< 0.005	—	24.5

Architectural Coating	0.01	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	0.03	0.04	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.04	4.04	< 0.005	< 0.005	—	4.05
Architectural Coatings	< 0.005	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite 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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.25	0.19	5.24	2.49	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,711	9,711	0.03	1.07	28.1	10,057
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	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	0.25	0.19	5.24	2.49	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,711	9,711	0.03	1.07	28.1	10,057
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

User Defined Industrial	0.24	0.18	5.54	2.48	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,712	9,712	0.03	1.07	0.73	10,032
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	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	0.24	0.18	5.54	2.48	0.09	0.08	2.83	2.91	0.08	0.74	0.82	—	9,712	9,712	0.03	1.07	0.73	10,032
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.03	0.02	0.73	0.32	0.01	0.01	0.37	0.38	0.01	0.10	0.11	—	1,148	1,148	< 0.005	0.13	1.44	1,188
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	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	0.03	0.02	0.73	0.32	0.01	0.01	0.37	0.38	0.01	0.10	0.11	—	1,148	1,148	< 0.005	0.13	1.44	1,188

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	18.4	18.4	< 0.005	< 0.005	—	18.4
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	56.5	56.5	< 0.005	< 0.005	—	56.8
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	69.5	69.5	< 0.005	< 0.005	—	69.8
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	144	144	0.01	< 0.005	—	145
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	18.4	18.4	< 0.005	< 0.005	—	18.4

Unrefrigerated Wareho Rail	—	—	—	—	—	—	—	—	—	—	—	—	56.5	56.5	< 0.005	< 0.005	—	56.8
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	69.5	69.5	< 0.005	< 0.005	—	69.8
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	144	144	0.01	< 0.005	—	145
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	3.04	3.04	< 0.005	< 0.005	—	3.05
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	9.36	9.36	< 0.005	< 0.005	—	9.40
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	11.5	11.5	< 0.005	< 0.005	—	11.6
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	—	23.9	23.9	< 0.005	< 0.005	—	24.0

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

General Heavy Industry	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
General Heavy Industry	0.00	0.00	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	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architect Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.18	1.09	0.06	6.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Total	1.18	1.09	0.06	6.63	< 0.005	0.01	—	0.01	0.01	—	0.01	—	27.3	27.3	< 0.005	< 0.005	—	27.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.00	0.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.11	0.10	0.01	0.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23
Total	0.11	0.10	0.01	0.60	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.23	2.23	< 0.005	< 0.005	—	2.23

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	2.22	50.0	52.2	0.23	0.01	—	59.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.37	8.27	8.64	0.04	< 0.005	—	9.88
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.37	8.27	8.64	0.04	< 0.005	—	9.88

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	1.99	0.00	1.99	0.20	0.00	—	6.98
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	3.34	0.00	3.34	0.33	0.00	—	11.7
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.34	0.00	5.34	0.53	0.00	—	18.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	1.99	0.00	1.99	0.20	0.00	—	6.98
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	3.34	0.00	3.34	0.33	0.00	—	11.7

General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	5.34	0.00	5.34	0.53	0.00	—	18.7
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
User Defined Industrial	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	0.33	0.00	0.33	0.03	0.00	—	1.16
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.55	0.00	0.55	0.06	0.00	—	1.94
General Heavy Industry	—	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	—	0.88	0.00	0.88	0.09	0.00	—	3.09

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42

Unrefrig Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.04	1.04
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.42	0.42
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.62	0.62
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.04	1.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.07	0.07
Unrefrigerated Warehouse-No Rail	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.10	0.10
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.17	0.17

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Stage 1	Site Preparation	3/1/2026	10/31/2026	5.00	175	—
Stage 2	Building Construction	6/1/2026	10/31/2026	5.00	110	—
Stage 3	Building Construction	12/1/2026	2/28/2027	5.00	64.0	—

Stage 3 - Phase 2	Building Construction	3/1/2027	6/30/2027	5.00	88.0	—
Stage 2 - Phase 2	Building Construction	11/1/2026	2/28/2027	5.00	85.0	—
Stage 4 - Phase 2	Building Construction	7/1/2027	8/31/2027	5.00	44.0	—
Stage 4	Building Construction	6/1/2027	6/30/2027	5.00	22.0	—
Paving	Paving	6/17/2026	6/30/2026	5.00	10.0	—
Architectural Coating	Architectural Coating	7/1/2026	7/14/2026	5.00	10.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Stage 1	Rubber Tired Dozers	Diesel	Average	2.00	10.0	367	0.40
Stage 1	Tractors/Loaders/Backhoes	Diesel	Average	4.00	10.0	84.0	0.37
Stage 1	Excavators	Diesel	Average	1.00	10.0	36.0	0.38
Stage 1	Graders	Diesel	Average	1.00	10.0	148	0.41
Stage 1	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Stage 1	Plate Compactors	Diesel	Average	2.00	10.0	8.00	0.43
Stage 2	Cranes	Diesel	Average	2.00	10.0	367	0.29
Stage 2	Forklifts	Diesel	Average	5.00	10.0	82.0	0.20
Stage 2	Generator Sets	Diesel	Average	15.0	10.0	14.0	0.74
Stage 2	Tractors/Loaders/Backhoes	Diesel	Average	5.00	10.0	84.0	0.37
Stage 2	Welders	Diesel	Average	12.0	10.0	46.0	0.45
Stage 2	Trenchers	Diesel	Average	1.00	10.0	40.0	0.50
Stage 2	Bore/Drill Rigs	Diesel	Average	1.00	10.0	83.0	0.50
Stage 2	Rubber Tired Loaders	Diesel	Average	1.00	10.0	150	0.36
Stage 2	Excavators	Diesel	Average	4.00	10.0	36.0	0.38
Stage 3	Forklifts	Diesel	Average	3.00	10.0	82.0	0.20

Stage 3	Tractors/Loaders/Back	Diesel	Average	1.00	10.0	84.0	0.37
Stage 3	Skid Steer Loaders	Diesel	Average	1.00	10.0	71.0	0.37
Stage 3	Excavators	Diesel	Average	1.00	10.0	36.0	0.38
Stage 3 - Phase 2	Forklifts	Diesel	Average	3.00	10.0	82.0	0.20
Stage 3 - Phase 2	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84.0	0.37
Stage 3 - Phase 2	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Stage 3 - Phase 2	Skid Steer Loaders	Diesel	Average	1.00	10.0	71.0	0.37
Stage 3 - Phase 2	Excavators	Diesel	Average	1.00	10.0	36.0	0.38
Stage 2 - Phase 2	Cranes	Diesel	Average	2.00	10.0	367	0.29
Stage 2 - Phase 2	Forklifts	Diesel	Average	5.00	10.0	82.0	0.20
Stage 2 - Phase 2	Generator Sets	Diesel	Average	15.0	10.0	14.0	0.74
Stage 2 - Phase 2	Tractors/Loaders/Backhoes	Diesel	Average	5.00	10.0	84.0	0.37
Stage 2 - Phase 2	Welders	Diesel	Average	12.0	10.0	46.0	0.45
Stage 2 - Phase 2	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
Stage 2 - Phase 2	Trenchers	Diesel	Average	1.00	10.0	40.0	0.50
Stage 2 - Phase 2	Bore/Drill Rigs	Diesel	Average	1.00	10.0	83.0	0.50
Stage 2 - Phase 2	Rubber Tired Loaders	Diesel	Average	1.00	10.0	150	0.36
Stage 2 - Phase 2	Excavators	Diesel	Average	4.00	10.0	36.0	0.38
Stage 2 - Phase 2	Rubber Tired Dozers	Diesel	Average	1.00	10.0	367	0.40
Stage 4 - Phase 2	Forklifts	Diesel	Average	1.00	10.0	82.0	0.20
Stage 4 - Phase 2	Off-Highway Trucks	Diesel	Average	1.00	5.00	376	0.38
Stage 4 - Phase 2	Skid Steer Loaders	Diesel	Average	1.00	10.0	71.0	0.37
Stage 4 - Phase 2	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84.0	0.37
Stage 4	Forklifts	Diesel	Average	1.00	8.00	82.0	0.20
Stage 4	Tractors/Loaders/Backhoes	Diesel	Average	1.00	10.0	84.0	0.37
Stage 4	Off-Highway Trucks	Diesel	Average	1.00	5.00	376	0.38

Stage 4	Skid Steer Loaders	Diesel	Average	1.00	10.0	71.0	0.37
Paving	Pavers	Diesel	Average	1.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	8.00	36.0	0.38
Paving	Sweepers/Scrubbers	Diesel	Average	1.00	8.00	36.0	0.46
Architectural Coating	Air Compressors	Diesel	Average	5.00	8.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Stage 1	—	—	—	—
Stage 1	Worker	600	28.0	LDA,LDT1,LDT2
Stage 1	Vendor	0.00	10.2	HHDT,MHDT
Stage 1	Hauling	234	28.0	HHDT
Stage 1	Onsite truck	3.00	1.00	HHDT
Stage 2	—	—	—	—
Stage 2	Worker	0.00	18.5	LDA,LDT1,LDT2
Stage 2	Vendor	0.00	10.2	HHDT,MHDT
Stage 2	Hauling	0.00	20.0	HHDT
Stage 2	Onsite truck	3.00	1.00	HHDT
Paving	—	—	—	—
Paving	Worker	0.00	18.5	LDA,LDT1,LDT2
Paving	Vendor	0.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	0.00	0.00	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	18.5	LDA,LDT1,LDT2

Architectural Coating	Vendor	0.00	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	0.00	0.00	HHDT
Stage 3	—	—	—	—
Stage 3	Worker	0.00	18.5	LDA,LDT1,LDT2
Stage 3	Vendor	0.00	10.2	HHDT,MHDT
Stage 3	Hauling	0.00	20.0	HHDT
Stage 3	Onsite truck	3.00	1.00	HHDT
Stage 3 - Phase 2	—	—	—	—
Stage 3 - Phase 2	Worker	600	28.0	LDA,LDT1,LDT2
Stage 3 - Phase 2	Vendor	0.00	10.2	HHDT,MHDT
Stage 3 - Phase 2	Hauling	234	28.0	HHDT
Stage 3 - Phase 2	Onsite truck	3.00	1.00	HHDT
Stage 2 - Phase 2	—	—	—	—
Stage 2 - Phase 2	Worker	600	28.0	LDA,LDT1,LDT2
Stage 2 - Phase 2	Vendor	0.00	10.2	HHDT,MHDT
Stage 2 - Phase 2	Hauling	234	28.0	HHDT
Stage 2 - Phase 2	Onsite truck	3.00	1.00	HHDT
Stage 4 - Phase 2	—	—	—	—
Stage 4 - Phase 2	Worker	600	28.0	LDA,LDT1,LDT2
Stage 4 - Phase 2	Vendor	0.00	10.2	HHDT,MHDT
Stage 4 - Phase 2	Hauling	234	28.0	HHDT
Stage 4 - Phase 2	Onsite truck	3.00	1.00	HHDT
Stage 4	—	—	—	—
Stage 4	Worker	0.00	18.5	LDA,LDT1,LDT2
Stage 4	Vendor	0.00	10.2	HHDT,MHDT
Stage 4	Hauling	0.00	20.0	HHDT
Stage 4	Onsite truck	0.00	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	0.00	0.00	862

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Stage 1	0.00	449,900	2,112	0.00	—
Paving	0.00	0.00	0.00	0.00	3.81

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

Parking Lot	0.33	100%
Unrefrigerated Warehouse-No Rail	0.11	0%
Unrefrigerated Warehouse-No Rail	0.06	0%
General Light Industry	0.11	0%
General Heavy Industry	3.21	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
User Defined Industrial	81.0	0.00	0.00	21,118	3,577	0.00	0.00	932,509
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
General Heavy Industry	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	228,600	76,200	862

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
User Defined Industrial	0.00	532	0.0330	0.0040	0.00
Parking Lot	12,592	532	0.0330	0.0040	0.00
Unrefrigerated Warehouse-No Rail	27,712	532	0.0330	0.0040	0.00
Unrefrigerated Warehouse-No Rail	11,085	532	0.0330	0.0040	0.00
General Light Industry	47,689	532	0.0330	0.0040	0.00
General Heavy Industry	0.00	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
User Defined Industrial	0.00	0.00
Parking Lot	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00
Unrefrigerated Warehouse-No Rail	0.00	0.00
General Light Industry	1,156,250	6,517,029
General Heavy Industry	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
User Defined Industrial	0.00	—
Parking Lot	0.00	—
Unrefrigerated Warehouse-No Rail	2.50	—
Unrefrigerated Warehouse-No Rail	1.20	—
General Light Industry	6.20	—
General Heavy Industry	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	User Defined	675	0.30	4.00	4.00	18.0
Unrefrigerated Warehouse-No Rail	Other commercial A/C and heat pumps	User Defined	675	0.30	4.00	4.00	18.0

Unrefrigerated Warehouse-No Rail	Other commercial A/C and heat pumps	User Defined	675	0.30	4.00	4.00	18.0

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	24.8	annual days of extreme heat
Extreme Precipitation	0.00	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	0.29	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	77.1
AQ-PM	7.45
AQ-DPM	3.61
Drinking Water	87.0
Lead Risk Housing	39.1
Pesticides	39.4
Toxic Releases	2.81
Traffic	13.8
Effect Indicators	—
CleanUp Sites	94.2
Groundwater	92.8
Haz Waste Facilities/Generators	78.8
Impaired Water Bodies	0.00
Solid Waste	99.9
Sensitive Population	—
Asthma	54.8
Cardio-vascular	73.9
Low Birth Weights	99.2
Socioeconomic Factor Indicators	—

Education	54.1
Housing	34.2
Linguistic	38.1
Poverty	76.4
Unemployment	95.3

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	33.78673168
Employed	3.811112537
Median HI	21.35249583
Education	—
Bachelor's or higher	26.78044399
High school enrollment	100
Preschool enrollment	39.0606955
Transportation	—
Auto Access	32.77300141
Active commuting	75.32400873
Social	—
2-parent households	57.35916848
Voting	45.82317464
Neighborhood	—
Alcohol availability	90.37597844
Park access	24.44501476
Retail density	3.387655588
Supermarket access	7.275760298

Tree canopy	0.051328115
Housing	—
Homeownership	62.60746824
Housing habitability	64.36545618
Low-inc homeowner severe housing cost burden	44.92493263
Low-inc renter severe housing cost burden	77.50545361
Uncrowded housing	56.87155139
Health Outcomes	—
Insured adults	15.69357115
Arthritis	0.0
Asthma ER Admissions	37.6
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	7.6
Cognitively Disabled	60.3
Physically Disabled	25.6
Heart Attack ER Admissions	35.8
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	96.1
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—

Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	64.0
Elderly	23.5
English Speaking	39.9
Foreign-born	36.0
Outdoor Workers	55.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	97.4
Traffic Density	9.6
Traffic Access	23.0
Other Indices	—
Hardship	66.7
Other Decision Support	—
2016 Voting	56.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	75.0
Healthy Places Index Score for Project Location (b)	23.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	2700 acres for total project acreage
Construction: Construction Phases	Projected Schedule
Construction: Dust From Material Movement	2112 acres graded
Construction: Trips and VMT	Trips based on traffic assessment
Construction: Off-Road Equipment	Anticipated equipment
Operations: Vehicle Data	Approximate 80 trips
Operations: Fleet Mix	Assumed to be heavy heavy duty and medium heavy duty
Operations: Consumer Products	none
Operations: Energy Use	electricity from operations building
Operations: Water and Waste Water	Indoor water use for maintenance buildings and conservative 20 afy during operations
Operations: Solid Waste	Waste for O&M building, maintenance facility and warehouse facility
Operations: Refrigerants	AC for O&M building, maintenance facility and warehouse facility with use of R-32
Construction: Architectural Coatings	Painting included for the parking area
Operations: Architectural Coatings	No reapplication
Construction: Paving	Included non asphalt foundations for buildings

BESS EFFICIENCY

Year	LADWP Intensity Factor	Lost RT Efficiency per Year	Annual Indirect GHG Emissions from RT Efficiency Loss	
	lbs CO_2e/MWh	MWh	tons	metric tons
2025	499	16,425	4098.04	3717.68
2026	474.05	16,425	3893.14	3531.79
2027	449.10	16,425	3688.23	3345.91
2028	424.15	16,425	3483.33	3160.03
2029	399.20	16,425	3278.43	2974.14
2030	374.25	16,425	3073.53	2788.26
2031	349.30	16,425	2868.63	2602.37
2032	324.35	16,425	2663.72	2416.49
2033	299.40	16,425	2458.82	2230.61
2034	274.45	16,425	2253.92	2044.72
2035	249.50	16,425	2049.02	1858.84
2036	224.55	16,425	1844.12	1672.95
2037	199.60	16,425	1639.22	1487.07
2038	174.65	16,425	1434.31	1301.19
2039	149.70	16,425	1229.41	1115.30
2040	124.75	16,425	1024.51	929.42
2041	99.80	16,425	819.61	743.54
2042	74.85	16,425	614.71	557.65
2043	49.90	16,425	409.80	371.77
2044	24.95	16,425	204.90	185.88
2045	**0.00**	**16,425**	**0.00**	**0.00**
2050	0.00	16,425	0	0
2055	0.00	16,425	0	0
		Total:	**43,029.39**	**39,035.61**

APPENDIX B

Baseline Environmental Consulting Air Quality Technical Report Memorandum

MEMORANDUM

Date: October 24, 2024 **Job No.:**24208-00

To: Kara Laurenson-Wright, SWCA Environmental Consultants

From: Yilin Tian, Baseline Environmental Consulting

Subject: Air Quality Technical Report, Soda Mountain Solar Project, San Bernardino County, California

Baseline Environmental Consulting (Baseline) has prepared this technical study to evaluate potential air quality impacts associated with implementation of the Soda Mountain Solar Project (project) proposed by Soda Mountain Solar, LLC. The 2,670-acre project site is located in unincorporated San Bernardino County, California, approximately 50 miles northeast of Barstow. SWCA has completed a project-level analysis of potential air quality impacts for CEQA review. To utilize the California Energy Commission's (CEC) Opt-in Certification Program, additional air quality analysis has been prepared in this technical study to support an Application for Certification (AFC) (20 CCR, Div. 2, Ch. 5 App. B), focusing on the CEC requirements in Appendix B of the AFC Program Guidance under sections (g)(8)(H) through (g)(8)(I) and sections (g)(9)(A) through (g)(9)(D).

