INTEL CENTRAL UTILITY BUILDING AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

Santa Clara, California

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Introduction

The purpose of this report is to address the air quality and greenhouse gas (GHG) impacts associated with the proposed Intel Central Utility Building (CUB) project located on the southwestern corner of the Intel Bowers Campus at 3065 Bowers Avenue in Santa Clara, California. Air quality impacts and GHG emissions would be associated with the construction and operation of the project. Air pollutant emissions associated with construction of the project were predicted using appropriate computer models. In addition, the potential project health risk impacts and the impact of existing toxic air contaminant (TAC) sources affecting the nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The approximately 1.3-acre project site is currently comprised of paved surface parking with landscaped islands. The project proposes to demolish the existing uses to construct an up to 17,000-square feet (sf) CUB. The project also would construct a utility trestle along the other Campus buildings to connect the existing recycled water line at the northeastern portion of the Bowers Campus to the CUB building. The project proposes to retain nine parking spaces in the existing surface parking lot.

The CUB would house a chiller area, pumps, brine containment, electrical substation/battery storage room, and mechanical equipment. Two 2,800-kilowatt generators powered by diesel engines would be located within an enclosed exterior generator yard. In addition, the project would include two cooling towers, each consisting of two cells. There would be a redundant third cooling tower that would operate only if one of the two towers were inoperable. Two cooling towers would operate 4,000 hours per year. The cooling towers would be located at the roof level. The project would also include three natural gas boilers. Like the cooling towers, the third boiler would be for redundancy purposes and only operate if one of the two boilers were inoperable.

The project proposes a substation system to provide power to the CUB. This substation would be located in a dedicated, ventilated electrical room on the roof level. Each end would be comprised of a 4,150KVA, fan-cooled, 12KV to 480V transformer, a 480V, 5000A secondary main breaker and distribution circuit breakers. The maximum overall load in the building would be approximately 6MVA. The room containing battery storage will house three 1250KW, lead-acid battery systems with exterior access. The overall battery system would be composed of two 1250KW systems with a redundant third system. These systems will provide uninterrupted power to the CUB.

Setting

The project is located in the City of Santa Clara, in Santa Clara County, which is in the San Francisco Bay Area Air Basin. Ambient air quality standards have been established at both the State and federal level. The Bay Area meets all ambient air quality standards with the exception of ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

[1] Bay Area Air Quality Management District, *2022 CEQA Guidelines*, April 2023.

Air Pollutants of Concern

High ozone concentrations in the air basin are caused by the cumulative emissions of reactive organic gases (ROG) and nitrogen oxides (NO_x). These precursor pollutants react under certain meteorological conditions to form ozone. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ambient ozone concentrations. The highest ozone concentrations in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone concentrations aggravate respiratory and cardiovascular diseases, reduce lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant in the air basin. Particulate matter is assessed and measured in terms of respirable particulate matter or particles that have a diameter of 10 micrometers or less (PM_{10}) and fine particulate matter where particles have a diameter of 2.5 micrometers or less ($PM_{2.5}$). Elevated concentrations of PM_{10} and $PM_{2.5}$ are the result of both region-wide (or cumulative) emissions and localized emissions. High particulate matter concentrations aggravate respiratory and cardiovascular diseases, reduce lung function, increase mortality (e.g., lung cancer), and result in reduced lung function growth in children.

Toxic Air Contaminants

Toxic air contaminants (TAC) are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure of TACs can result in adverse health effects, they are regulated at the regional, State, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects from diesel exhaust exposure a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015 and incorporated into BAAQMD's current CEQA guidance.[2] See *Attachment 1* for a detailed description of the health risk modeling methodology used in this assessment.

[2] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are the multi-family homes located about 1,500 feet to the northeast and the single-family homes located over 2,000 feet to the south. This project would not introduce new sensitive receptors (i.e., residents) to the area. Note that prevailing winds in the area are from the northwest.

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide ambient air quality standards (NAAQS) and emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards.

In the past twenty years, the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of nitrogen oxides, or NO_X, and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The current standards limit the amount of sulfur allowed in diesel fuel to 15 parts per million by weight (ppmw). Ultra-low sulfur diesel (ULSD), as it is referred to, is required for use by all vehicles in the U.S.

All of the above federal diesel engine and diesel fuel requirements have been adopted by California, in some cases with modifications making the requirements more stringent or the implementation dates sooner.

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[3] USEPA, 2000. *Regulatory Announcement, Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements*. EPA420-F-00-057. December.

State Regulations

The California Air Resources Board (CARB) has set statewide ambient air quality standards (CAAQS) and emission standards for on-road and off-road mobile sources that are more stringent than those adopted by the EPA. 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 (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a regulation to reduce emissions of DPM and NO_X from on-road heavy-duty diesel fueled vehicles.[4] 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. These requirements have been phased in over the compliance period and depend on the model year of the vehicle.

CARB has also adopted and implemented regulations to reduce DPM and NO_X emissions from in-use (existing) and new off-road heavy-duty diesel vehicles (e.g., loaders, tractors, bulldozers, backhoes, off-highway trucks, etc.). The regulations apply to diesel-powered off-road vehicles with engines 25 horsepower (hp) or greater. The regulations are intended to reduce DPM and NO_X exhaust emissions by requiring owners to turn over their fleet (replace older equipment with newer equipment) or retrofit existing equipment in order to achieve specified fleet-averaged emission rates. Implementation of this regulation, in conjunction with the Federal off-road equipment engine emission limits for new vehicles, has significantly reduce emissions of DPM and NO_X.

To address the issue of diesel emissions in the state, CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*[5]. In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road emission standards for new diesel engines, as well as adoption of regulations for ULSD fuel in California.

Bay Area Air Quality Management District (BAAQMD)

BAAQMD has jurisdiction over an approximately 5,600-square mile area, commonly referred to as the San Francisco Bay Area (Bay Area). The District's boundary encompasses the nine San Francisco Bay Area counties, including Alameda County, Contra Costa County, Marin County, San Francisco County, San Mateo County, Santa Clara County, Napa County, southwestern Solano County, and southern Sonoma County.

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the NAAQS and CAAQS. The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and

[4] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.
[5] California Air Resources Board, 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October.

inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[6] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program has been implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to develop emission reduction activities in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area.

Seven areas have been identified by BAAQMD as impacted communities. They include Eastern San Francisco, Richmond/San Pablo, Western Alameda, San José, Vallejo, Concord, and Pittsburgh/Antioch. The project site is not within any of the BAAQMD CARE areas.

Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[7] The BAAQMD has identified several overburdened areas within the air district's boundaries. However, the project site is not within an overburdened area as identified by BAAQMD as the Project site is scored at the 60th percentile on CalEnviroScreen.[8]

BAAQMD CEQA Air Quality Guidelines

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. In 2023, the BAAQMD revised the *California Environmental Quality Act (CEQA) Air Quality Guidelines* that included the original significance thresholds to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The thresholds contained in this CEQA guidance are designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA.

The updated guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They include assessment methodologies for air toxics, odors, and GHG emissions. The current BAAQMD

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[6] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.
[7] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en.
[8] OEHAA, CalEnviroScreen 4.0 Maps
https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0/

guidelines and thresholds were used in this analysis and are summarized in Table 1.[9] Air quality impacts and community health risks are considered potentially significant if they exceed these thresholds.

The BAAQMD requires all projects include a "basic" set of best management practices (BMPs) to manage fugitive dust and consider impacts from dust (i.e., fugitive PM_{10} and $PM_{2.5}$) to be less than significant if BMPs are implemented.

***Basic Best Management Practices:* Include measures to control dust and exhaust during construction.**

During any construction period ground disturbance, the applicant shall ensure that the project contractor implement measures to control dust and exhaust. Implementation of the measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. The contractor shall implement the following BMPs that are required of all projects:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.

2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.

6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.

7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted layer of wood chips, mulch, or gravel.

9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

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[9] Bay Area Air Quality Management District, 2023. *2022 CEQA Guidelines*. April.

Table 1. BAAQMD CEQA Air Quality Significance Thresholds

<table>
<tr><th rowspan="2">Criteria Air Pollutant</th><th colspan="2">Construction Thresholds</th><th colspan="2">Operational Thresholds</th></tr>
<tr><th colspan="2">Average Daily Emissions (lbs./day)</th><th>Average Daily Emissions (lbs./day)</th><th>Annual Average Emissions (tons/year)</th></tr>
<tr><td>ROG</td><td colspan="2">54</td><td>54</td><td>10</td></tr>
<tr><td>NO_x</td><td colspan="2">54</td><td>54</td><td>10</td></tr>
<tr><td>PM_{10}</td><td colspan="2">82 (Exhaust)</td><td>82</td><td>15</td></tr>
<tr><td>$PM_{2.5}$</td><td colspan="2">54 (Exhaust)</td><td>54</td><td>10</td></tr>
<tr><td>CO</td><td colspan="2">Not Applicable</td><td colspan="2">9.0 ppm (8-hour avg) or 20.0 ppm (1-hour avg)</td></tr>
<tr><td>Fugitive Dust (PM_{10}/$PM_{2.5}$)</td><td colspan="2">Best Management Practices (BMPs)*</td><td colspan="2">Not Applicable</td></tr>
<tr><th>Health Risks and Hazards</th><th colspan="2">Single Sources/Individual Projects</th><th colspan="2">Combined Sources (Cumulative from all sources within 1000-foot zone of influence)</th></tr>
<tr><td>Excess Cancer Risk</td><td>>10 in a million</td><td rowspan="3">OR
Compliance with Qualified Community Risk Reduction Plan</td><td>>100 in a million</td><td rowspan="3">OR
Compliance with Qualified Community Risk Reduction Plan</td></tr>
<tr><td>Hazard Index</td><td>>1.0</td><td>>10.0</td></tr>
<tr><td>Incremental annual $PM_{2.5}$</td><td>>0.3 µg/m^3</td><td>>0.8 µg/m^3</td></tr>
<tr><th colspan="5">Greenhouse Gas Emissions</th></tr>
<tr><td>Land Use Projects – (Must Include A or B)</td><td colspan="4">A. Projects must include, at a minimum, the following project design elements:
1. Buildings
a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
b. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
2. Transportation
a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor’s Office of Planning and Research’s Technical Advisory on Evaluating Transportation Impacts in CEQA:
i. Residential projects: 15 percent below the existing VMT per capita
ii. Office projects: 15 percent below the existing VMT per employee
iii. Retail projects: no net increase in existing VMT
b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).</td></tr>
<tr><td>Stationary Sources</td><td colspan="4">10,000 MT/year</td></tr>
<tr><td colspan="5">Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.
* BAAQMD strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses.</td></tr>
</table>

Source: Bay Area Air Quality Management District, 2022

BAAQMD Rules and Regulations

Combustion equipment associated with the proposed project that includes the new diesel engines to power generators and the cooling towers would establish new sources of particulate matter and gaseous emissions. Emissions would primarily result from the testing of the emergency backup generators and operation of the cooling towers. Certain emission sources would be subject to BAAQMD Regulations and Rules. The District's rules and regulations that may apply to the project include:

- Regulation 2 – Permits
  - Rule 2-1: General Requirements
  - Rule 2-2: New Source Review
  - Rule 2-5: New Source Review of Toxic Air Contaminants
- Regulation 6 – Particulate Matter and Visible Emissions
- Regulation 9 – Inorganic Gaseous Pollutants
  - Rule 9-1: Sulfur Dioxide
  - Rule 9-7: Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, And Process Heaters
  - Rule 9-8: Nitrogen Oxides and Carbon Monoxide from Stationary Internal Combustion Engines

Permits

Rule 2-1-301 requires that any person installing, modifying, or replacing any equipment, the use of which may reduce or control the emission of air contaminants, shall first obtain an Authority to Construct (ATC).

Rule 2-1-302 requires that written authorization from the BAAQMD in the form of a Permit to Operate (PTO) be secured before any such equipment is used or operated.

Rule 2-1 lists sources that are exempt from permitting.

New Source Review

Rule 2-2, New Source Review (NSR), applies to all new and modified sources or facilities that are subject to the requirements of Rule 2-1-301. The purpose of the rule is to provide for review of such sources and to provide mechanisms by which no net increase in emissions will result.

Rule 2-2-301 requires that an applicant for an ATC or PTO apply Best Available Control Technology (BACT) to any new or modified source that results in an increase in emissions and has emissions of precursor organic compounds, non-precursor organic compounds, NOx, SO_2, PM_{10}, or CO of 10.0 pounds or more per highest day. Based on the estimated emissions from the proposed project, BACT will be required for NOx emissions from the diesel-fueled generator engines.