Meteorological Conditions

In accordance with AFC section (g)(8)(H), AERMOD-ready meteorological data process by the California Air Resources Board (CARB)[1] from the Barstow-Daggett Airport Meteorological Station (KDAG) were selected to represent the meteorological conditions of the project area. The Barstow-Daggett Airport Meteorological Station is representative due to its proximity to the project site, similar complexity of the terrain and surrounding land use, and the time period of available data. The Barstow-Daggett Airport Meteorological Station is the nearest meteorological station located about 38 miles southwest of the project site. The project site is located in a valley dividing the northern and southern portions of the Soda Mountains, and similarly the Barstow-Daggett Airport Meteorological Station is located in a valley with the Calico Mountains to the north and Newberry Mountains to the south. In addition, the surrounding land uses of the Barstow-Daggett Airport Meteorological Station are similar to the project site, which is composed of mostly undeveloped desert. CARB has process five recent years of data from 2015 to 2020 for the Barstow-Daggett Airport Meteorological Station.

[1] California Air Resources Board (CARB), 2024. HARP AERMOD Meteorological Files. Available at: https://ww2.arb.ca.gov/resources/documents/harp-aermod-meteorological-files

Therefore, the Barstow-Daggett Airport Meteorological Station is the most representative station meteorologically for dispersion modeling and health risk assessments at the project site.

The AERMOD-ready meteorological data processed for this station include surface and profile files for the estimation of atmospheric boundary layer parameters used in air dispersion modeling. The surface and profile files were developed based on surface meteorological data, upper air meteorological data, and land use data. The quarterly wind tables, wind roses, ambient temperatures, and relative humidity for year 2020 are summarized in **Attachment A**. The prevailing wind direction is from the west, with the quarterly average wind speed ranging from 9.5 miles per hour to 14.5 miles per hour through the year. The electronic version of the meteorology data is provided in **Attachment B**.

Criteria Air Pollutant Air Quality Impacts

Construction and operation of the project would generate criteria pollutant emissions that could potentially impact regional air quality. The project's construction and operational emissions of criteria air pollutants and precursors were estimated using the most recent version of the California Emissions Estimator Model (CalEEMod version 2022.1), as reported in the Air Quality and Greenhouse Gas Technical Report for the project prepared by SWCA in March 2024 (Air Quality Report).[2]

Project construction is expected to last for approximately 18 months from March 2025 through the end of August 2026. The first full year of project operation is expected in 2027. As stated in the Air Quality Report, the estimated unmitigated construction and operational emissions for all pollutants are below Mojave Desert Air Quality Management District's (MDAQMD) daily and annual significance thresholds; therefore, the project would not violate or contribute substantially to an existing or projected air quality violation. The analysis included in the Air Quality Report satisfies the requirements under AFC sections (g)(8)(I)(i) and (g)(8)(I)(ii).

AFC section (g)(8)(I)(iii) requires a protocol for a cumulative air quality modeling impacts analysis of the project's typical operating mode in combination with other stationary emissions sources within a six-mile radius which have received construction permits but are not yet operational or are in the permitting process. The following two projects are located within the six-miles radius of the project:

- I-15 Mojave Wildlife Crossings Restoration Project
- Brightline West - Las Vegas to Victor Valley

[2] SWCA, 2024. Air Quality and Greenhouse Gas Technical Report for the Soda Mountain Solar Project, San Bernardino County, California. March,

MDAQMD's CEQA and Federal Conformity Guidelines were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the project site.[3] MDAQMD's air quality thresholds of significance are designed to achieve or maintain attainment designations associated with the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). Individual projects that do not exceed the MDAQMD's thresholds of significance would not result in a cumulatively considerable contribution to a nonattainment status or the health effects associated with criteria air pollutants. Since the project's construction and operational emissions are below the MDAQMD's applicable thresholds of significance, the project's cumulative contribution of criteria air pollutant emissions would not cause or contribute to a violation of any ambient air quality standard.

AFC section (g)(8)(I)(iv) requires an air dispersion modeling analysis of the impacts associated with the project's initial commissioning phase emissions on state and federal ambient air quality standards for NO_x, SO_2, CO, PM_{10}, and $PM_{2.5}$. Operation of the project will be limited to panel washing and maintenance. Criteria air pollutant emission sources during project operations would include mobile sources, water use, and maintenance. According to the Air Quality Report, the project's daily and annual operational emissions of criteria air pollutants would be substantially less than the construction emissions. Therefore, an air dispersion modeling analysis of the impacts associated with project construction emissions on state and federal ambient air quality standards, instead of the project's initial commissioning phase, was performed to evaluate the worst-case scenario since the project's operational emissions are relatively marginal.

The nearest sensitive receptor that could be exposed to criteria air pollutants generated by the project is located next to the Rasor Road service station, roughly 260 feet southwest of the project boundary. This stand-alone house is used as accommodation for four workers. There are no other sensitive receptors within 1,500 feet of the project site and actual construction occurs more than 3,500 feet from this stand-alone home.

A screening-level modeling analysis of criteria air pollutants generated during project construction was conducted using the U.S. Environmental Protection Agency's AERMOD air dispersion model. For modeling purposes, daily emissions from construction were assumed to occur 10 hours per day between 7 a.m. and 5 p.m., Monday through Friday. The criteria air pollutant emissions from project construction were represented in the AERMOD model as one area sources encompassing the solar array footprint on the project site. It was conservatively assumed that all criteria air pollutant emissions, including on-road and off-road emissions, would occur on site to represent the worst-case scenario. Construction of the project is

[3] Mojave Desert Air Quality Management District (MDAQMD). 2020. California Environmental Quality Act (CEQA) And Federal Conformity Guidelines. Available at: https://www.mdaqmd.ca.gov/home/showpublisheddocument/8510/638126583450270000.

expected to last 18 months. The emission rate for each criteria air pollutant of interest was based on the actual hours of work per day and the highest peak daily emissions during construction (2025 peak daily emissions).

A uniform grid of receptors spaced 500 meters apart was created for ground level receptors at heights of 1.5 meters to develop isopleths (i.e., concentration contours) around the project site that illustrate the general air dispersion pattern from the emissions sources. In addition, a discrete receptor was created for ground level receptors at heights of 1.5 meters to calculate concentrations at the nearest sensitive receptor. The AERMOD model input parameters included 1 year of CARB-processed meteorological data from the Barstow-Daggett Airport Meteorological Station mentioned above. The input parameters and assumptions used for estimating the dispersion of criteria air pollutants are included in **Attachment C**.

As shown in **Table 1**, the estimated concentrations of PM_{10}, $PM_{2.5}$, NO_2, CO, and SO_2, at the nearest sensitive receptor during project construction would be below the CAAQS and NAAQS.

Table 1. Estimated Criteria Air Pollutant Concentrations at the Nearest Receptor

			Ambient Air Quality Standards[1]		Concentrations at the Nearest Receptor
Pollutant	Averaging Time	Unit	CAAQS	NAAQS	Construction
PM_{10}	24-Hour	µg/m³	50	150	0.17
	Annual	µg/m³	20	---	0.007
$PM_{2.5}$	24-Hour	µg/m³	---	35	0.07
	Annual	µg/m³	12	12	0.003
NO_2	1-Hour	ppm	0.18	0.100	0.006
	Annual	ppm	0.030	0.053	<0.001
CO	1-Hour	ppm	20	35	0.015
	8-Hour	ppm	9.0	9	<0.001
SO_2	1-Hour	ppm	0.25	0.075	<0.001
	24-Hour	ppm	0.04	0.14	<0.001
	Annual	ppm	---	0.030	<0.001

Notes: ppm = parts per million; µg/m³ = micrograms per cubic meter; --- = not applicable
[1] Bay Area Air Quality Management District (BAAQMD), 2017b. Air Quality Standards and Attainment Status. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, accessed May 30, 2019. Last updated January 5, 2017.
Source: Attachment C

Health Risk Assessment

Project construction would generate diesel particulate matter (DPM) emissions from the exhaust of off-road diesel construction equipment. section (g)(9)(A), an assessment of the potential risk to human health from the project's hazardous air emissions during construction was performed using CARB's Hotspots Analysis and Reporting Program (HARP). The potential cancer risks and chronic hazard index (HI) to sensitive receptors exposed to DPM emissions during project construction were evaluated using HARP, which includes cancer potency values and noncancer reference exposure levels approved by the Office of Environmental Health Hazard Assessment (OEHHA).[4] The acute HI for DPM was not calculated because an acute reference exposure level has not been approved by OEHHA.

For this analysis, total PM_{10} emission rates were used as a surrogate for DPM, which is a conservative assumption because more than 90 percent of DPM is less than 1 micron in diameter. The ground level PM_{10} concentrations at the nearest sensitive receptor were estimated using the AERMOD air dispersion model and the same modeling parameters described above, except for the PM_{10} emission rate. For this analysis, the PM_{10} emission rate was based on the actual hours of work and total PM_{10} mass emission averaged over the entire duration of construction.

Potential cancer health risk and chronic HI were evaluated for the maximally exposed individual resident (MEIR) on the ground floor of the nearest residence located about 260 feet southwest of the project boundary. Because this residence is used to accommodate workers, the starting age of exposure was assumed to be 16 years old. Project construction is expected to last for approximately 18 months. It was conservatively assumed that an adult worker would work in the same location during the entire construction duration (rounded up to 2 years). As required by AFC section (g)(9)(B), a listing of the input data and output results, in both electronic and print formats, used to prepare the HARP health risk assessment are provided in **Attachment D**. As required by AFC section (g)(9)(D), the MEIR location is shown in **Figure 1**.

Estimates of the health risks at the MEIR from exposure to DPM during project construction are summarized and compared to the MDAQMD's thresholds of significance in **Table 2**. The estimated excess cancer risk, chronic and acute HI for DPM from construction emissions were below the thresholds of significance. Therefore, construction of the project would not expose existing sensitive receptors to substantial concentrations of hazardous air pollutants from project construction.

Table 2: Health Risks during Project Construction

Emissions Scenario	Receptor	Diesel Particulate Matter		
		Cancer Risk (per million)	Chronic Hazard Index	Acute Hazard Index
Construction	MEIR	0.038	0.001	0

[4] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, May.

MDAQMD Thresholds of Significance	10	1.0	1.0
Exceed Threshold?	No	No	No

Notes: μg/m^3 = micrograms per cubic meter

AFC section (g)(9)(C) requires the identification of available health studies through the local public health department concerning the potentially affected population within a six-mile radius of the proposed power plant site related to respiratory illnesses, cancers or related diseases. The San Bernardino County Public Health Department is the local public health department. Based on a review of the Department's available data and report,[5] no health studies concerning the potentially affected population within a six-mile radius of the proposed power plant site related to respiratory illnesses, cancers or related diseases have been identified.

As part of the National Air Toxics Assessment, local DPM concentrations, cancer risk, and non-cancer respiratory risk associated with cumulative exposure to air toxics were obtained via the Environmental Protection Agency's (EPA) Analytical Tools Interface for Landscape Assessments (ATtILA) Interactive Map.[6] The DPM concentrations in the project vicinity are less than 0.251 μg/m^3. The cancer risk due to cumulative air toxics is less than 28.5 in a million and the non-cancer respiratory risk (HI) is less than 0.362. In addition, the California Emission Inventory Development and Reporting System (CEIDARS),[7]- a database management system developed by California Air Resources Board to track statewide criteria pollutant and air toxic emissions, identified one stationary source, California State University Desert Studies Center (Facility ID: 3238), within the six-mile radius of the proposed power plant. However, the associated health risks were not reported in CEIDARS.

[5] San Bernardino County Public Health, Data and Report. Available at: https://dph.sbcounty.gov/data/
[6] EPA Analytical Tools Interface for Landscape Assessments (ATtILA) Interactive Map, 2024. Available at: https://enviroatlas.epa.gov/enviroatlas/interactivemap/
[7] California Air Resources Board (CARB), 2024. California Emission Inventory Development and Reporting System. Accessed via: https://ww2.arb.ca.gov/applications/facility-search-engine

FIGURE

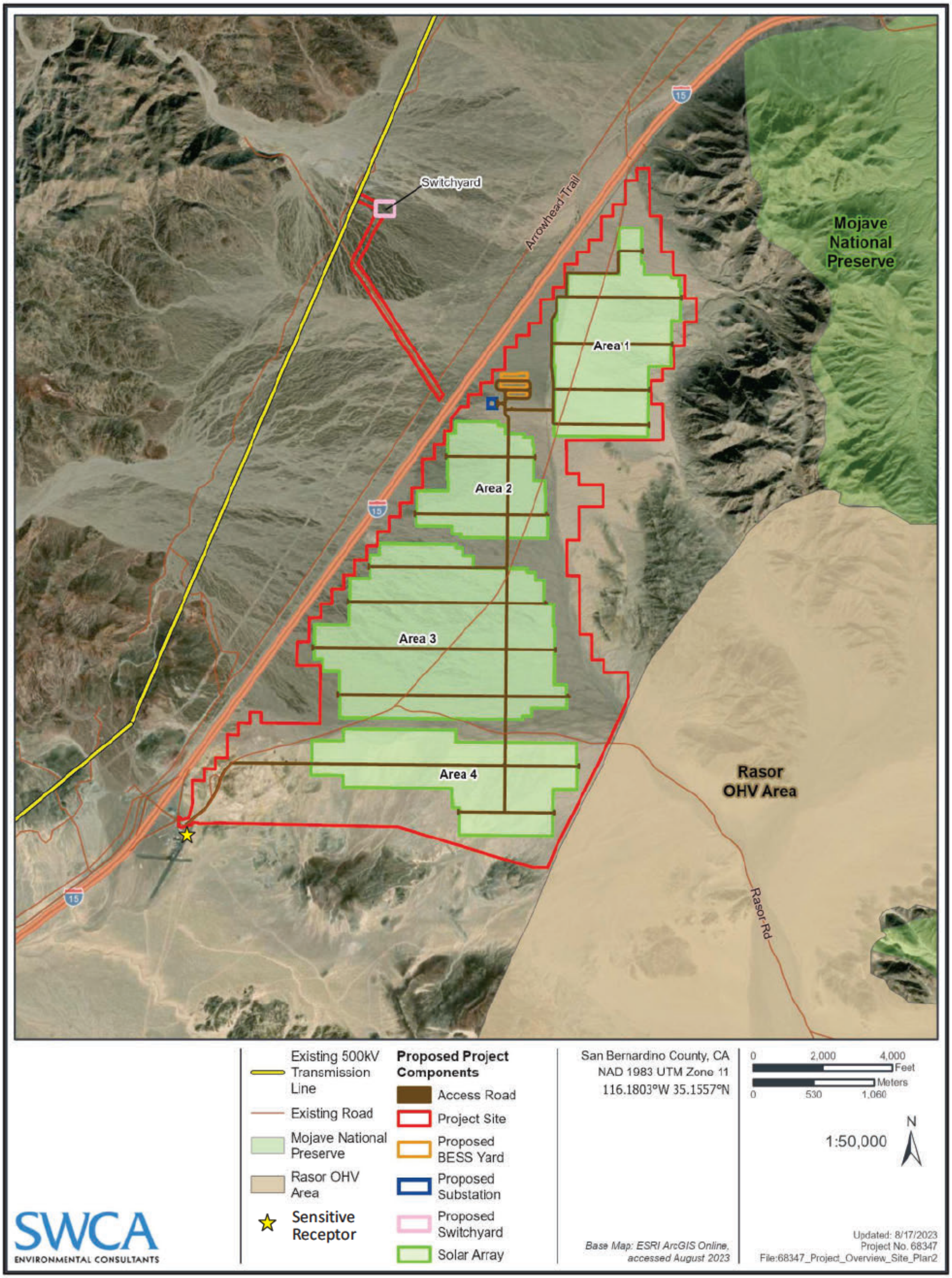


Figure 1. Sensitive Receptor Location

ATTACHMENT A
SUMMARY OF METEOROLOGICAL CONDITIONS

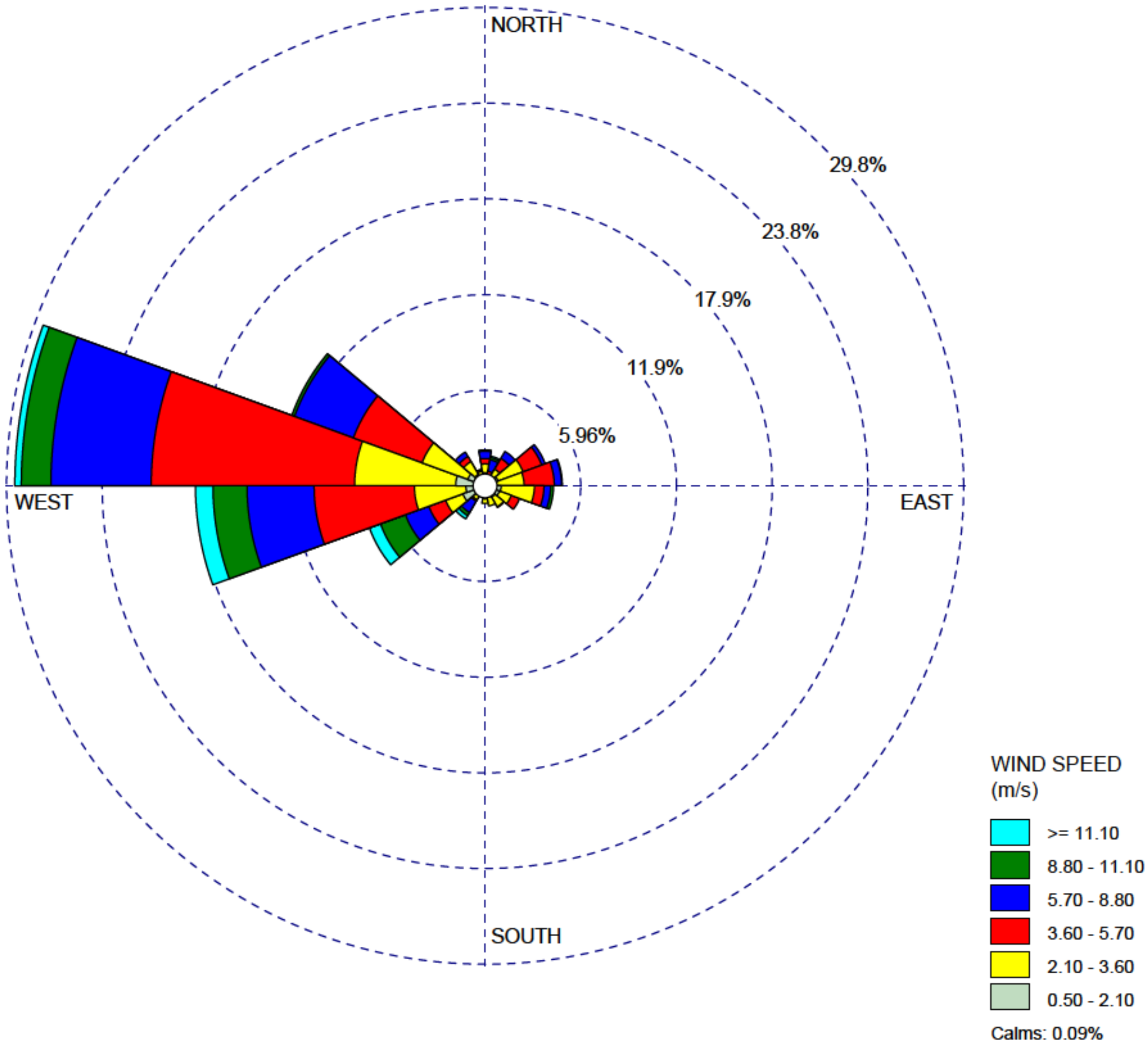
WIND ROSE PLOT: Soda Mountain Solar Project

Station #23161 - DAGGETT/FAA AIRPORT, CA

DISPLAY:

Wind Speed

Direction (blowing from)



COMMENTS: 2020 First Quarter	DATA PERIOD: **Start Date: 1/1/2020 - 00:00** **End Date: 3/31/2020 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.09%**	TOTAL COUNT: **4368 hrs.**	
	AVG. WIND SPEED: **4.72 m/s**	DATE: **6/5/2024**	PROJECT NO.: **24208-00**

WRPLOT View - Lakes Environmental Software

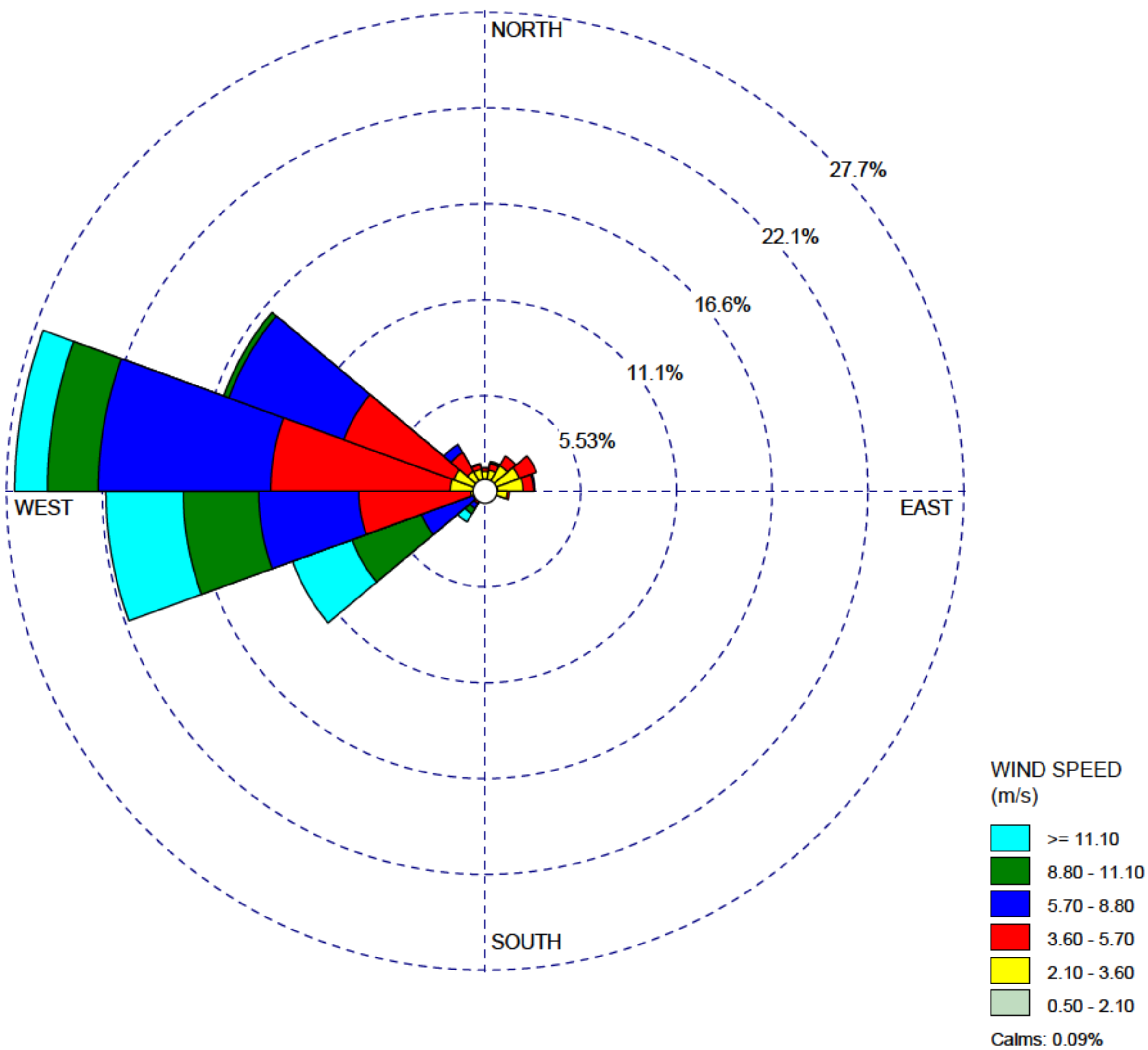
WIND ROSE PLOT: Soda Mountain Solar Project

Station #23161 - DAGGETT/FAA AIRPORT, CA

DISPLAY:

Wind Speed

Direction (blowing from)



COMMENTS:

2020 Second Quarter

DATA PERIOD:

Start Date: 4/1/2020 - 00:00
End Date: 6/30/2020 - 23:59

COMPANY NAME:

MODELER:

CALM WINDS:

0.09%

TOTAL COUNT:

4290 hrs.

AVG. WIND SPEED:

6.46 m/s

DATE:

6/5/2024

PROJECT NO.:

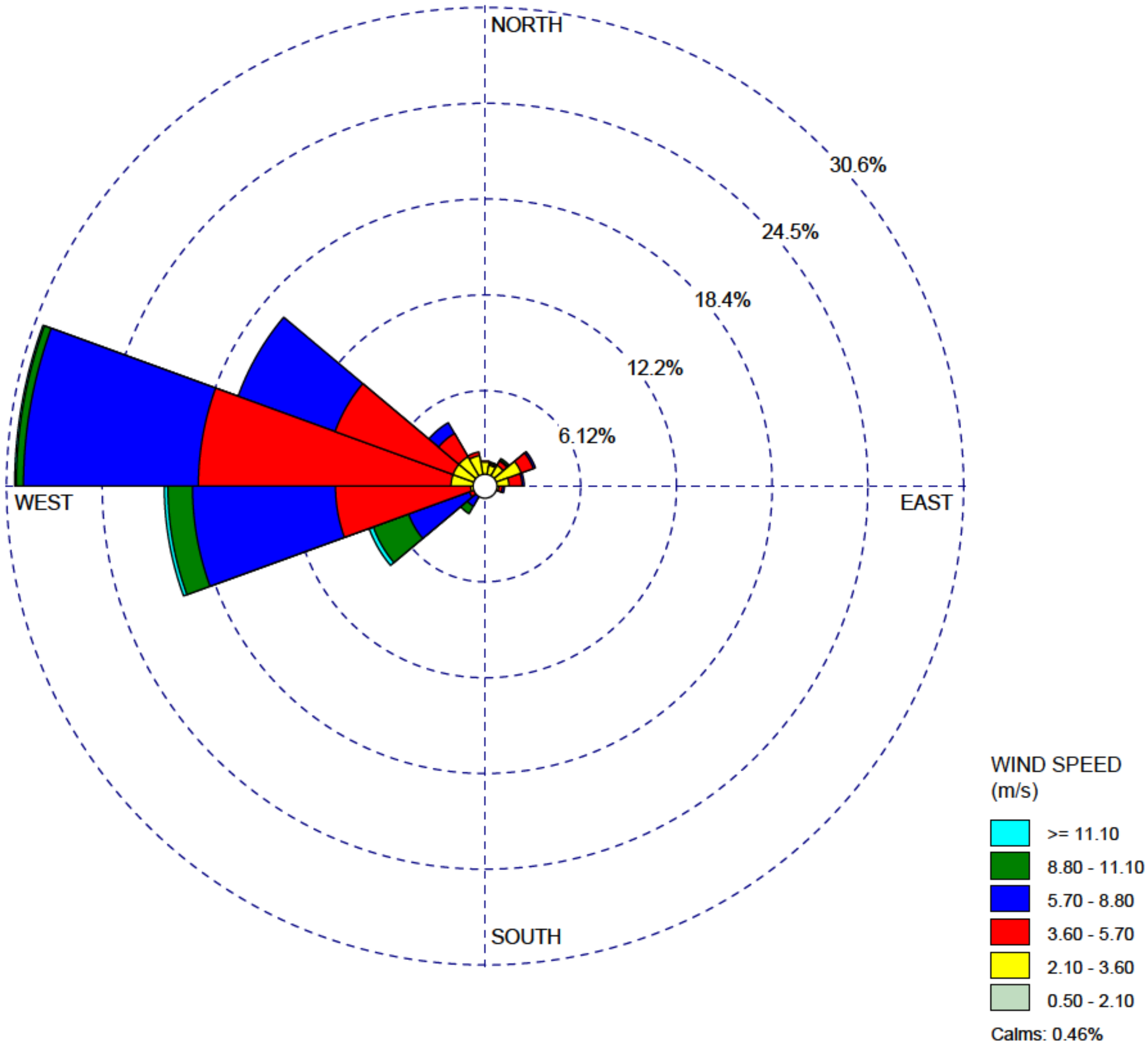
24208-00

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT: Soda Mountain Solar Project

Station #23161 - DAGGETT/FAA AIRPORT, CA

DISPLAY:
Wind Speed
Direction (blowing from)

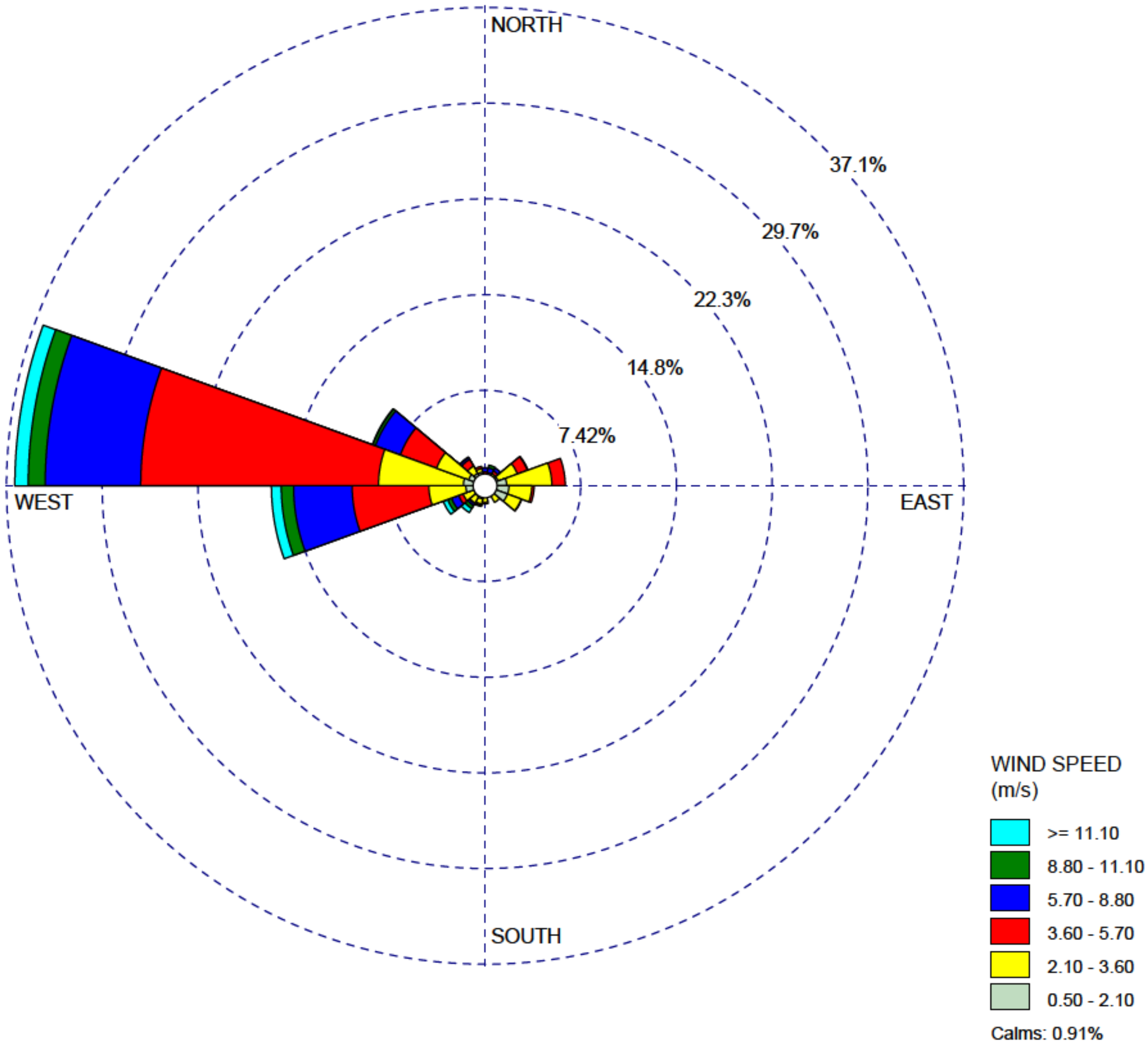


COMMENTS:	DATA PERIOD:	COMPANY NAME:	
2020 Third Quarter	**Start Date: 7/1/2020 - 00:00** **End Date: 9/30/2020 - 23:59**		
		MODELER:	
	CALM WINDS: **0.46%**	TOTAL COUNT: **4284 hrs.**	
	AVG. WIND SPEED: **5.28 m/s**	DATE: **6/5/2024**	PROJECT NO.: **24208-00**

WIND ROSE PLOT: Soda Mountain Solar Project

Station #23161 - DAGGETT/FAA AIRPORT, CA

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
2020 Fourth Quarter	**Start Date: 10/1/2020 - 00:00** **End Date: 12/31/2020 - 23:59**	MODELER:	
	CALM WINDS: **0.91%**	TOTAL COUNT: **4400 hrs.**	
	AVG. WIND SPEED: **4.27 m/s**	DATE: **6/5/2024**	PROJECT NO.: **24208-00**

WRPLOT View - Lakes Environmental Software

2020 First Quarter - Wind Speeds (m/s)

Directions / Wind Classes (m/s)	0.50 - 2.10	2.10 - 3.60	3.60 - 5.70	5.70 - 8.80	8.80 - 11.10	>= 11.10	Total
350 - 10	36	24	14	20	4	0	98
10 - 30	14	14	12	32	6	4	82
30 - 50	30	22	34	22	0	0	108
50 - 70	38	72	54	10	0	0	174
70 - 90	32	74	82	20	2	0	210
90 - 110	44	90	26	18	8	0	186
110 - 130	42	34	24	0	0	0	100
130 - 150	36	30	2	0	0	0	68
150 - 170	32	24	0	0	0	0	56
170 - 190	36	12	0	0	0	0	48
190 - 210	16	6	0	0	2	0	24
210 - 230	24	20	4	36	10	10	104
230 - 250	64	50	48	68	72	32	334
250 - 270	52	140	272	182	92	48	786
270 - 290	80	274	552	272	80	18	1276
290 - 310	50	132	198	170	8	0	558
310 - 330	36	40	16	14	0	0	106
330 - 350	24	16	4	0	2	0	46
Sub-Total	686	1074	1342	864	286	112	4364
Calms							4
Missing/Incomplete							0
Total							4368

2020 Second Quarter - Wind Speeds (m/s)

Directions / Wind Classes (m/s)	0.50 - 2.10	2.10 - 3.60	3.60 - 5.70	5.70 - 8.80	8.80 - 11.10	>= 11.10	Total
350 - 10	10	15	4	1	0	0	30
10 - 30	7	20	8	1	2	0	38
30 - 50	2	35	14	0	0	0	51
50 - 70	3	43	23	0	0	0	69
70 - 90	16	32	13	2	0	0	63
90 - 110	7	21	3	0	0	0	31
110 - 130	2	8	1	2	0	0	13
130 - 150	5	2	0	2	0	0	9
150 - 170	3	1	1	0	0	0	5
170 - 190	1	3	0	0	0	0	4
190 - 210	3	1	1	0	0	0	5
210 - 230	6	6	6	7	8	12	45
230 - 250	1	2	13	69	93	80	258
250 - 270	3	15	141	126	95	97	477
270 - 290	4	40	226	217	64	41	592
290 - 310	5	37	147	154	7	0	350
310 - 330	7	22	27	12	0	0	68
330 - 350	8	20	6	1	0	0	35
Sub-Total	93	323	634	594	269	230	2143
Calms							2
Missing/Incomplete							39
Total							2184