Rule 2-5 applies to new and modified sources of TAC emissions. BAAQMD evaluates the TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. Toxics BACT (or TBACT) is applied to any new or modified source of TACs where the source risk is a cancer risk greater than 1.0 in one million and/or a chronic hazard index greater than 0.20. Permits are not issued for any new or modified source that has risks or net project risks that exceed a cancer risk of 10.0 in one million or a chronic or acute hazard index of 1.0.

Stationary Diesel Airborne Toxic Control Measure

The BAAQMD administers the CARB's Airborne Toxic Control Measure (ACTM) for Stationary Diesel engines (section 93115, title 17 CA Code of Regulations). The project's stationary sources will be new stationary emergency stationary emergency standby diesel engines larger than 50 hp. These limits vary based on maximum engine power. All engines are limited to PM emission rates of 0.15 g/hp-hour, regardless of size. This ACTM limits engine operation 50 hours per year for routine testing and maintenance.

Offsets

Rule 2-2-302 require that offsets be provided for a new or modified source that emits more than 10 tons per year of NOx or precursor organic compounds.

Prohibitory Rules

Regulation 6 pertains to particulate matter and visible emissions. Although the engines will be fueled with diesel, they will be modern, low emission engines. Thus, the engines are expected to comply with Regulation 6.

Rule 9-1 applies to sulfur dioxide. The engines will use ultra-low sulfur diesel fuel (less than 15 ppm sulfur) and will not be a significant source of sulfur dioxide emissions and are expected to comply with the requirements of Rule 9-1.

Rule 9-7 limits the emissions of NOx CO from industrial, institutional and commercial boilers, steam generators and process heaters. This regulation typically applies to boilers with a heat rating greater than 2 million British Thermal Units (BTU) per hour.

Rule 9-8 prescribes NOx and CO emission limits for stationary internal combustion engines. Since the proposed engines will be used with emergency standby generators, Regulation 9-8-110 exempts the engines from the requirements of this Rule, except for the recordkeeping requirements (9-8-530) and limitations on hours of operation for reliability-related operation (maintenance and testing). The engines will not operate more than 50 hours per year, which will satisfy the requirements of 9-8-111.

BACT for Diesel Generator Engines

Since the generators will be used exclusively for emergency use during involuntary loss of power, the BACT levels listed for IC compression engines in the BAAQMD BACT Guidelines would apply. These are provided for two separate size ranges of diesel engines:

> <u>I.C. Engine – Compression Ignition >50hp and <1.000hp</u>: BAAQMD applies BACT 2 emission limits based on the ATCM for stationary emergency standby diesel engines larger than 50 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges from 3.0 to 3.5 grams per horsepower hour (g/hp-hr). The PM (PM10 or PM2.5) limit is 0.15 g/hp-hr per CARB's ACTM.
>
> <u>I.C. Engine – Compression Ignition <999hp</u>: BAAQMD applies specific BACT emission limits for stationary emergency standby diesel engines equal or larger than 1,000 brake-horsepower (BHP). NOx emission factor limit is subject to the CARB ACTM that ranges from 0.5 g/hp-hr. The PM (PM10 or PM2.5) limit is 0.02 g/hp-hr. POC (i.e., ROG) limits are 0.14 g/hp-hr.

<u>City of Santa Clara 2010 – 2035 General Plan.</u>

On November 16, 2010, the City of Santa Clara adopted the *City of Santa Clara 2010 – 2035 General Plan.*[10] It updated portions of the Plan on December 9, 2014 and included the City's Climate Action Plan (CAP) as an appendix to the Plan. The City's CAP was updated on June 7, 2022.

The current general plan includes goals, policies, and actions to reduce air pollutants and exposure to toxic air containments. The following goals, policies, and actions are applicable to the proposed project and this assessment:

5.10.2 Air Quality Goals

5.10.2-G1 Improved air quality in Santa Clara and the region.

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

5.10.2 Air Quality Policies

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

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

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

[10] City of Santa Clara, 2010. *City of Santa Clara 2010 – 2035 General Plan*. November. Web: https://www.santaclaraca.gov/home/showdocument?id=56139

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact AIR-1: Conflict with or obstruct implementation of the applicable air quality plan?

BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), implements specific plans to meet the applicable federal and State laws, regulations, and programs. The most recent and comprehensive plan is the *Bay Area 2017 Clean Air Plan*.[11] The primary goals of the Clean Air Plan are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions and protect the climate. The BAAQMD has also recently updated its CEQA guidelines to assist lead agencies in evaluating the significance of air quality impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since the project would have construction and operational emissions below the BAAQMD thresholds (see Impact 2 below).

Impact AIR-2: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The Bay Area is considered a non-attainment area for ground-level O_3 and $PM_{2.5}$ under both the NAAQS and the CAAQS. The area is also considered non-attainment for PM_{10} under the CAAQS, but not the NAAQS. The area has attained both CAAQA and NAAQS ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for O_3, $PM_{2.5}$ and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for O_3 precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to construction period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2022.1.1 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The CUB project land use types and size, and anticipated construction schedule were input to CalEEMod. A separate CalEEMod run was conducted for the recycled water utility trestle in order to capture the equipment and activities required for the construction of the line. The CalEEMod model output along with construction inputs are included in *Attachment 2*.

[11] Bay Area Air Quality Management District (BAAQMD), 2017. *Final 2017 Clean Air Plan.*

CalEEMod Inputs

Land Use Inputs

The proposed project land uses were entered into CalEEMod as described in Table 2.

Table 1. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
General Light Industry	17	1000sqft	17,000	1.0

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario for the CUB, including equipment list and schedule, were based on CalEEMod defaults for a project of this type and size. Construction equipment and use was provided separately for the construction of the recycled water utility trestle since CalEEMod does not have defaults for this type of construction activities.

The project construction activities included the schedule for each phase of construction (included in *Attachment 2*). Within each of the construct phases, the quantity of equipment to be used along with the average hours per day and total number of workdays were based on CalEEMod defaults for the CUB and applicant provided data for the recycled water utility trestle. The construction schedule for the CUB assumed that the earliest possible start date would be September 2023 and would be built out over a period of approximately 11 months, or 250 construction workdays. Construction of the recycled water utility trestle would begin at the same time but be constructed over 165 days. The earliest full calendar year of operation was assumed to be 2025. Emission rates for construction equipment and traffic are lower in future years as newer equipment with lower emissions rates are introduced into the overall fleet, replacing older equipment with high emission rates.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, estimate of soil imported and/or exported to the site, and the estimate of concrete and asphalt used for construction. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition and grading were developed by CalEEMod using the estimated demolition and grading volumes. The number of concrete and asphalt total round haul trips were estimated for the project and converted to daily one-way trips, assuming two trips per delivery. These values are shown in the project construction worksheets included in *Attachment 2.*

Summary of Computed Construction Emissions

Since project construction would occur for less than one year, average daily emissions were computed by dividing the total construction emissions from both the CUB and recycled water utility trestle by the number of total construction days (250 workdays). Table 3 shows average daily construction emissions of ROG, NOx, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 3, the predicted construction period emissions would not exceed the BAAQMD significance thresholds.