2020 Third Quarter - Wind Speeds (m/s)

Directions / Wind Classes (m/s)	0.50 - 2.10	2.10 - 3.60	3.60 - 5.70	5.70 - 8.80	8.80 - 11.10	>= 11.10	Total
350 - 10	14	56	4	0	0	0	74
10 - 30	12	46	4	0	4	2	68
30 - 50	10	58	14	2	6	0	90
50 - 70	16	90	36	6	0	0	148
70 - 90	6	62	36	6	0	0	110
90 - 110	6	32	10	6	0	0	54
110 - 130	4	6	10	2	0	0	22
130 - 150	8	10	8	2	0	0	28
150 - 170	6	4	2	6	0	0	18
170 - 190	4	0	2	4	0	0	10
190 - 210	8	6	4	0	0	2	20
210 - 230	16	2	12	36	24	0	90
230 - 250	8	10	32	190	104	12	356
250 - 270	2	38	380	404	68	10	902
270 - 290	14	84	700	500	20	4	1322
290 - 310	16	78	350	290	0	0	734
310 - 330	16	82	82	36	0	0	216
330 - 350	24	62	12	0	0	0	98
Sub-Total	190	726	1698	1490	226	30	4360
Calms							20
Missing/Incomplete							36
Total							4416

2020 Fourth Quarter - Wind Speeds (m/s)

Directions / Wind Classes (m/s)	0.50 - 2.10	2.10 - 3.60	3.60 - 5.70	5.70 - 8.80	8.80 - 11.10	>= 11.10	Total
350 - 10	20	14	14	12	2	0	62
10 - 30	22	10	14	16	10	0	72
30 - 50	24	24	10	12	0	0	70
50 - 70	48	70	36	2	0	0	156
70 - 90	74	154	46	0	0	0	274
90 - 110	82	78	8	0	0	0	168
110 - 130	82	50	2	0	0	0	134
130 - 150	40	26	0	0	0	0	66
150 - 170	22	14	2	0	0	0	38
170 - 190	36	20	6	0	0	0	62
190 - 210	46	18	4	0	2	2	72
210 - 230	42	26	2	8	12	16	106
230 - 250	40	40	16	26	14	16	152
250 - 270	66	126	262	200	42	34	730
270 - 290	74	290	812	326	58	46	1606
290 - 310	60	116	132	90	10	2	410
310 - 330	50	28	26	8	2	0	114
330 - 350	48	12	8	0	0	0	68
Sub-Total	876	1116	1400	700	152	116	4360
Calms							40
Missing/Incomplete							16
Total							4416

Summary Table for Temperature and Relative Humidity

Season	Average Temperature (F)	Average Relative Humidity (%)
2020 - First Quarter	53.7	41
2020 - Second Quarter	89.7	42
2020 - Third Quarter	94.7	23
2020 - Fourth Quarter	58.6	26

ATTACHMENT B
AERMOD-READY METEOROLOGICAL DATA
(ELECTRONIC VERSION PROVIDED SEPARATELY)

ATTACHMENT C
AERMOD INPUT PARAMETERS AND ASSUMPTIONS

Summary of AERMOD Model Parameters, Assumptions, and Results for Emissions from Construction

AERMOD Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Area Source: Construction			
Average Hours/Work Day	hours/day	7.14	10 hours per day, 5 days per week
Release Height	meters	5.0	SMAQMD, 2015
Initial Vertical Dimension	meters	1.4	USEPA, 2022
PM_{10} Emission Rate	gram/second	0.55615	Estimated based on peak daily emissions
$PM_{2.5}$ Emission Rate	gram/second	0.21540	Estimated based on peak daily emissions
NO_2 Emission Rate	gram/second	2.39409	Estimated based on peak daily emissions
CO Emission Rate	gram/second	3.48697	Estimated based on peak daily emissions
SO_2 Emission Rate	gram/second	0.00653	Estimated based on peak daily emissions
DPM Emission Rate	gram/second	0.44071	Estimated based on total PM_{10} mass emissions and 18 months of construction (391 work days)

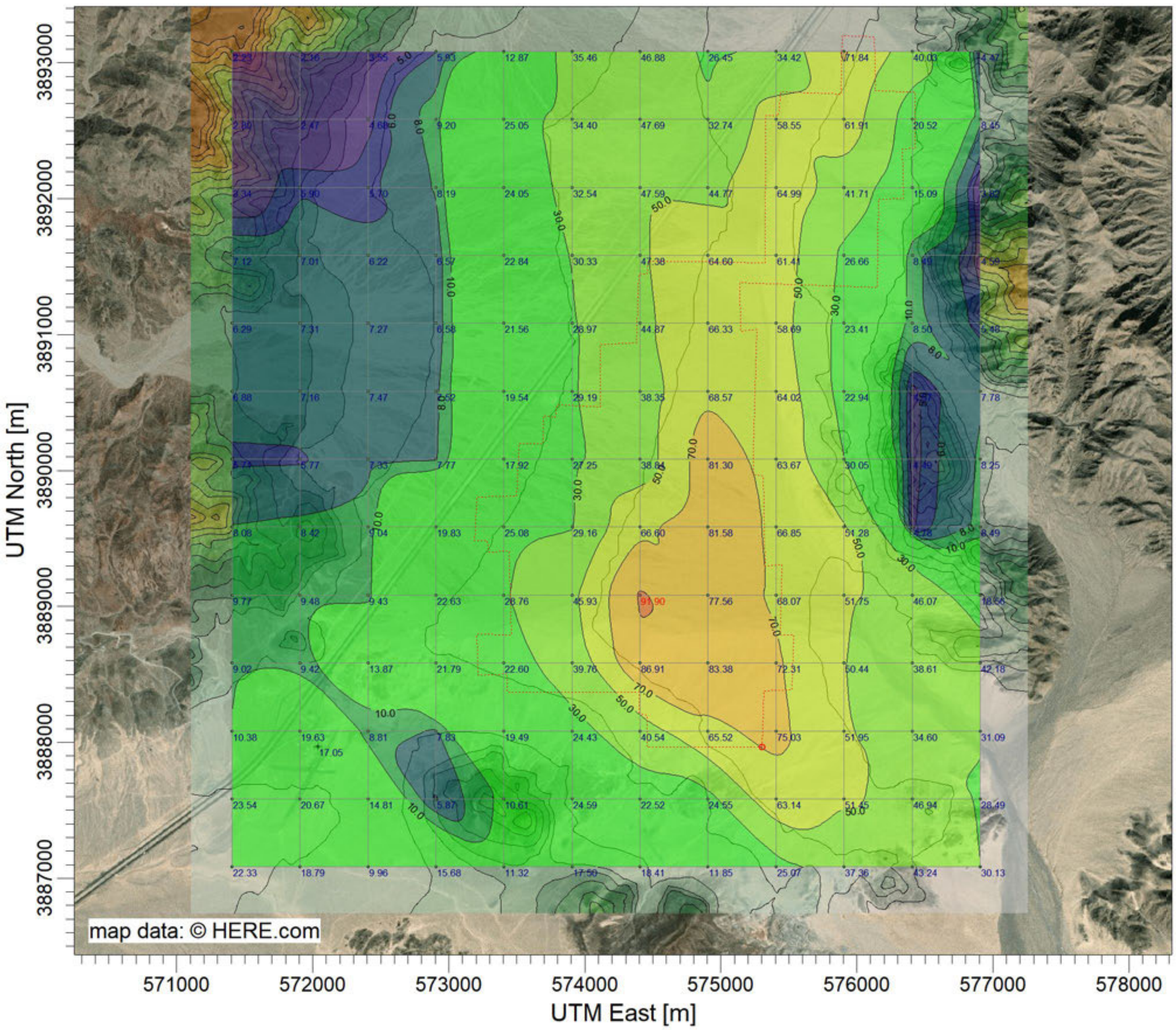
AERMOD Model Results				
Pollutant	**Unit**	**Averaging Time**	**Concentration**	**Note**
PM_{10} Concentration	$\mu g/m^3$	24-hour	0.17	
	$\mu g/m^3$	Annual	0.007	
$PM_{2.5}$ Concentration	$\mu g/m^3$	24-hour	0.07	
	$\mu g/m^3$	Annual	0.003	
NO_2 Concentration	ppm	1-Hour	0.0062	Conversion factor: 1 $\mu g/m^3$ NO_2 = 0.000532 ppm
	ppm	Annual	0.00002	
CO Concentration	ppm	1-Hour	0.01488	Conversion factor: 1 $\mu g/m^3$ CO = 0.000873 ppm
	ppm	8-Hour	0.00003	
SO_2 Concentration	ppm	1-Hour	1.15E-05	Conversion factor: 1 $\mu g/m^3$ SO_2 = 0.000382 ppm
	ppm	24-Hour	7.64E-07	
	ppm	Annual	3.82E-08	
DPM Concentration	$\mu g/m^3$	Annual	0.0052	

All NOx emissions assumed to be NO_2.

U.S. Environmental Protection Agency (USEPA), 2022. *User's Guide for the AMS/EPA Regulatory Model* (AERMOD).
Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento County* . June.

PROJECT TITLE:

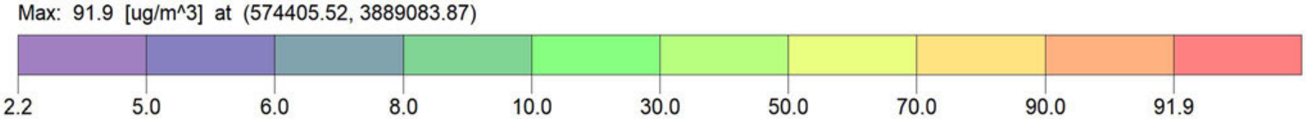
Soda Mountain Solar Project
Construction - CO



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 91.9 [ug/m^3] at (574405.52, 3889083.87)



COMMENTS:

1-hour CO

SOURCES:

1

COMPANY NAME:

Baseline Environmental Consulting

RECEPTORS:

157

OUTPUT TYPE:

Concentration

SCALE: 1:50,701

0 — 2 km

MAX:

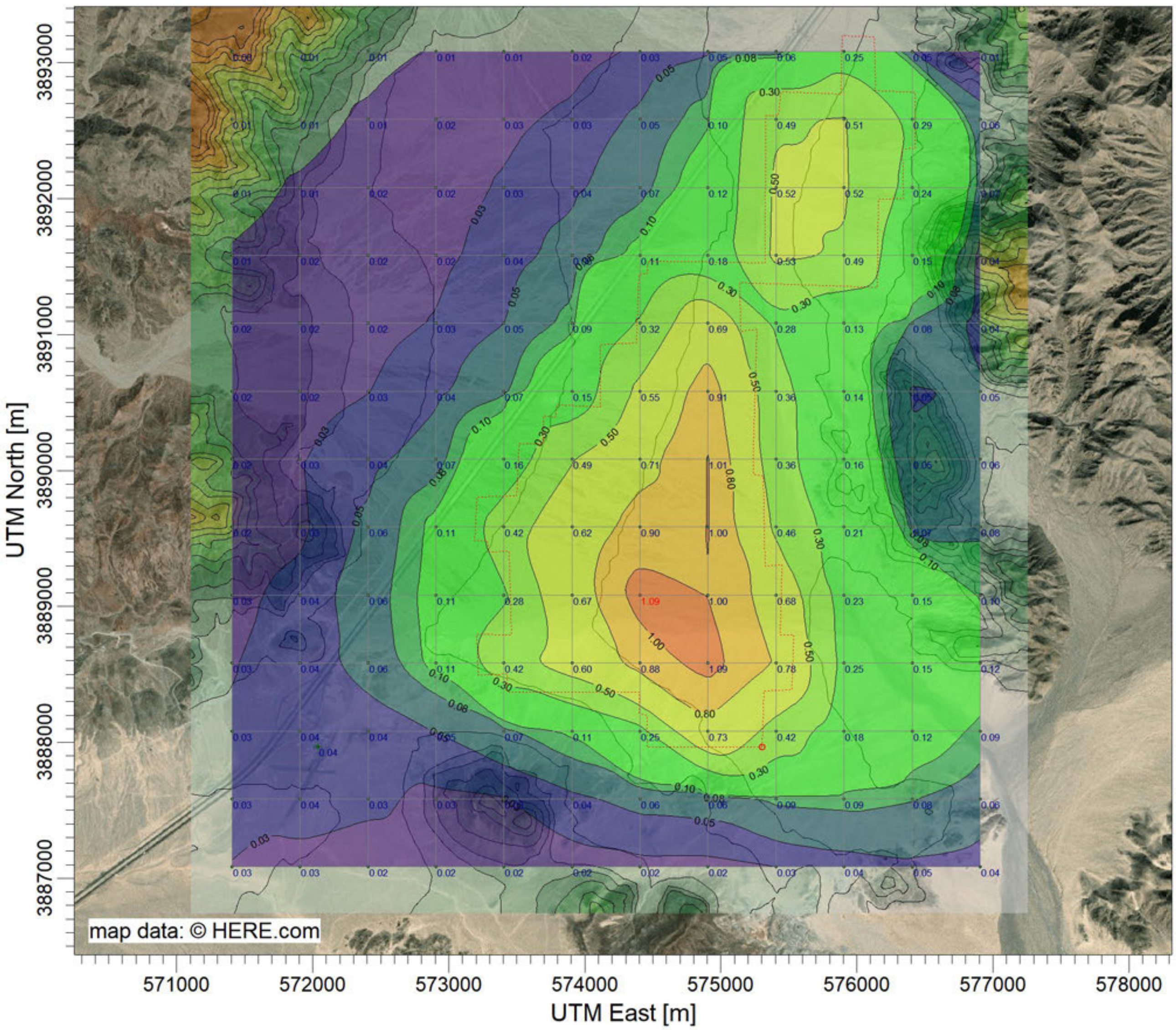
91.9 ug/m^3

PROJECT NO.:

24208-00

PROJECT TITLE:

Soda Mountain Solar Project
Construction - CO



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

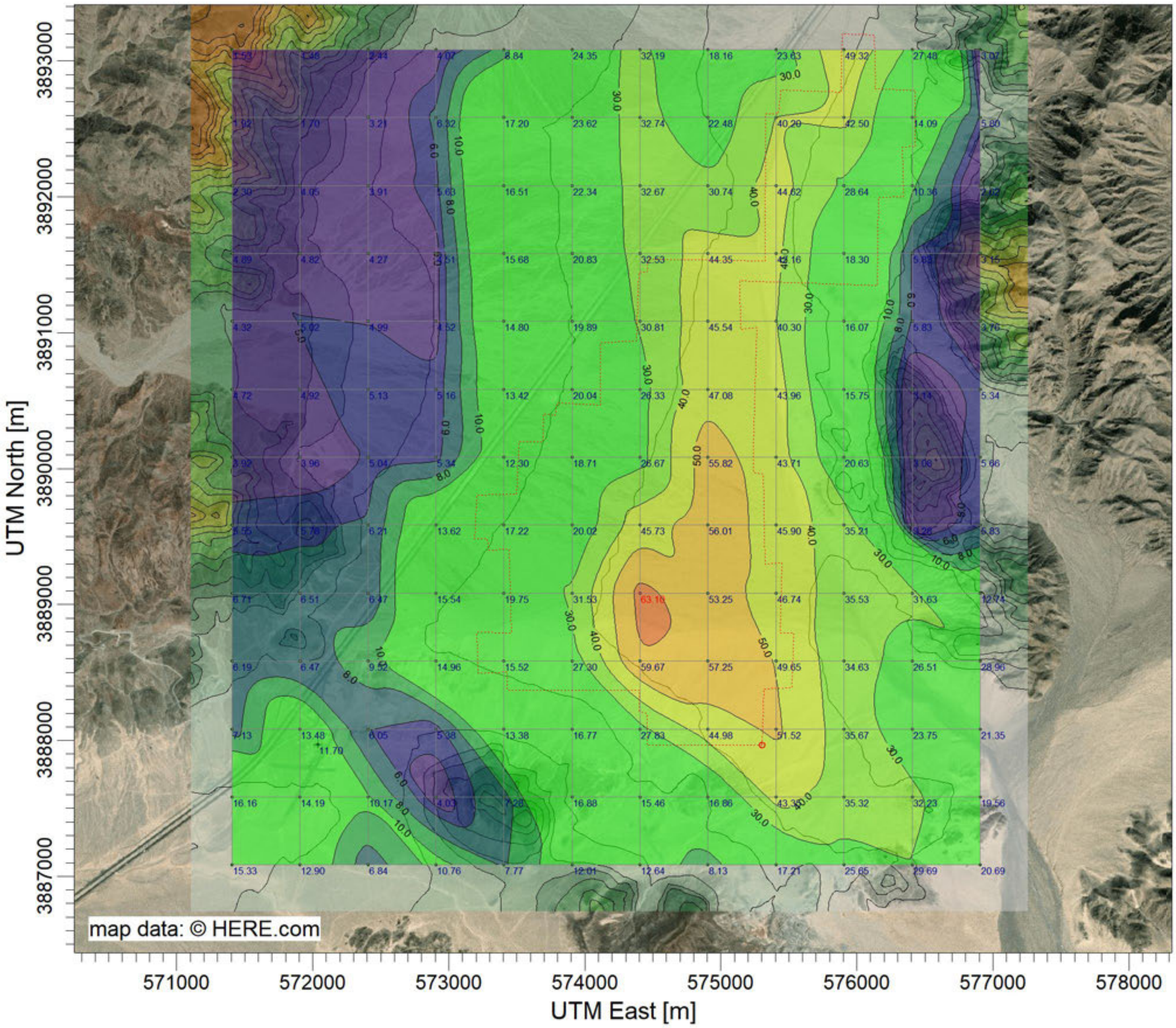
Max: 1.09 [ug/m^3] at (574405.52, 3889083.87)

0.01 0.03 0.05 0.08 0.10 0.30 0.50 0.80 1.00 1.09

COMMENTS:	SOURCES:	COMPANY NAME:	
Annual CO	**1**	**Baseline Environmental Consulting**	
	RECEPTORS: **157**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,701 0 — 2 km	
	MAX: **1.09 ug/m^3**		PROJECT NO.: **24208-00**

PROJECT TITLE:

Soda Mountain Solar Project
Construction - NO2



PLOT FILE OF 1ST-HIGHEST MAX DAILY 1-HR VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 63.1 [ug/m^3] at (574405.52, 3889083.87)

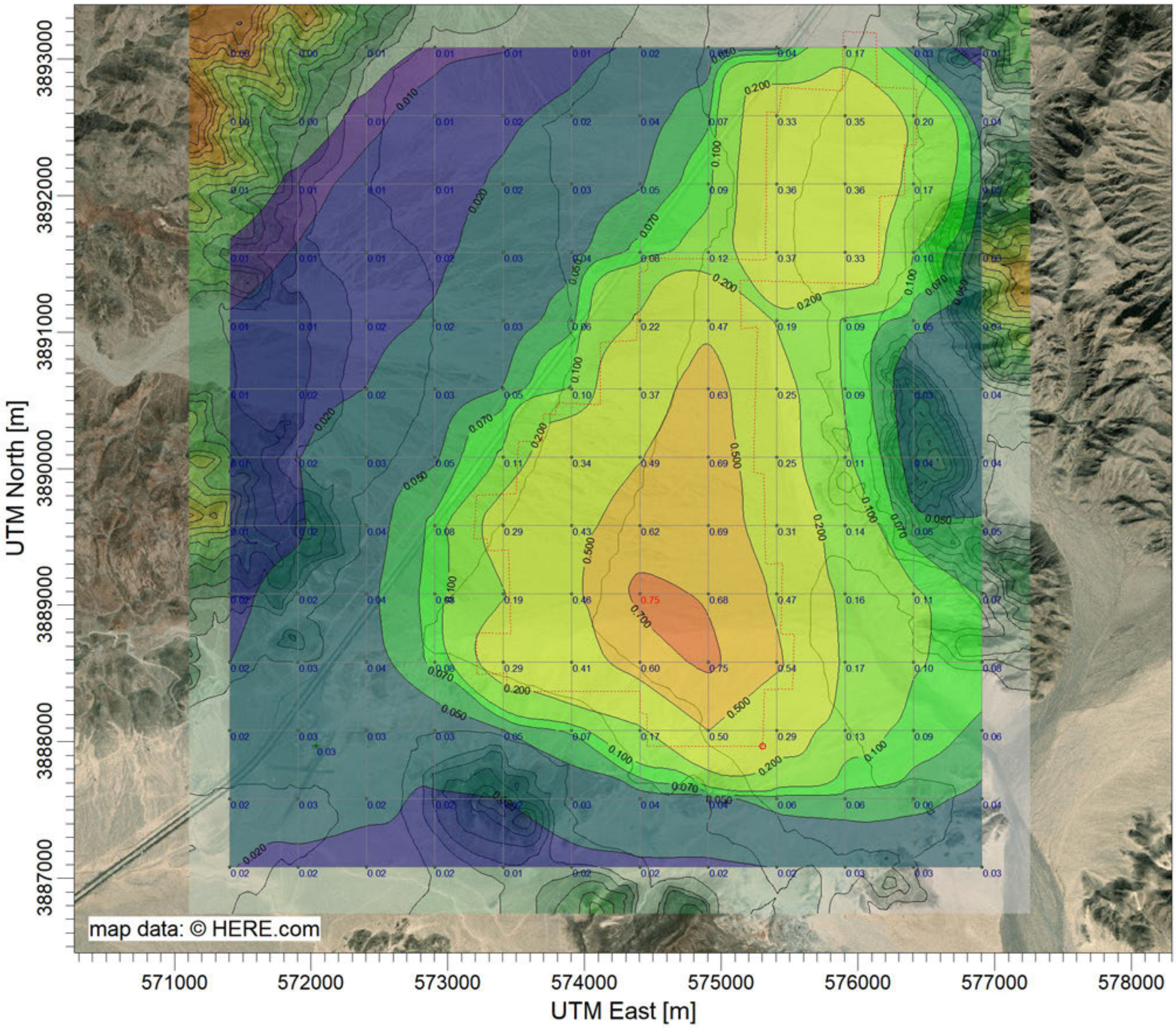
1.5 5.0 6.0 8.0 10.0 30.0 40.0 50.0 60.0 63.1

COMMENTS:	SOURCES:	COMPANY NAME:	
1-hour NO2	**1**	**Baseline Environmental Consulting**	
	RECEPTORS: **157**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,701 0 — 2 km	
	MAX: **63.1 ug/m^3**		PROJECT NO.: **24208-00**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - NO2



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 0.751 [ug/m^3] at (574405.52, 3889083.87)

0.008 0.010 0.020 0.050 0.070 0.100 0.200 0.500 0.700 0.751

COMMENTS:

Annual NO2

SOURCES:

1

COMPANY NAME:

Baseline Environmental Consulting

RECEPTORS:

157

OUTPUT TYPE:

Concentration

SCALE: 1:50,442

0 2 km

MAX:

0.751 ug/m^3

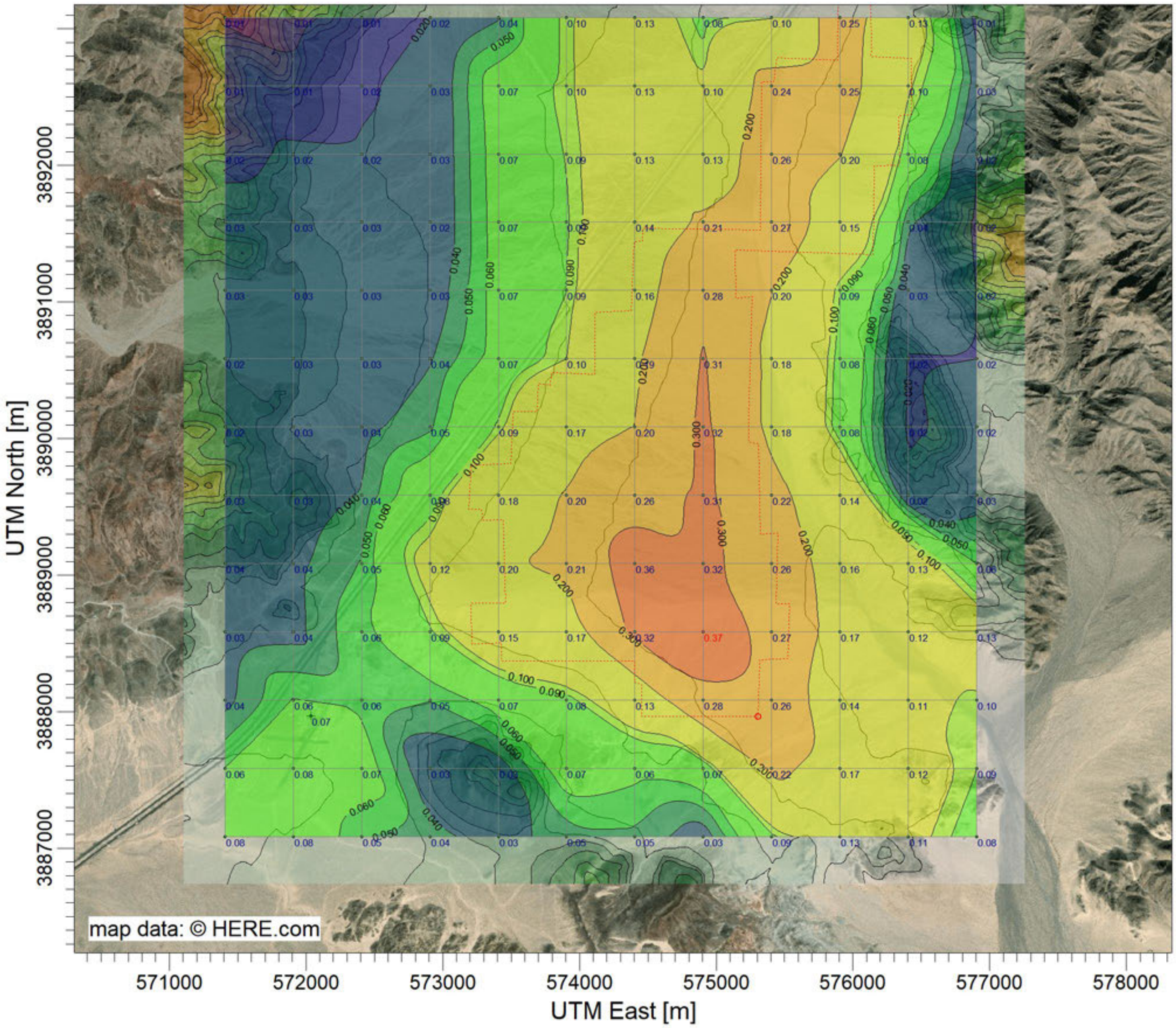
PROJECT NO.:

24208-00

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - PM2.5



PLOT FILE OF 1ST-HIGHEST MAX DAILY 24-HR VALUES AVERAGED OVER 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 0.375 [ug/m^3] at (574905.52, 3888583.87)

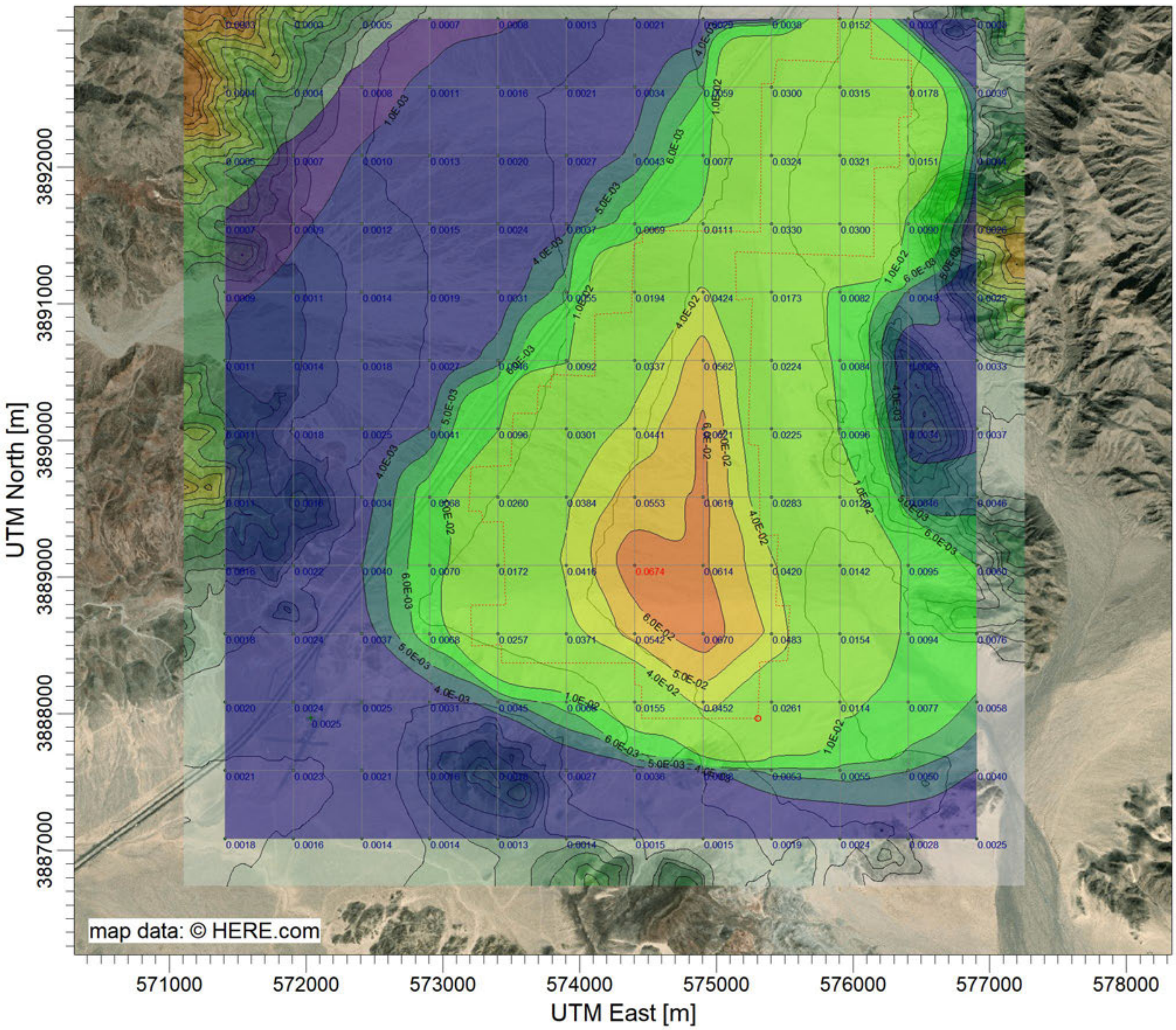
0.008 0.010 0.020 0.040 0.050 0.060 0.090 0.100 0.200 0.300 0.375

COMMENTS: 24-hour PM2.5	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**
	RECEPTORS: **157**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,440 0 — 2 km
	MAX: **0.375 ug/m^3**	PROJECT NO.: **24208-00**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - PM2.5



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 6.7E-02 [ug/m^3] at (574405.52, 3889083.87)

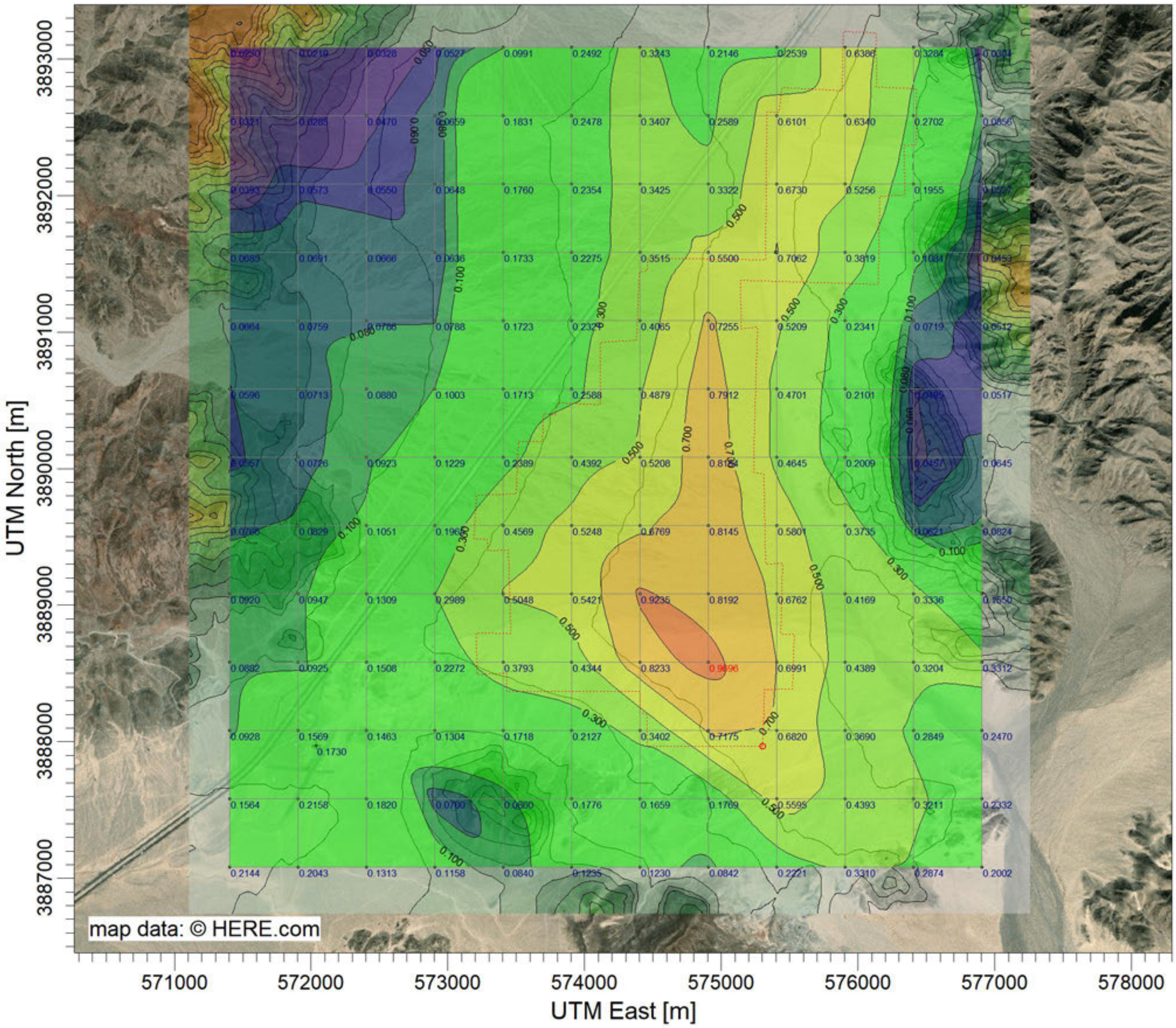
6.7E-04 1.0E-03 4.0E-03 5.0E-03 6.0E-03 1.0E-02 4.0E-02 5.0E-02 6.0E-02 6.7E-02

COMMENTS: Annual PM2.5	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**
	RECEPTORS: **157**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,433 0 — 2 km
	MAX: **6.7E-02 ug/m^3**	PROJECT NO.: **24208-00**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - PM10



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 0.970 [ug/m^3] at (574905.52, 3888583.87)