Table 3. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Total (Tons)				
2023-2024	0.26	1.46	0.06	0.05
Average Daily Construction Emissions (pounds/day)				
2023-2024 (250 construction workdays)	2.06	11.66	0.46	0.42
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Operational Period Emissions

ROG, PM, and NO_X air emissions from the project would be generated primarily from the diesel-powered emergency generators and cooling towers. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are also typical ROG emission sources from these types of land uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

The project land uses were input to CalEEMod as described above for the construction period modeling.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year of full operation would be 2025 if construction begins in 2023. Emissions associated with build-out later than 2025 would be lower.

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. However, a traffic study was not required for this project because the project would not generate new trips. Existing employees would operate and maintain the proposed CUB. To be conservative, new trips were assumed. Therefore, the default trip generations, trip lengths, and trip types specified by CalEEMod were used.

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. Emissions modeling includes those indirect emissions from electricity consumption. The CalEEMod default CO_2 intensity factor for Silicon Valley Power is 307.98 pounds of CO_2 per megawatt of electricity produced.

The City of Santa Clara adopted reach code ordinances in October 2021 that prohibits the use of natural gas infrastructure in new buildings.[12] This ordinance applies to any new construction project starting after January 1, 2022. Project data provided by the applicant indicated that the project utilities would be all electric (except for the emergency generators), therefore natural gas use was converted to electricity use.

Project Generators

The project would include two emergency generators. Both generators would be 2,800 kilowatts (kW) generators powered by 4,036 horsepower (hp) diesel-fired engines. The generators would be located on the ground level generator yard in the southeast corner of the building. These generators would be tested periodically and power the system in the event of a power failure. For modeling purposes, it was assumed that the generators would be operated for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year for testing and maintenance. During testing periods, the engine would typically be run for less than one hour. The engine would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. These include emission limits similar to U.S. EPA Tier 4 standards for the engines larger than 1,000-hp, since both generators are larger than 1,000-hp. The emissions from the operation of the generator were calculated using the CalEEMod model .

Project Cooling Towers

The project would include two cooling towers, each consisting of two cells. There would be a redundant third cooling tower that would operate only if one of the two towers were inoperable. The cooling towers would be located on the roof level. PM_{10} and $PM_{2.5}$ emissions from evaporative cooling were calculated based on a use of evaporative cooling for approximately 4,000 hours per year, a water flow rate of 3,900 gallons per minute (gpm) per cooling tower,[13] use of 0.005 percent mist eliminators, and a total dissolved solids (TDS) concentration of 370 parts per million (ppm)

[12] City of Santa Clara, 2021. "Reach Code Ordinance No. 2034", October. Web: https://www.santaclaraca.gov/home/showpublisheddocument/75885/637743917626000000
[13] Hours of use and tower water flow rate provided by the applicant.

in the influent recycled water.[14] Six cycles of concentration of the TDS in the circulating water was assumed. Based on the draft calculations from the above assumptions and PM fractions based on the South Coast Air Quality Management District (SCAQMD),[15] the PM_{10} and $PM_{2.5}$ emissions were calculated and shown in Table 4. The cooling towers are not expected to produce emissions of volatile organic compounds (VOCs) or other criteria pollutants.[16] Details of the cooling tower PM emissions calculations are provided in *Attachment 2*.

Project Boilers

The project would also include the operation of two natural gas water boilers. There would be a redundant third natural gas boiler that would operate only if one of the two boilers were inoperable. Each natural gas boiler would have a burner maximum heat input of 4 MMBtu/hour. The boilers were modeled as stationary equipment in CalEEMod using the applicant provided emissions rates and assumed heat input value for 24 hours per day, 365 days per year.

Water

The project proposes to use reclaimed water for irrigation around the CUB site, as well as for the plumbing fixtures in the CUB building. In addition, recycled water would be used in the proposed cooling towers within the CUB building. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions since the project site would not send wastewater to septic tanks or facultative lagoons.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were used.

<u>Summary of Computed Operational Period Emissions</u>

Annual emissions were predicted using CalEEMod. The daily emissions were calculated assuming 365 days of operation. Table 4 shows average daily emissions of ROG, NO_X, total PM_{10}, and total $PM_{2.5}$ during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

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[14] City of Santa Clara, *Water Quality Consumer Confidence Report,* 2022. Web:https://www.santaclaraca.gov/home/showpublisheddocument/77771

[15] South Coast AQMD, *Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A.* October 2006. Web: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf

[16] South Coast AQMD, *Guidelines for Calculating Emissions from Cooling Towers*, November 2019. Web: https://www.aqmd.gov/docs/default-source/planning/annual-emission-reporting/guidelines-for-calculating-emissions-from-cooling-towers---november-2017-final.pdf?sfvrsn=12

Table 4. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2025 Project Operational Emissions (2 Generator & 2 Boilers) (*tons/year*)	0.65	0.59	0.36	0.30
Project Cooling Tower Emissions (*tons/year)*	-	-	0.61	0.36
Total Operational Emissions	0.65	0.59	0.97	0.66
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
Total (lbs./day)[1]	3.57	3.23	5.30	3.59
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