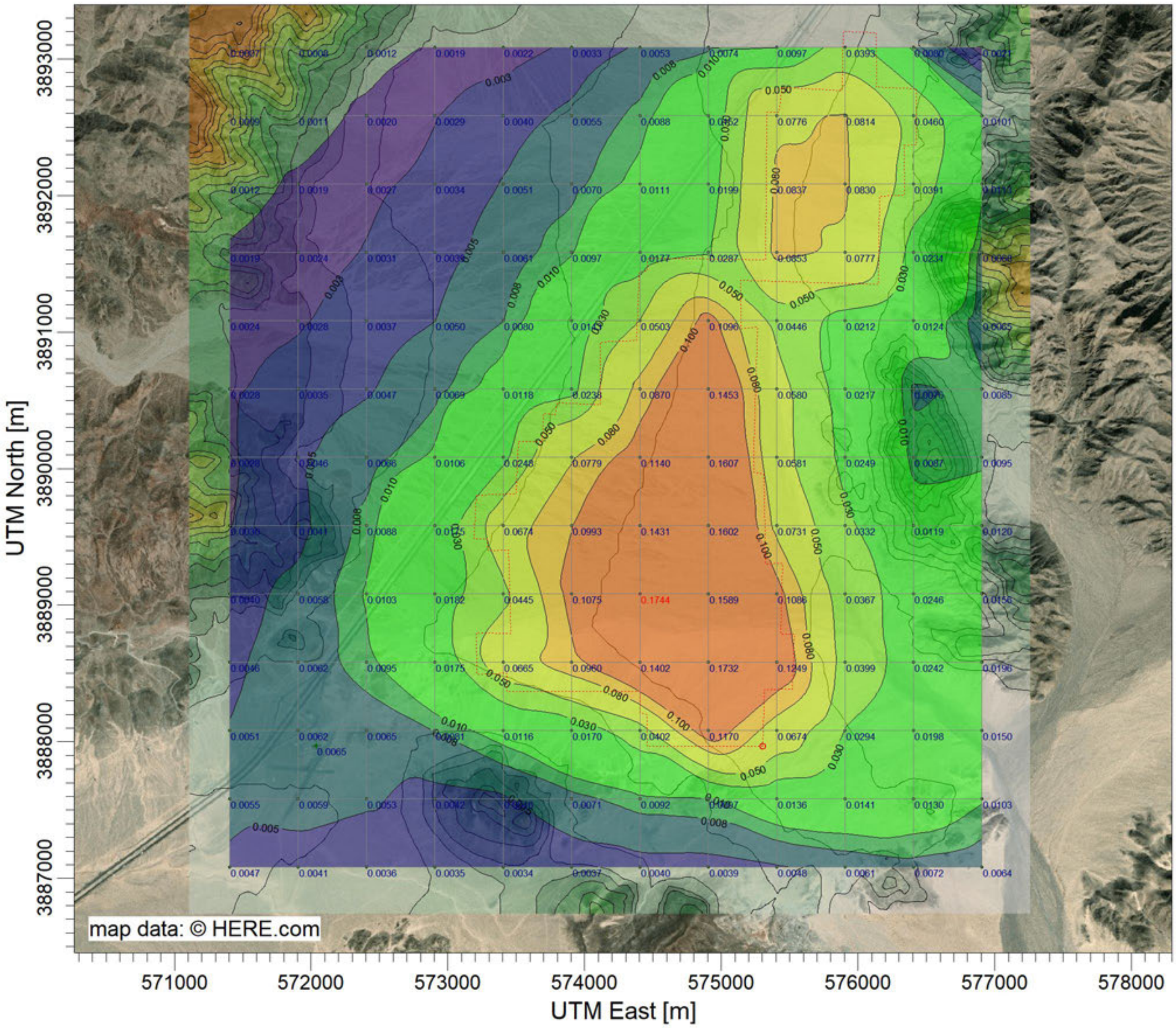
0.022 0.050 0.060 0.080 0.100 0.300 0.500 0.700 0.900 0.970

COMMENTS: 24-hour PM10	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**	
	RECEPTORS: **157**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,442 0 2 km	
	MAX: **0.970 ug/m^3**		PROJECT NO.: **24208-00**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - PM10



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

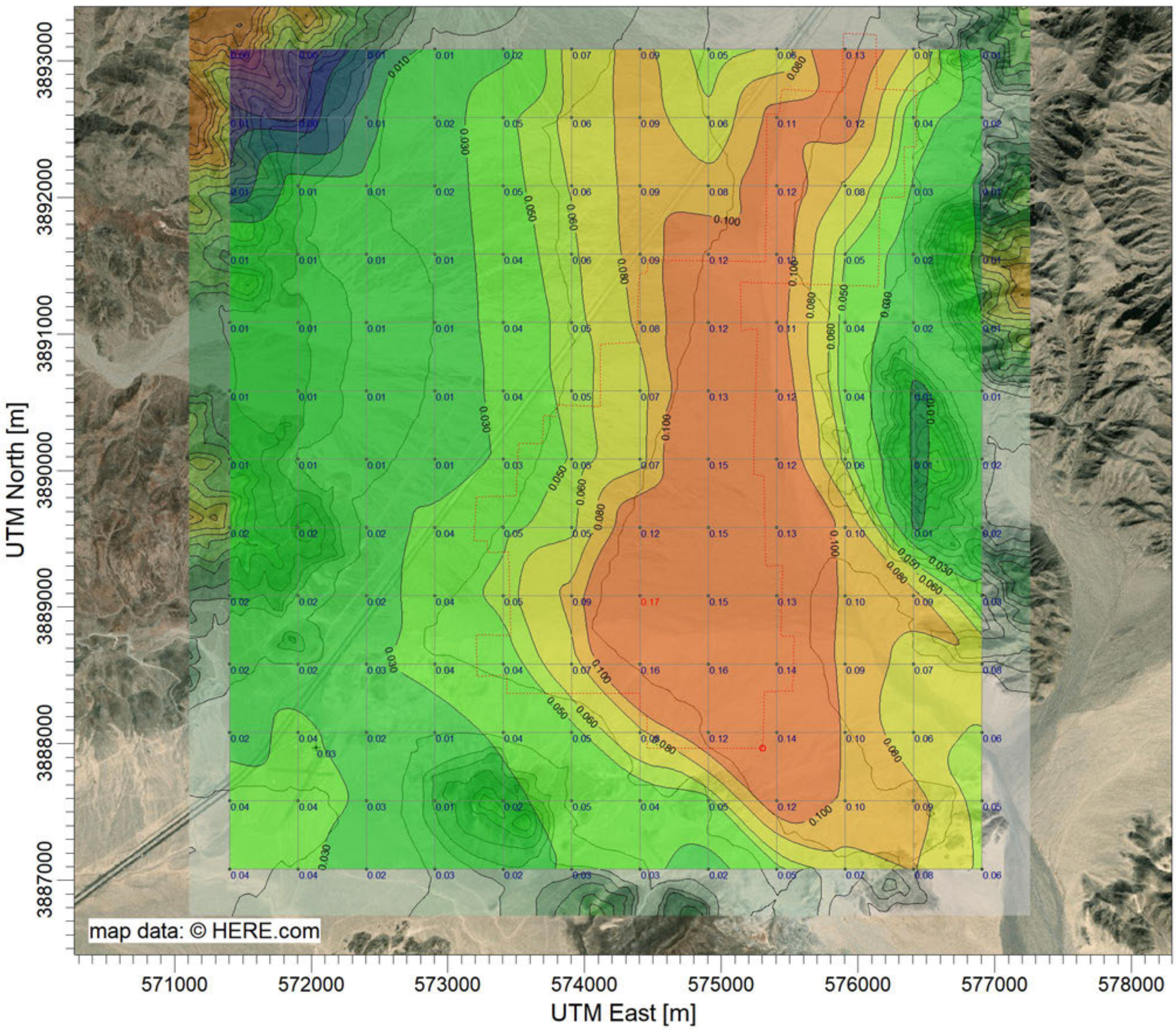
Max: 0.174 [ug/m^3] at (574405.52, 3889083.87)

0.002 0.003 0.005 0.008 0.010 0.030 0.050 0.080 0.100 0.174

COMMENTS: Annual PM10	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**	
	RECEPTORS: **157**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,442 0 — 2 km	
	MAX: **0.174 ug/m^3**		PROJECT NO.: **24208-00**

PROJECT TITLE:

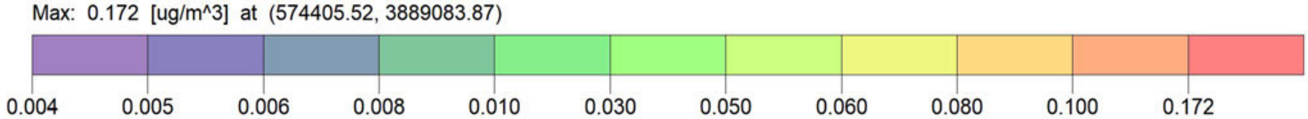
Soda Mountain Solar Project
Construction - SO2



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 0.172 [ug/m^3] at (574405.52, 3889083.87)



COMMENTS:

1-hour SO2

SOURCES:

1

COMPANY NAME:

Baseline Environmental Consulting

RECEPTORS:

157

OUTPUT TYPE:

Concentration

SCALE: 1:50,442

0 2 km

MAX:

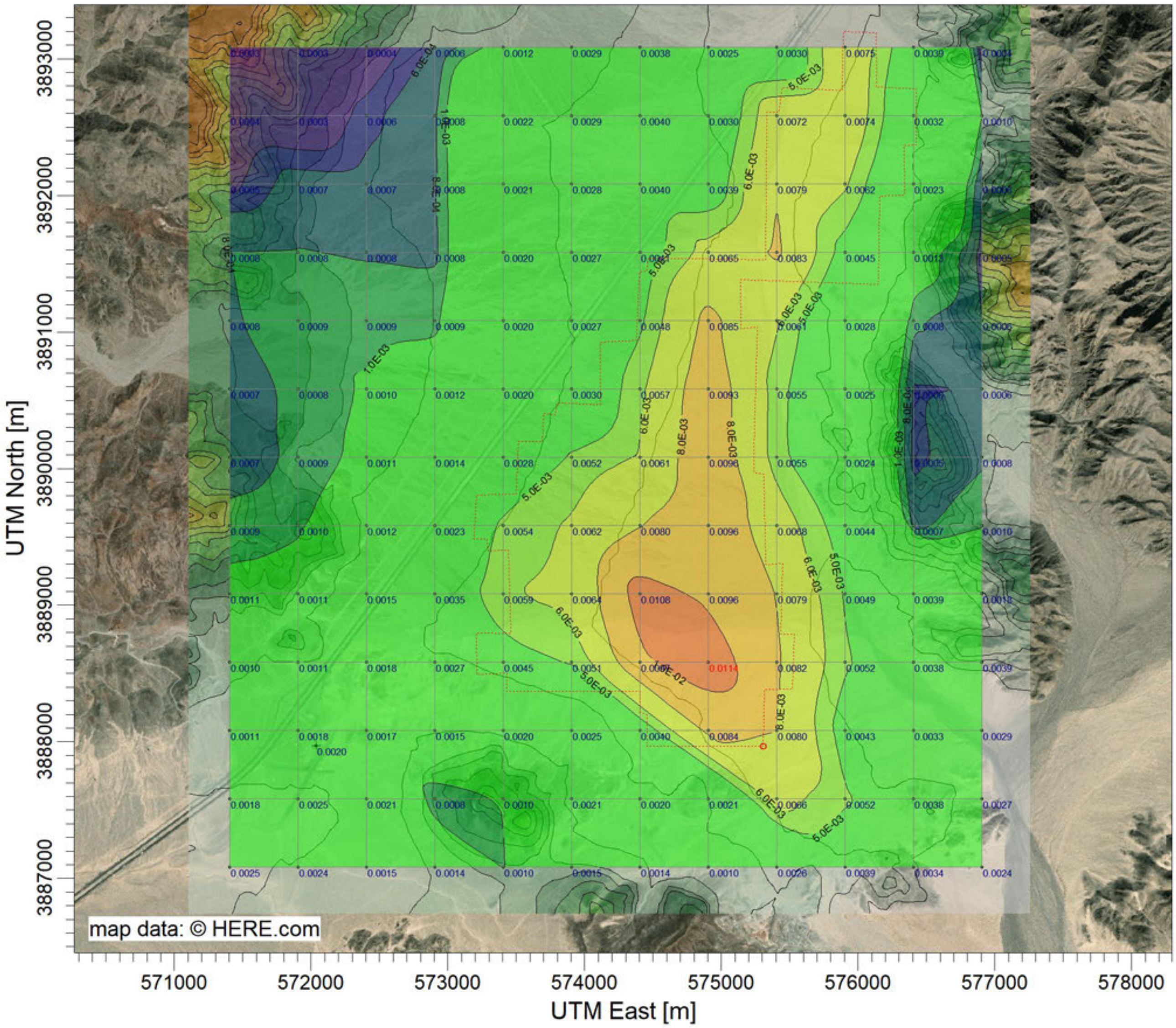
0.172 ug/m^3

PROJECT NO.:

24208-00

PROJECT TITLE:

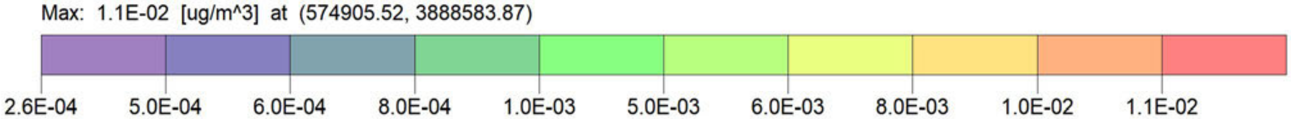
Soda Mountain Solar Project
Construction - SO2



PLOT FILE OF HIGH 1ST HIGH 24-HR VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 1.1E-02 [ug/m^3] at (574905.52, 3888583.87)

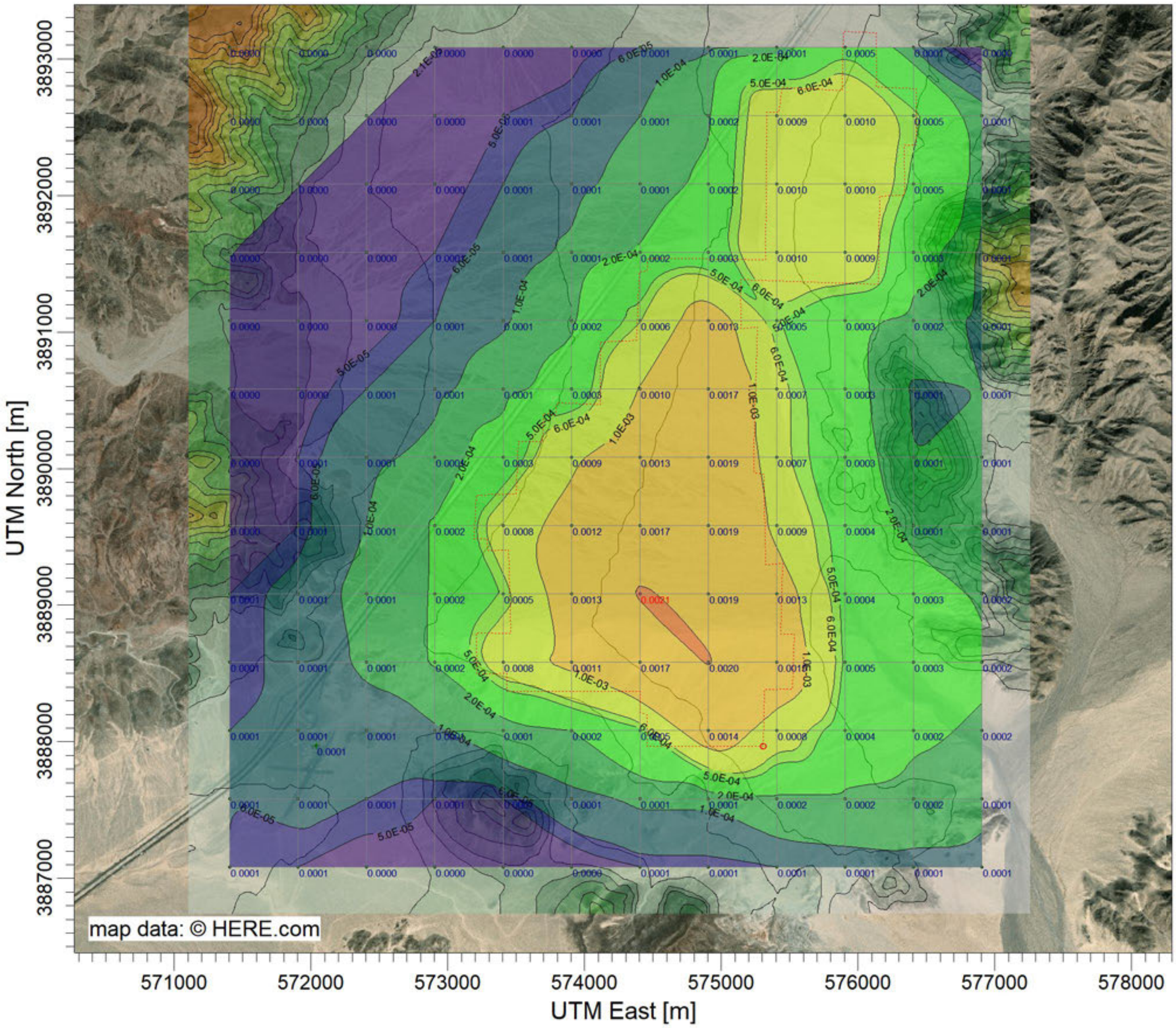


COMMENTS: 24-hour SO2	SOURCES: **1**	COMPANY NAME: **Baseline Environmental Consulting**
	RECEPTORS: **157**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:50,435 0 — 2 km
	MAX: **1.1E-02 ug/m^3**	PROJECT NO.: **24208-00**

AERMOD View - Lakes Environmental Software

PROJECT TITLE:

Soda Mountain Solar Project
Construction - SO2



PLOT FILE OF ANNUAL VALUES AVERAGED ACROSS 1 YEARS FOR SOURCE GROUP: ALL ug/m^3

Max: 2.1E-03 [ug/m^3] at (574405.52, 3889083.87)

2.1E-05 5.0E-05 6.0E-05 1.0E-04 2.0E-04 5.0E-04 6.0E-04 1.0E-03 2.0E-03 2.1E-03

COMMENTS:

Annual SO2

SOURCES:

1

COMPANY NAME:

Baseline Environmental Consulting

RECEPTORS:

157

OUTPUT TYPE:

Concentration

SCALE: 1:50,435

0 2 km

MAX:

2.1E-03 ug/m^3

PROJECT NO.:

24208-00

ATTACHMENT D
HARP INPUT DATA AND OUTPUT RESULTS
(ELECTRONIC VERSION PROVIDED SEPARATELY)

HARP Project Summary Report 10/24/2024 10:33:24 AM

PROJECT INFORMATION
HARP Version: 22118
Project Name: SODA MOUNTAIN SOLAR PROJECT_0612
Project Output Directory: C:\Users\Yilin\Baseline Environmental Consulting\BEC - 24208-00 SWCA Soda Mountain Solar\06 HARP\SODA MOUNTAIN SOLAR PROJECT_0612
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):574295.49
Y (m):3889557.48
Zone:11
No. of Sources:0
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:0
No. of Background Pollutants:0

Emissions

ScrID	StkID	ProID	PolID	PolAbbrev	Multi	Annual Ems (lbs/yr)	MaxHr Ems (lbs/hr)	MWAF

Background

PolID	PolAbbrev	Conc (ug/m^3)	MWAF

Ground level concentration files (\glc\)

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH22013
Official: True

PolID	PolAbbrev	InhCancer	OralCancer	AcuteREL	InhChronicREL	OralChronicREL	InhChronic8HRREL
9901	DieselExhPM	1.1			5		

AIR DISPERSION MODELING INFORMATION
Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/)
AERMOD: 18081
AERMAP: 18081
BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version:
Surface File:
Profile File:
Surface Station:
Upper Station:
On-Site Station:

LIST OF AIR DISPERSION FILES
AERMOD Input File:
AERMOD Output File:
AERMOD Error File:
Plotfile list
____

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)
____
AcuteNonCanerGLCList.csv
AcuteNonCanerHRAInput.hra
AcuteNonCanerNCAcuteRisk.csv
AcuteNonCanerNCAcuteRiskSumByRec.csv
AcuteNonCanerOutput.txt
AcuteNonCanerPathwayRec.csv
AcuteNonCanerPolDB.csv
CancerCancerRisk.csv
CancerCancerRisk.pdf
CancerCancerRiskSumByRec.csv
CancerGLCList.csv
CancerHRAInput.hra
CancerOutput.txt
CancerPathwayRec.csv
CancerPolDB.csv
ChronicGLCList.csv
ChronicHRAInput.hra
ChronicNCChronicRisk.csv
ChronicNCChronicRisk.pdf
ChronicNCChronicRiskSumByRec.csv
ChronicOutput.txt
ChronicPathwayRec.csv
ChronicPolDB.csv

Spatial averaging files (\sa\)
____

*HARP - HRACalc v22118 6/12/2024 12:26:41 PM - Cancer Risk - Input File: C:\Users\Yilin\Desktop\HARP2\Soda M\SODA MOUNTAIN SOLAR PROJECT_(

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	RISK_SUM	SCENARIO	DETAILS	INH_RISK	SOIL_RISK
157	ALL		572037.5	3887971	0.00515	9901	DieselExhPM	3.80E-08	2YrCancerDerived_Inh_FAH16to70	*	3.80E-08	0.00E+00

)612\hra\CancerHRAInput.hra

DERMAL_RISK	MMILK_RISK	WATER_RISK	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RISK	PIG_RISK	CHICKEN_RISK	EGG_RISK	1ST_DRIVER	2ND_DRIVER
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	INHALATION	

*HARP - HRACalc v22118 6/12/2024 12:27:05 PM - Chronic Risk - Input File: C:\Users\Yilin\Desktop\HARP2\Soda M\SODA MOUNTAIN SOLAR PROJECT_0612

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV
157	ALL		572037.5	3887971	0.00515	9901	DieselExhPM	erChronicD	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\hra\ChronicHRAInput.hra

EPRO/DEVE	RESP	SKIN	EYE	BONE/TEETI	ENDO	BLOOD	ODOR	GENERAL	DETAILS	INH_CONC	SOIL_DOSE	ERMAL_DO	MILK_DOS
0.00E+00	1.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	*	5.15E-03	0.00E+00	0.00E+00	0.00E+00

VATER_DOS	FISH_DOSE	CROP_DOS	BEEF_DOS	DAIRY_DOS	PIG_DOSE	HICKEN_DO	EGG_DOSE	1ST_DRIVER	ND_DRIVE	3RD_DRIVER
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NHALATION		

*HARP - HRACalc v22118 10/24/2024 10:29:44 AM - Acute Risk - Input File: C:\Users\Yilin\Baseline Environmental Consulting\BEC - 24208-00 SWCA Sc

REC	GRP	NETID	X	Y	CONC	POLID	POLABBREV	SCENARIO	CV	CNS	IMMUN
157	ALL		572037.5	3887971	2.15432	9901	DieselExhPM	NonCancerAcute	0.00E+00	0.00E+00	0.00E+00

oda Mountain Solar\06 HARP\SODA MOUNTAIN SOLAR PROJECT_0612\hra\AcuteNonCanerHRAInput.hra

KIDNEY	GILV	EPRO/DEVE	RESP	SKIN	EYE	BONE/TEETH	ENDO	BLOOD	ODOR	GENERAL
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

APPENDIX C

Baseline Environmental Consulting Supplemental Air Quality Analysis for Battery Energy Storage System Thermal Runaway Event

MEMORANDUM

Date: July 17, 2025 **Job No.:**24208-00

To: Erin Wielenga, SWCA Environmental Consultants

From: Patrick Sutton, Baseline Environmental Consulting
Yilin Tian, Baseline Environmental Consulting

Subject: Supplemental Air Quality Analysis for Battery Energy Storage System Thermal Runaway Event, Soda Mountain Solar Project, San Bernardino County, California

In June 2024, Baseline Environmental Consulting (Baseline) prepared an Air Quality Technical Report for the Soda Mountain Solar Project (project) located in unincorporated San Bernardino County, California. The purpose of the Air Quality Technical Report was to support an Application for Certification (AFC) for the project, focusing on the California Energy Commission's (CEC) requirements in Appendix B of the AFC Program Guidance under sections (g)(8)(H) through (g)(8)(I) and sections (g)(9)(A) through (g)(9)(D). Based on review of the air quality analysis results, CEC has requested preparation of an air dispersion modeling analysis and health risks assessment for a potential thermal runaway event during operation of the Battery Electric Storage System (BESS) at the project site.

Baseline has prepared this technical memorandum to provide a supplemental analysis of potential air quality impacts related to a thermal runaway event at the project site. A thermal runaway event in a BESS occurs when a damaged lithium-ion battery cell releases flammable or toxic gases, triggering a chain reaction that can potentially spread to adjacent cells. The scope of this supplemental analysis for a BESS thermal runaway event includes the following:

- Estimated mass emissions of criteria air pollutants and toxic air contaminants (TACs);
- Modeled concentrations of criteria air pollutants and TACs at nearby receptors;
- Evaluation of criteria air pollutant impacts that would cause or contribute to any exceedance of ambient air quality standards; and
- Evaluation of potential adverse health effects to nearby sensitive receptors from acute exposure to TACs.

PROJECT DESCRIPTION

The project proposes to construct, operate, maintain, and decommission a proposed 300-megawatt (MW) photovoltaic (PV) solar facility located on approximately 2,670 acres. The approximate disturbance acreage for the project would be 2,081 acres. As shown in **Figure 1**, the project components include the solar plant site, operation and maintenance buildings and structures, stormwater infrastructure and related infrastructure/improvements, a substation and switchyard, and an approximately 300-MW BESS.

Battery Energy Storage System

A BESS absorbs, holds, and then reinjects energy from the PV system into the electrical grid. The project is anticipated to include up to 300 MW/1,200 MWh of energy for dispatch into the local electrical grid via the same point of interconnection as the solar arrays. The BESS would be located adjacent to the substation and Area 1. Up to 18 acres may be utilized for the BESS throughout the project site at full buildout.

Batteries

Individual lithium-ion cells typically form the core of the BESS and are assembled in sealed battery modules. The battery modules would be installed in self-supporting racks electrically connected either in series or parallel to each other. The operating rack-level DC voltage currently ranges between 700 and 1,500 volts (V). The individual battery racks are connected in series or a parallel configuration to deliver the BESS energy and power rating.

Battery Energy Storage System Enclosure and Controller

The BESS containers would house the batteries described above, as well as the BESS unit controllers. There would also be a site controller, located in a pad mount enclosure within the BESS yard. The BESS site controller is a multilevel control system for the battery modules, power conversion system, medium-voltage system, and up to the point of connection with the electrical grid. The controllers ensure that the BESS effectively mimics conventional turbine generators when responding to grid emergency conditions. The BESS enclosure would also house the required heating, ventilation, and air conditioning (HVAC) and fire protection systems. The battery storage containers would be built using standard International Organization for Standardization (ISO) shipping containers, and each would measure approximately 20 feet in length, 6 feet in width, and 8 feet in height, although other smaller form-factor structures exist that may be used. The containers would be painted Sudan Brown.

The safety system would include a fire detection, alarm, and suppression control system that would be triggered automatically when the system senses imminent fire danger. A fire suppression control system would be provided within each on-site battery enclosure. The safety system would use either a waterless evaporating fluid, a sustainable clean agent (not a hydrofluorocarbon clean agent), or an alternative suppression agent, such as inert gas. The control system would also notify the project operators and could be configured to notify local first responders as well.

BASIC LITHIUM-ION BATTERY CONCEPT

A lithium-ion battery mainly consists of a positive electrode (cathode), a negative electrode (anode), a lithium-ion-conducting electrolyte, and a separator to prevent short circuits. The anode and cathode store lithium. The electrolyte enables the transfer of positively charged lithium ions between the anode and cathode through a separator. As lithium ions move, they generate free electrons at the anode, creating an electric charge at the positive current collector. During charging, lithium ions migrate from the cathode to the anode, while electrons flow into the battery via an external circuit. This process is reversed during discharge, with lithium ions returning to the cathode and electrons flowing out to power a device.

Thermal runaway in lithium-ion batteries refers to a chain reaction of exothermic chemical processes within the cell, leading to a rapid and uncontrollable rise in temperature and internal pressure. Lithium-ion battery thermal runaway could result in the venting of flammable and/or toxic gases, and may ultimately result in a fire and explosion. Thermal runaway is typically triggered by one of three forms of failure, including mechanical (e.g., mechanical damage causing deformation or puncture), electrical (e.g., overcharging, over-discharging, and external short-circuit), and thermal (e.g., overheating and high ambient temperature).

PROJECT LOCATION AND NEARBY SENSITIVE RECEPTORS

The project site is located in unincorporated San Bernardino County, California, approximately 50 miles northeast of Barstow. The project would occupy the alluvial valley dividing the northern and southern portions of the Soda Mountains in the Mojave Desert. The project site is composed of rural desert land and is almost entirely undeveloped. The project is not situated close to any non-residential sensitive receptors, such as schools, hospitals, daycare centers, or long-term care establishments. As discussed in the Air Quality and Greenhouse Gas Technical Report for the project prepared by SWCA in March 2024 (Air Quality Report),[1] the closest residences to the project location can be found next to the Rasor Road service station, roughly 260 feet southwest of the proposed boundary. This area encompasses a stand-alone house and accommodation for four workers.

METHODOLOGY

Under normal operation, the BESS would not emit any criteria air pollutants or TACs. As mentioned above, the BESS enclosure would house the required HVAC and fire protection systems. The HVAC system would maintain the suitable operating temperature within the BESS enclosure, while the fire protection system is designed to either prevent thermal runaway from occurring in the cell or prohibit the propagation of thermal runaway to adjacent cells. This

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[1] SWCA, 2024. Air Quality and Greenhouse Gas Technical Report for the Soda Mountain Solar Project, San Bernardino County, California. March,

analysis assumed a highly unlikely, worst-case scenario in which all control systems fail, and a thermal runaway fire-event occurs within the BESS enclosure.

Emission Estimation Methods

[redacted]

Concentration Estimation Methods

Air dispersion modeling of the project's criteria air pollutant (CO) and TAC emissions from a thermal runaway event were conducted using the EPA's atmospheric dispersion modeling system (AERMOD). Emissions from the thermal runaway event were modeled as a point source

[2] Ramboll. 2024. Offsite Consequence Analysis for Vistra Morro Bay Battery Energy Storage System (BESS) Project. March

located at the southwest corner of the proposed BESS yard, resulting in the shortest distance between the source and the nearest sensitive receptor of about 2.9 miles to the southwest. The locations of the proposed BESS yard and the nearest sensitive receptor are illustrated in **Figure 1**.

The actual CO emission rate estimated based on the UL 9540A cell level testing results was used for the AERMOD run to estimate the maximum CO concentrations for the 1-hour and 8-hour averaging period. A unit emission rate (1 gram/second) was used for the AERMOD run to estimate the maximum concentrations of other pollutants for the 1-hour averaging period. The air dispersion results were then adjusted based on actual emission rates. The input parameters and assumptions used for estimating the dispersion of criteria air pollutants and TACs are included in **Table 1**.

A uniform grid of receptors spaced 500 meters apart was created for ground level receptors at heights of 1.5 meters to develop isopleths (i.e., concentration contours) around the project site that illustrate the general air dispersion pattern from the emissions sources. In addition, a discrete receptor was created for ground level receptors at heights of 1.5 meters to calculate concentrations at the nearest sensitive receptor. The AERMOD model input parameters included 1 year of meteorological data processed by the California Air Resources Board from the Barstow-Daggett Airport Meteorological Station (KDAG). The Barstow-Daggett Airport Meteorological Station is representative due to its proximity to the project site, similar complexity of the terrain and surrounding land use, and the time period of available data.

The input parameters and assumptions used for estimating concentrations at the nearest sensitive receptor from the dispersion of air pollutants during a thermal runaway event and the dispersion model results are included in **Attachment B**. The AERMOD files are submitted electronically as **Attachment C**.

Table 1. AERMOD Model Parameters and Assumptions

Source Type	Units	Value	Notes
Modeled Source Type: Stack (point)			
Variable Emissions: None			
Release Height	m	2.794	Approximate height of the enclosure.
Stack Diameter	m	0.825	Assumed to be half the depth of the enclosure (0.825 meters) to account for potential deterioration of the thermal roof.
Stack Temperature	K	900	Ramboll, 2024
Stack Velocity	m/s	0.207	Estimated based on the assumption that the total gas flow rate is equal to the flow rate required for 10 air changes per hour within the enclosure. (Ramboll, 2024)
Emission Rate - CO	g/s	0.736	Actual emission rate.
Emission Rate -Other	g/s	1	Unit emission rate.
Scaling Factor - Benzene	unitless	0.0004	Scaling factors were applied to adjust the AERMOD dispersion results from the unit emission rate scenario to reflect the actual emission rates of each pollutant.
Scaling Factor - Toluene	unitless	0.0005	
Scaling Factor - HF	unitless	2.1067	
Scaling Factor - HCL	unitless	0.4792	
Scaling Factor - HCN	unitless	0.2332	

Notes:
m = meter; K = kelvin; m/s = meter per second; g/s = gram per second
Sources:
Fire Protection Engineering and UL 9540A Interpretation Report (UL 9540A report).
Ramboll, 2024. Offsite Consequence Analysis for Vistra Morro Bay Battery Energy Storage System (BESS) Project. March

Thresholds of Significance

For risk assessment purposes, the non-cancer health effects on a specific organ system from acute exposure to an individual TAC is expressed as a hazard quotient (HQ), which is the 1-hour maximum concentration of the TAC divided by a corresponding acceptable exposure level, also known as an acute reference exposure level (REL)[3]. The acute RELs used to estimate the HQ for each TAC in this study are summarized in **Table 2**. The cumulative non-cancer health effects from acute exposure to all TACs is expressed as a hazard index (HI), which is the summation of all the HQs related to a specific organ system. To be conservative, this analysis sums all HQs regardless of variations in the target organ system. An acute HI greater than a threshold of 1.0 indicates there is a significant risk for adverse health effects. The acute HQs and HI from a

[3] RELs are airborne concentrations of a chemical that are not anticipated to result in adverse noncancer health effects for specified exposure durations in the general population, including sensitive subpopulations.

thermal runaway event at the nearest sensitive receptor were evaluated in accordance with guidance from the Office of Environmental Health Hazard Assessment (OEHHA).[4]

Table 2. OEHHA Acute Reference Exposure Levels

Pollutant	Unit	REL
Benzene	µg/m^3	27
Toluene	µg/m^3	5,000
HF	µg/m^3	240
HCL	µg/m^3	2,100
HCN	µg/m^3	340

Notes: OEHHA = Office of Environmental Health Hazard Assessment; REL = reference exposure level
Sources: OEHHA, 2020.

For criteria air pollutants, the estimated 1-hour and 8-hour concentrations of CO at the nearest sensitive receptor during a thermal runaway event were compared to the EPA's significant impact levels[5] (SILs). Concentration above the EPA SILs could cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

The thresholds of significance used in this analysis that are summarized in **Table 3.**

Table 3. Thresholds of Significance

Pollutant	Threshold Type	Unit	Threshold Value
TACs[1]	Acute HI	Unitless	1.0
CO, 1-hour average	EPA SIL	µg/m^3	2,000
CO, 8-hour average	EPA SIL	µg/m^3	500

Notes: HQ = hazard quotient; HI = hazard index; EPA = United States Environmental Protection Agency; SIL = significant impact level
[1] Based on sum of all hazard quotients.
Sources: OEHHA, 2020; 40 CFR 51.165(b).

RESULTS

Estimates of acute non-cancer health risks at the nearest sensitive receptor from exposure to thermal runaway emissions are summarized in **Table 4** and compared to the thresholds of significance. At the nearest sensitive receptor, the estimated acute HI for all the TACs from a thermal runaway event were below the threshold of significance. As a result, the project would

[4] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. May.
[5] EPA SIL values provided in 40 CFR 51.165(b).

not expose sensitive receptors to substantial concentrations of hazardous air pollutants from a thermal runaway event.

Table 4. Acute Health Risks at the Nearest Sensitive Receptor during a Thermal Runaway Event

Pollutant	Concentration at Nearest Receptor ($\mu g/m^3$)	Acute Hazard Quotient
Benzene	0.007	0.0003
Toluene	0.009	<0.0001
HF[1]	37.79	0.1575
HCL[1]	8.60	0.0041
HCN[1]	4.18	0.0123
	Hazard Index	**0.174**
	Threshold Of Significance	**1.0**
	Exceed Threshold?	**No**

Notes: $\mu g/m^3$ = micrograms per cubic meter

[1] According to the UL 9540A report, HF, HCL, and HCN would not be vented from the proposed project battery cell during a thermal runaway event. For informational purposes, emissions of HF, HCL, and HCN were evaluated using conservative empirical emission factors selected based on a review of available studies (Ramboll, 2024).
Source: Attachment B.