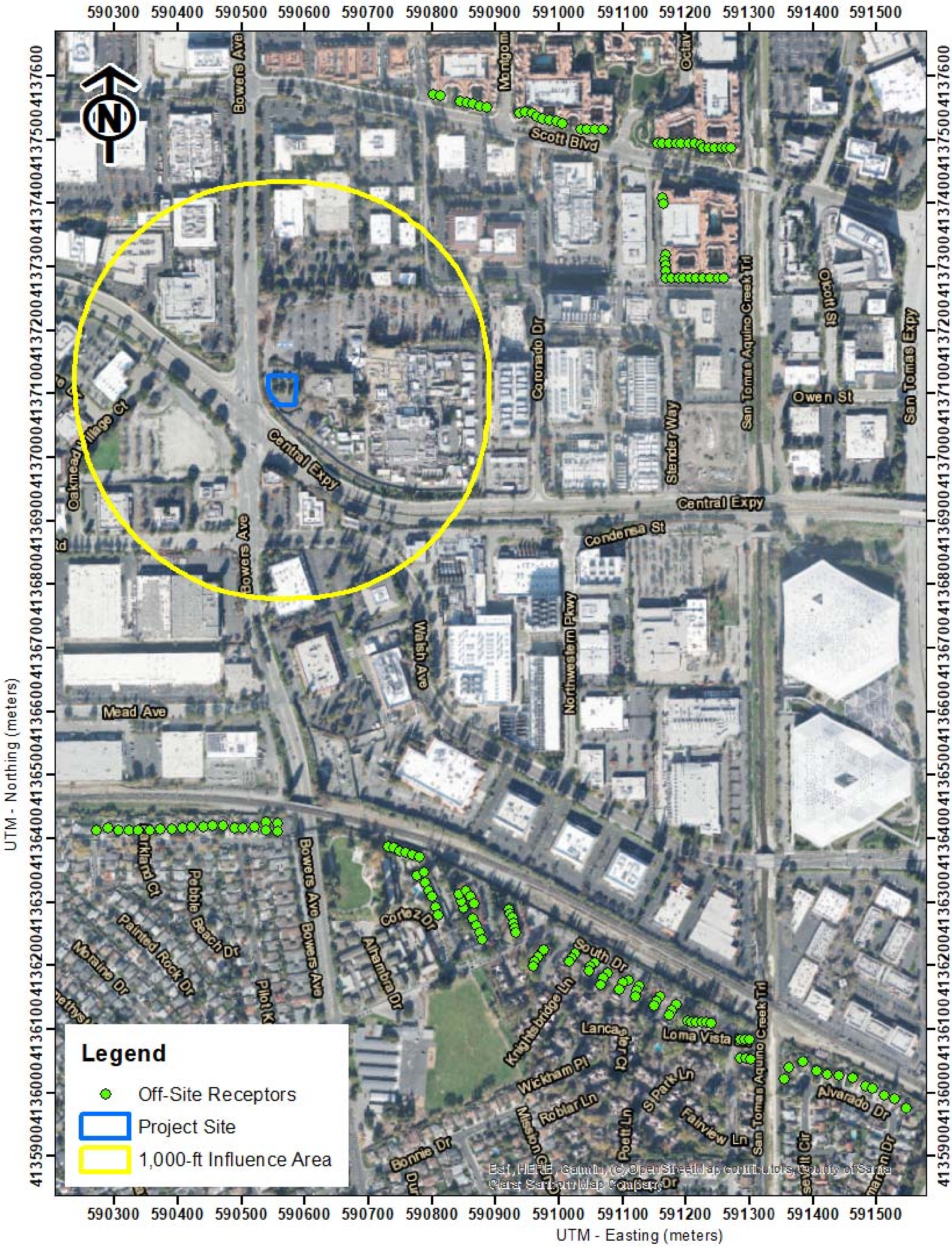
Impact AIR-3: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased health risk can occur either by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity or by significantly exacerbating existing cumulative TAC impacts. This project would introduce new sources of TACs during construction (i.e., on-site construction and truck hauling emissions) and operation (i.e., generators, cooling towers, and boilers).

Project construction activity would generate dust and equipment exhaust. The project also proposes stationary equipment that causes direct emissions of air pollutant which requires permitting by BAAQMD (e.g., emergency generators powered by diesel fuel, cooling towers, and boilers powered by natural gas).

The BAAQMD CEQA Air Quality Guidelines recommends that any proposed project that includes the siting of a new source of pollutants and TACs assess associated impacts within 1,000 feet (and schools at ¼ mile), considering both individual and nearby cumulative sources (i.e., proposed project plus existing and foreseeable future projects). The project site is located over 1,600 feet away from the nearest sensitive receptor, as shown in Figure 1. However, emissions of air pollutants or TACs from project stationary sources are subject to BAAQMD permitting requirements that would require the District to apply all applicable rules and regulations to limit or control these emissions. Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants would apply to any potential emissions from these sources. The District's risk policy is to not issue a permit to any source that would cause a cancer risk of greater than 10 chances per million. Therefore, project impacts to existing sensitive receptors were addressed for long-term operational conditions from project stationary sources.

Figure 1. Project Site and 1,000-Foot Influence Area



Project Operational Stand-By Diesel Generators

The project would include two emergency generators. Both generators would be 2,800 kilowatts (kW) generators powered by 4,036 horsepower (hp) diesel-fired engines. The generators would be located on the ground level generator yard in the southeast corner of the building. The locations of the modeled generators are shown in Figure 2.

Operation of the diesel generators would be a source of TAC emissions. The generator would be tested periodically and power the system in the event of a power failure. For modeling purposes, it was assumed that the generators would be operated for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year for testing and maintenance. During testing periods, the engine would typically be run for less than one hour. The engine would be required to meet CARB and EPA emission standards and consume commercially available California low-sulfur diesel fuel. Additionally, the generators would have to meet BAAQMD BACT requirements for IC Engine-Compression Ignition: Stationary Emergency, non-Agricultural, non-direct drive fire pump sources. Based on the size of the proposed generators, these include emission limits similar to U.S. EPA Tier 4 engines. The emissions from the operation of the generator were calculated using the CalEEMod model.

These diesel engines would be subject to CARB's Stationary Diesel Airborne Toxics Control Measure (ATCM) and require permits from the BAAQMD, since it will be equipped with an engine larger than 50-HP. BACT requirements would apply to these generators that would limit DPM emissions. As part of the BAAQMD permit requirements for toxics screening analysis, the engine emissions will have to meet Best Available Control Technology for Toxics (BACT) and pass the toxic risk screening level of less than 10 in a million. The risk assessment would be prepared by BAAQMD. Depending on results, BAAQMD would set limits for DPM emissions (e.g., more restricted engine operation periods). Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

Dispersion Modeling

To estimate potential increased cancer risks and $PM_{2.5}$ impacts from operation of the emergency generators, the U.S. EPA AERMOD dispersion model was used to compute the maximum annual DPM concentration at off-site sensitive receptor locations (nearby residences). The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[17] Emissions of DPM were based on PM_{10} exhaust emissions predicted by CalEEMod for operation of the project generator. AERMOD modeling used a five-year data set (2013-2017) of hourly meteorological data from the San Jose Airport prepared for use with the AERMOD model by BAAQMD. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters) were used to

[17] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

represent the breathing height on the first floor of nearby residences.[18] Stack parameters for modeling the generators were either based on project-specific generator parameters (i.e., engine size, exhaust gas flowrate, stack height, and exhaust gas temperature) or based on BAAQMD default parameters (stack diameter) for stand-by diesel generators if that project-specific information were not available.[19] Annual average DPM and $PM_{2.5}$ concentrations were modeled assuming that generator testing could occur at any time of the day (24 hours per day, 365 days per year).