As presented in **Table 5**, the estimated concentrations of CO at the nearest sensitive receptor from a thermal runaway event would be below the EPA SILs. Therefore, the project's criteria air pollutant emissions during a thermal runaway event would not cause or contribute to an exceedance of the ambient air quality standards.

Table 5. Estimated Criteria Air Pollutant Concentrations at the Nearest Sensitive Receptor during a Thermal Runaway Event

Pollutant	Averaging Time	Concentration at Nearest Receptor ($\mu g/m^3$)	Threshold of Significance ($\mu g/m^3$)	Exceed Threshold?
Carbon Monoxide	1-Hour	13.2	2,000	No
	8-Hour	1.66	500	No

Notes: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter
Source: Attachment B.

CONCLUSIONS

The criteria air pollutant emissions during a thermal runaway event at the project site would not cause or contribute to an exceedance of ambient air quality standards. In addition, the project would not expose sensitive receptors to substantial concentrations of hazardous air pollutants from a thermal runaway event.

FIGURE

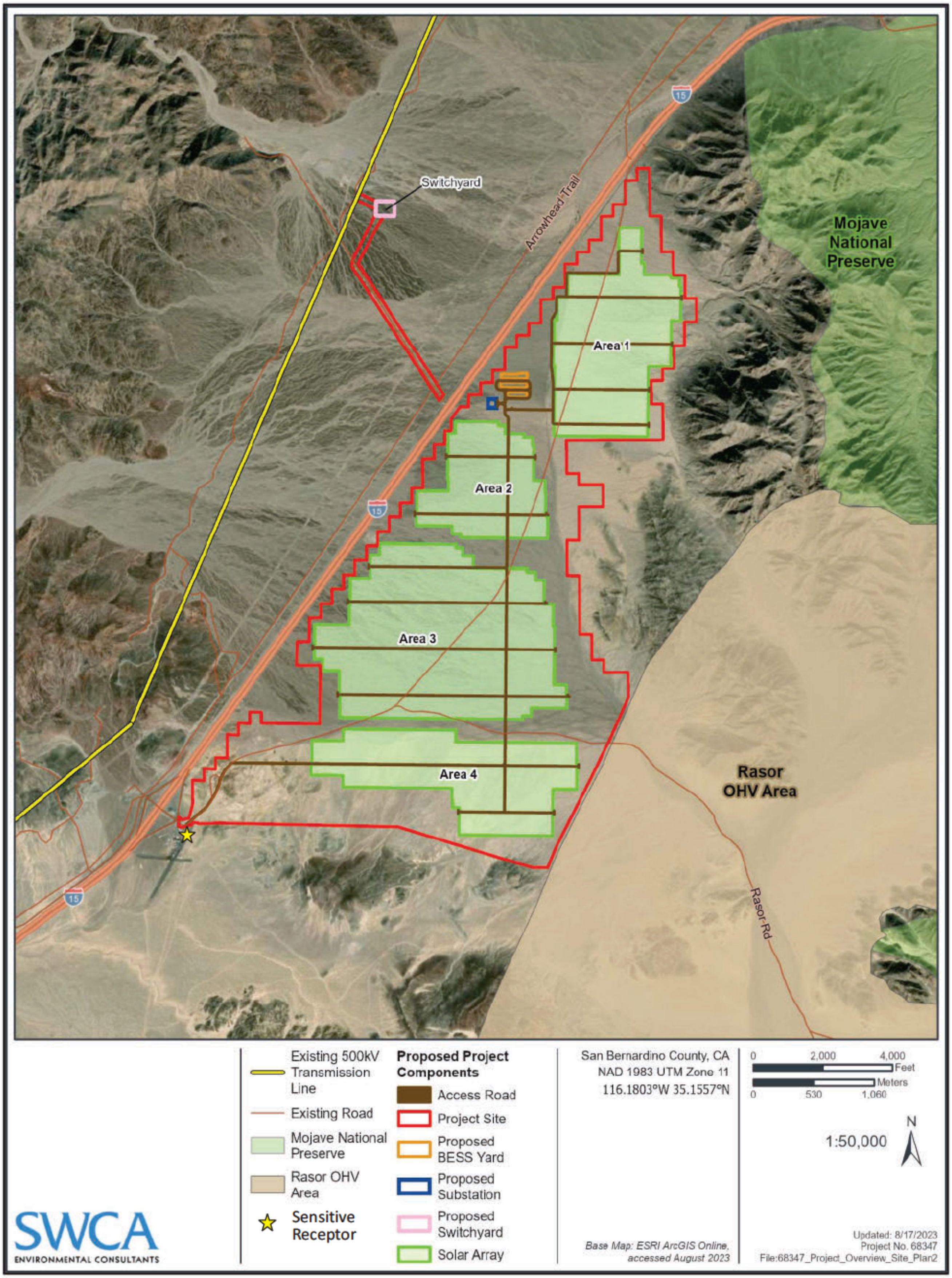


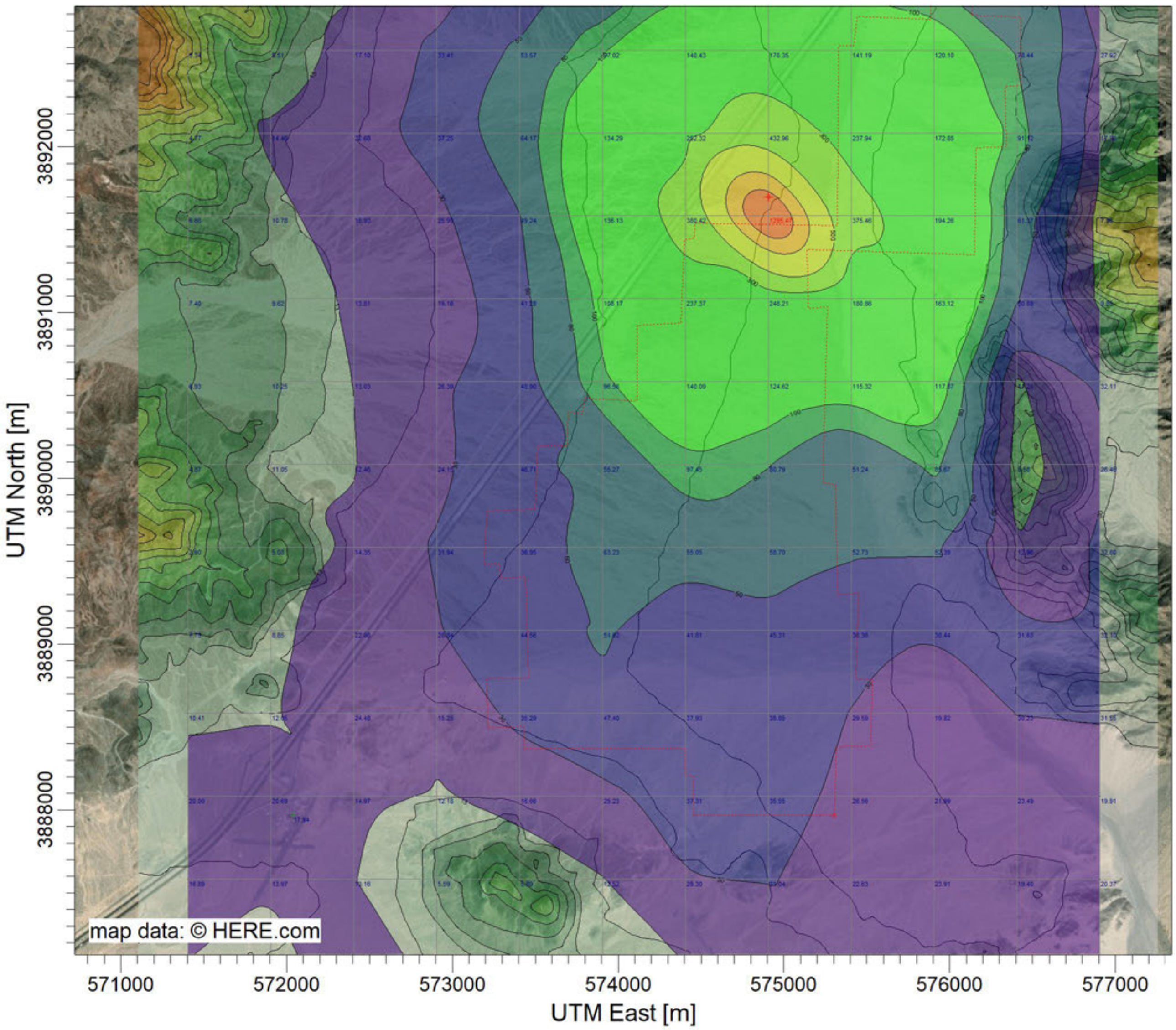
Figure 1. Sensitive Receptor Location

ATTACHMENT A
FIRE PROTECTION ENGINEERING AND UL 9540A INTERPRETATION REPORT
(CONFIDENTIAL)

ATTACHMENT B
THERMAL RUNAWAY EMISSION CALCULATIONS AND AERMOD INPUT PARAMETERS, ASSUMPTIONS, AND RESULTS

PROJECT TITLE:

Soda Mountain Solar Project
BESS - TACs



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: BESS

ug/m^3

Max: 1295 [ug/m^3] at (574905.52, 3891583.87)

COMMENTS:

Concentrations based on unit emission rate (1 g/s)

SOURCES:

2

COMPANY NAME:

Baseline Environmental Consulting

RECEPTORS:

157

OUTPUT TYPE:

Concentration

SCALE:

1:41,607

0 — 1 km

MAX:

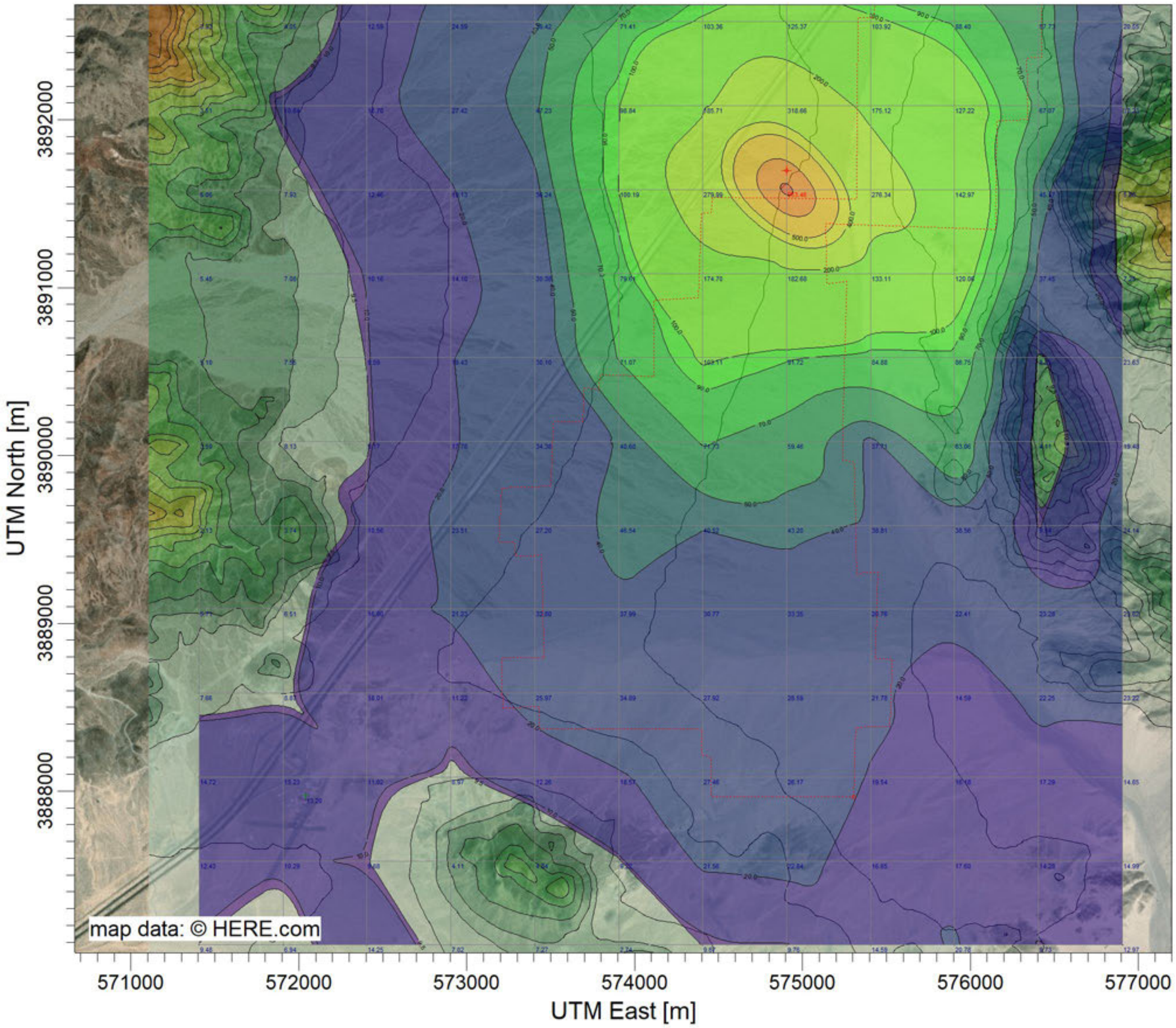
1295 ug/m^3

PROJECT NO.:

24208-00

PROJECT TITLE:

Soda Mountain Solar Project
BESS - CO 1-HR



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: BESS

ug/m^3

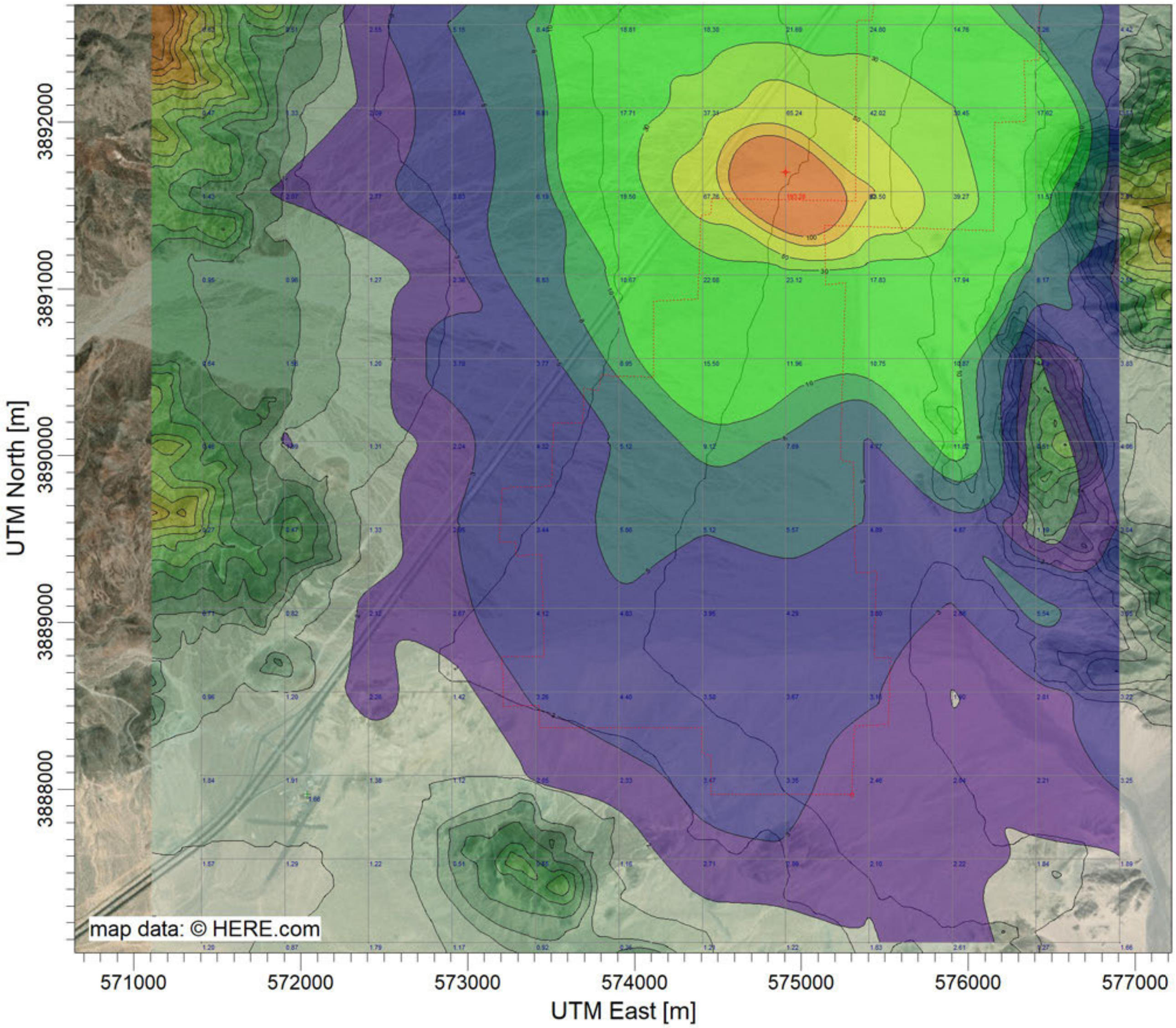
Max: 953.5 [ug/m^3] at (574905.52, 3891583.87)

9.5 10.0 20.0 40.0 50.0 70.0 90.0 100.0 200.0 400.0 500.0 700.0 900.0 953.5

COMMENTS: 1-HR	SOURCES: **2**	COMPANY NAME: **Baseline Environmental Consulting**
	RECEPTORS: **157**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:41,091 0 — 1 km
	MAX: **953.5 ug/m^3**	PROJECT NO.: **24208-00**

PROJECT TITLE:

Soda Mountain Solar Project
BESS - CO 8-HR



PLOT FILE OF HIGH 1ST HIGH 8-HR VALUES FOR SOURCE GROUP: BESS

ug/m^3

Max: 193 [ug/m^3] at (574905.52, 3891583.87)

COMMENTS: 8-HR	SOURCES: **2**	COMPANY NAME: **Baseline Environmental Consulting**	
	RECEPTORS: **157**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:41,336 0 1 km	
	MAX: **193 ug/m^3**		PROJECT NO.: **24208-00**

ATTACHMENT C
AERMOD FILES
(ELECTRONIC VERSION)