Computed Risks and Hazards from Project Generators

Increased cancer risks from use of the generators were calculated using the modeled maximum annual DPM concentrations and BAAQMD recommended risk assessment methods and parameters. The $PM_{2.5}$ concentration and non-cancerous (i.e., Hazard Index) health risk impacts were also calculated. To calculate the increased cancer risk from the generators, the cancer risks exposure duration accounted for a 30-year period. Table 5 lists the community risks from the stand-by diesel generators at the most impacted sensitive receptor. The emissions and health risk calculations for the proposed generators are included in *Attachment 3*.

<u>Project Cooling Towers</u>

In addition, the project would include two cooling towers, each consisting of two cells. There would be a redundant third cooling tower that would operate only if one of the two towers was inoperable. The cooling towers would be located on the roof level. Particulate matter emissions from evaporative cooling can occur and are a result of evaporation of liquid water entrained in the discharge air stream and carried out of the tower as "drift" droplets that contain dissolved solids in the water. Drift droplets that evaporate can produce small particulate matter (i.e., PM_{10} and $PM_{2.5}$) emissions. These emissions are generated when the drift droplets evaporate and leave the particulate matter formed by crystallization of dissolved solids. The cooling towers are not powered by a diesel engine, so no DPM emissions would be produced.

For the health risk assessment, the $PM_{2.5}$ emissions from evaporative cooling were calculated based on a use of evaporative cooling for approximately 4,000 hours per year, a water flow rate of 3,900 gallons per minute (gpm) per cooling tower,[20] use of 0.005 percent mist eliminators, and a total dissolved solids (TDS) concentration of 370 parts per million (ppm) in the influent recycled water.[21] Six cycles of concentration of the TDS in the circulating water was assumed. Based on

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[18] Bay Area Air Quality Management District, 2012, Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0. May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[19] Bay Area Air Quality Management District, San Francisco Department of Public Health, and San Francisco Planning Department, 2012. *The San Francisco Community Risk Reduction Plan: Technical Support Document,* BAAQMD, December. Web: https://www.gsweventcenter.com/Appeal_Response_References/2012_1201_BAAQMD.pdf

[20] Hours of use and tower water flow rate provided by the applicant.

[21] City of Santa Clara, *Water Quality Consumer Confidence Report,* 2022. Web:https://www.santaclaraca.gov/home/showpublisheddocument/77771

the draft calculations from the above assumptions and PM fractions based on SCAQMD,[22] the $PM_{2.5}$ emissions were calculated as 0.36 tons per year.

Dispersion Modeling

To obtain an estimate of potential $PM_{2.5}$ concentrations from operation of the cooling towers, the AERMOD dispersion model was used to calculate the annual $PM_{2.5}$ concentration at off-site sensitive receptor locations (nearby residences). The same receptors, breathing heights, and BAAQMD San José International Airport meteorological data used in the generator dispersion modeling were used for the cooling tower model. Volume source parameters for modeling the cooling tower were based on project-specific cooling tower parameters (i.e., length of side, release height, emission rate (flow rate, TDS, mist eliminator efficiency)). Annual $PM_{2.5}$ concentrations were modeled assuming that cooling tower would operate at any time of the day (24 hours per day, 365 days per year).

The modeled annual $PM_{2.5}$ concentrations are shown in Table 5 for the sensitive receptor with maximum impacts. The particulate matter emission computations and dispersion modeling results for the proposed cooling towers are included in *Attachment 3*.

<u>Water Boilers</u>

The project would include the operation of two natural gas water boilers. There would be a redundant third natural gas boiler that would operate only if one of the two boilers were inoperable. Each natural gas boiler would have a burner maximum heat input of 4 MMBtu/hour.

Dispersion Modeling

To estimate potential increased cancer risks and $PM_{2.5}$ impacts from operation of the project boilers, the U.S. EPA AERMOD dispersion model was used to compute the maximum annual average $PM_{2.5}$ concentrations, and 1-hour and annual average TAC concentrations at off-site sensitive receptor locations (nearby residences). TAC and $PM_{2.5}$ emissions for operation of the project boilers were provided by the applicant. The boilers were assumed to operate 24 hours per day, 365 days per year. The TACs used for evaluating health risks were the compounds that caused more than 99 percent of the cancer risk and non-cancer risks from the boilers. The same receptors, breathing heights, and BAAQMD San José International Airport meteorological data described previously for other sources were used. The facility boilers were modeled as point sources located on the roof of the project building. Stack parameters for modeling the boilers (i.e., exhaust gas velocity, stack diameter and height, and exhaust gas temperature) were based on default values for small natural gas-fired boilers from the San Joaquin Valley Air Pollution Control District.[23]

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[22] South Coast AQMD, *Final-Methodology to Calculate Particulate Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A*. October 2006. Web: http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/particulate-matter-(pm)-2.5-significance-thresholds-and-calculation-methodology/final_pm2_5methodology.pdf

[23] San Joaquin Valley Air Pollution Control District, Final Draft Staff Report, Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document. March 18, 2015.

Maximum 1-hour and annual average TAC and $PM_{2.5}$ concentrations were modeled assuming full time operation of the boilers.

Computed Risks and Hazards from Project Generators

Increased cancer risks from use of the boilers were calculated using the modeled maximum annual TAC concentrations and BAAQMD recommended risk assessment methods and parameters. To calculate the increased cancer risk from the boilers, the cancer risks exposure duration accounted for a 30-year period. Acute and chronic non-cancerous health effects (i.e., Hazard Index) and the maximum $PM_{2.5}$ concentration were also calculated. Table 5 lists the community risks from the project boilers at the most impacted sensitive receptor. The emissions and health risk calculations for the proposed boilers are included in *Attachment 3*.

Summary of Health Risk Results

Project risk impacts are shown in Table 5. The unmitigated maximum cancer risks, annual $PM_{2.5}$ concentration, and HI from operation of the generators, cooling towers, and boilers at the most impacted sensitive receptor locations would not exceed the single-source significance threshold. Therefore, the project is considered to have a *less-than-significant* impact with respect to exposing sensitive receptors to substantial air pollutant concentrations.

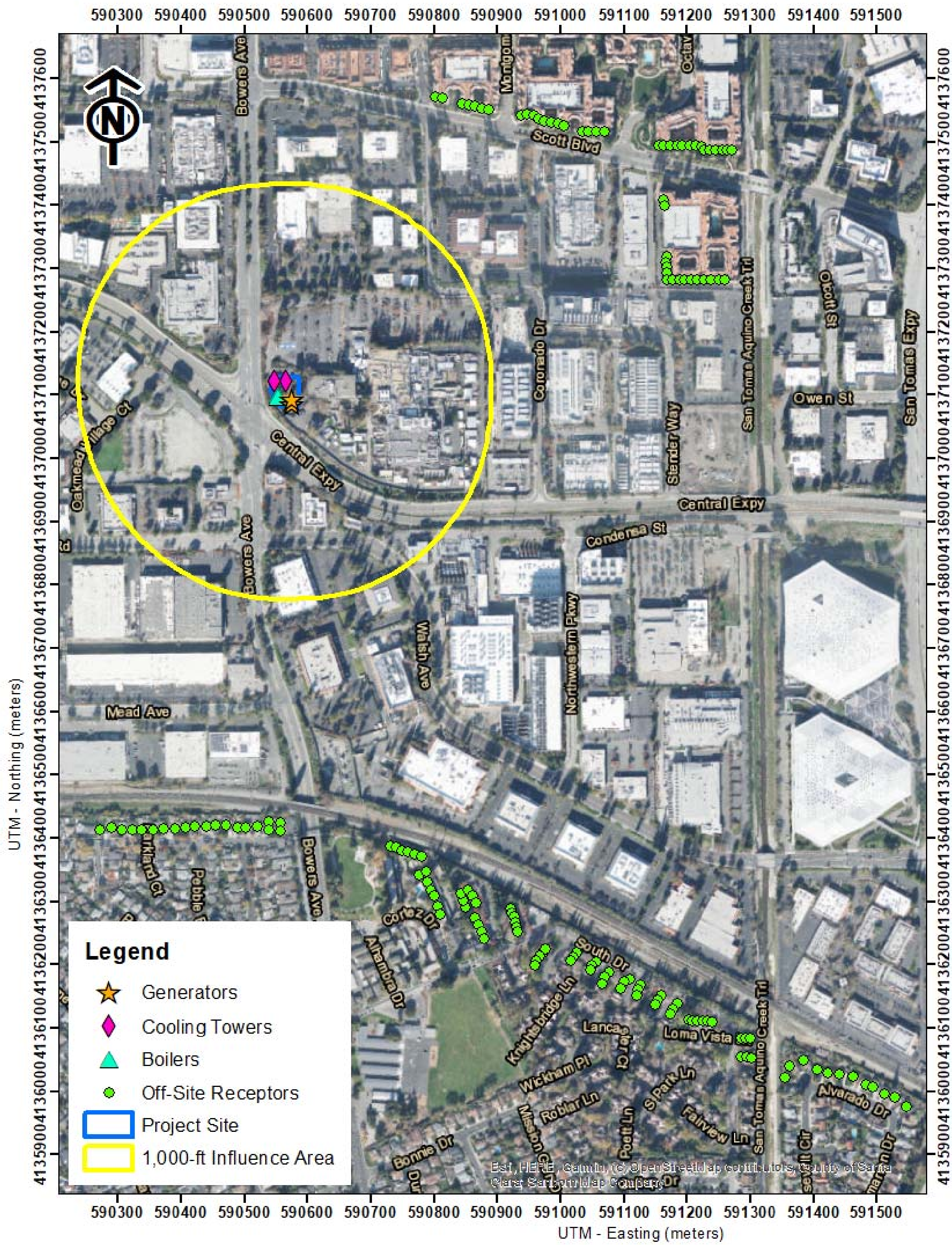
Table 5. Operation Risk Impacts at the Off-Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Generators	0.04	<0.01	<0.01
Project Cooling Towers	-	0.05	-
Project Boilers	0.04	0.01	<0.01
Total/Maximum Project Impact	0.08	<0.07	<0.02
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	*No*	*No*	*No*

Cumulative Community Risks of all TAC Sources at Project MEI

BAAQMD guidance is to address the cumulative impact of TAC and air pollutant impacts from sources within 1,000 feet of the project site. Since sensitive receptors are located beyond 1,000 feet from the project boundaries, there are no project cumulative sources affecting these sensitive receptors.

Figure 2. Locations of Project Generators, Cooling Towers, Boilers, and Off-Site Receptors



GREENHOUSE GAS EMISSIONS

Setting

Gases that trap heat in the atmosphere, GHGs, regulate the earth's temperature. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate. The most common GHGs are carbon dioxide (CO_2) and water vapor but there are also several others, most importantly methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These are released into the earth's atmosphere through a variety of natural processes and human activities. Sources of GHGs are generally as follows:

- CO_2, CH_4, and N_2O are byproducts of fossil fuel combustion.
- N_2O is associated with agricultural operations such as fertilization of crops.
- CH_4 is commonly created by off-gassing from agricultural practices (e.g., keeping livestock) and landfill operations.
- Chlorofluorocarbons (CFCs) were widely used as refrigerants, propellants, and cleaning solvents but their production has been stopped by international treaty.
- HFCs are now used as a substitute for CFCs in refrigeration and cooling.
- PFCs and sulfur hexafluoride emissions are commonly created by industries such as aluminum production and semi-conductor manufacturing.

Each GHG has its own potency and effect upon the earth's energy balance. This is expressed in terms of a global warming potential (GWP), with CO_2 being assigned a value of 1 and sulfur hexafluoride being several orders of magnitude stronger. In GHG emission inventories, the weight of each gas is multiplied by its GWP and is measured in units of CO_2 equivalents (CO_2e).

An expanding body of scientific research supports the theory that global climate change is currently affecting changes in weather patterns, average sea level, ocean acidification, chemical reaction rates, and precipitation rates, and that it will increasingly do so in the future. The climate and several naturally occurring resources within California are adversely affected by the global warming trend. Increased precipitation and sea level rise will increase coastal flooding, saltwater intrusion, and degradation of wetlands. Mass migration and/or loss of plant and animal species could also occur. Potential effects of global climate change that could adversely affect human health include more extreme heat waves and heat-related stress; an increase in climate-sensitive diseases; more frequent and intense natural disasters such as flooding, hurricanes and drought; and increased levels of air pollution.

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2022, total gross nationwide GHG emissions were 5,215.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[24] These emissions were lower than peak

[24] United States Environmental Protection Agency, 2022. *Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*. February. Web: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks

levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2019 emissions.[25] In 2020, GHG emissions from statewide emitting activities were 369.2 MMT CO_2e. The 2020 emissions have decreased by 25 percent since peak levels in 2004 and are 35.3 MMT CO_2e lower than 2019 emissions level and almost 62 MMT CO_2e below the State's 2020 GHG limit of 431 MMT CO_2e. Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 MT CO_2e per person to 9.3 MT CO_2e per person in 2020.

Recent Regulatory Actions for GHG Emissions

Executive Order S-3-05 – California GHG Reduction Targets

Executive Order (EO) S-3-05 was signed by Governor Arnold Schwarzenegger in 2005 to set GHG emission reduction targets for California. The three targets established by this EO are as follows: (1) reduce California's GHG emissions to 2000 levels by 2010, (2) reduce California's GHG emissions to 1990 levels by 2020, and (3) reduce California's GHG emissions by 80 percent below 1990 levels by 2050.

Assembly Bill 32 – California Global Warming Solutions Act (2006)

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 85 percent below 1990 levels.

The first Scoping Plan for AB 32 was adopted by CARB in December 2008. Its most recent update was completed in December of 2022[26]. It contains the State's main strategies to achieve carbon neutrality by 2045. This plan extends and expands upon the earlier versions with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. It also takes the step of adding carbon neutrality as a science-based guide and touchstone for California's climate work. Measures to achieve carbon neutrality include rapidly moving to zero emission vehicles (ZEV), removing natural gas as an option for space conditioning, increasing the number of solar arrays and wind turbines, and scaling up renewable hydrogen for hard-to-electrify end uses.

Senate Bill 375 – California's Regional Transportation and Land Use Planning Efforts (2008)

California enacted legislation (SB 375) to expand the efforts of AB 32 by controlling indirect GHG emissions caused by urban sprawl. SB 375 provides incentives for local governments and

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[25] CARB. 2021. *California Greenhouse Gas Emission for 2000 to 2019*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf
[26] CARB. 2022. Final 2022 Scoping Plan Update and Appendices. Web: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

applicants to implement new conscientiously planned growth patterns. This includes incentives for creating attractive, walkable, and sustainable communities and revitalizing existing communities. The legislation also allows applicants to bypass certain environmental reviews under CEQA if they build projects consistent with the new sustainable community strategies. Development of more alternative transportation options that would reduce vehicle trips and miles traveled, along with traffic congestion, would be encouraged. SB 375 enhances CARB's ability to reach the AB 32 goals by directing the agency in developing regional GHG emission reduction targets to be achieved from the transportation sector for 2020 and 2035. CARB works with the metropolitan planning organizations (e.g., ABAG and MTC) to align their regional transportation, housing, and land use plans to reduce VMT and demonstrate the region's ability to attain its GHG reduction targets. A similar process is used to reduce transportation emissions of ozone precursor pollutants in the Bay Area.

Senate Bill 350 - Renewable Portfolio Standards

In September 2015, the California Legislature passed SB 350, which increases the states Renewables Portfolio Standard (RPS) for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030.

Executive Order B-30-15 & Senate Bill 32 GHG Reduction Targets – 2030 GHG Reduction Target

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a GHG emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan*.[27] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB has drafted a 2022 Scoping Plan Update to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The 2022 draft plan:

- Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.
- Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 or earlier.
- Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.
- Integrates equity and protecting California's most impacted communities as a driving principle.
- Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as its role in achieving carbon neutrality.

[27] California Air Resource Board, 2017. *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Targets.* November. Web: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf

- Relies on the most up to date science, including the need to deploy all viable tools, including carbon capture and sequestration as well a direct air capture.
- Evaluates multiple options for achieving our GHG and carbon neutrality targets, as well as the public health benefits and economic impacts associated with each.

The Scoping Plan was updated in 2022 and lays out how the state can get to carbon neutrality by 2045 or earlier. It is the first Scoping Plan that adds carbon neutrality as a science-based guide and touchstone beyond statutorily established emission reduction targets.[28]

The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The 2022 Scoping Plan outlines the suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure, providing a blueprint to continue driving down GHG emissions and to not only obtain the statewide goals, but cost-effectively achieve carbon-neutrality by 2045 or earlier. In the 2022 Scoping Plan, CARB recommends:

- VMT per capita reduced 12% below 2019 levels by 2030 and 22% below 2019 levels by 2045.
- 100% of Light-duty vehicle sales are zero emissions vehicles (ZEV) by 2035.
- 100% of medium duty/heavy duty vehicle sales are ZEV by 2040.
- 100% of passenger and other locomotive sales are ZEV by 2030.
- 100% of line haul locomotive sales are ZEV by 2035.
- All electric appliances in new residential and commercial building beginning 2026 (residential) and 2029 (commercial).
- 80% of residential appliance sales are electric by 2030 and 100% of residential appliance sales are electric by 2035.
- 80% of commercial appliance sales are electric by 2030 and 100% of commercial appliance sales are electric by 2045.

SB 743 Transportation Impacts

Senate Bill 743 required lead agencies to abandon the old "level of service" metric for evaluating a project's transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. In response, the Governor's Office of Planning and Research (OPR) developed a VMT metric that considered other factors such as reducing GHG emissions and developing multimodal transportation[29]. A VMT-per-capita metric was adopted into the CEQA Guidelines Section 15064.3 in November 2017. Given current baseline per-capita VMT levels computed by CARB in the 2030 Scoping Plan of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 climate goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per capita VMT as an appropriate threshold of significance for evaluating transportation impacts.

[28] https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents
[29] Governor's Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.

Executive Order B-55-18 – Carbon Neutrality

In 2018, a new statewide goal was established to achieve carbon neutrality as soon as possible, but no later than 2045, and to maintain net negative emissions thereafter. CARB and other relevant state agencies are tasked with establishing sequestration targets and create policies/programs that would meet this goal.

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retails sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2027 the target would be 52 percent, and by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

California Building Standards Code – Title 24 Part 11 & Part 6

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[30] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2022 California Building Standard Code) was effective as of January 1, 2023.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2022 Energy Code) replaced the 2019 Energy Code as of January 1,2023. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[31]

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two more voluntary standards known as Tier 1 and Tier

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[30] See: https://www.dgs.ca.gov/BSC/Resources/Page-Content/Building-Standards-Commission-Resources-List-Folder/CALGreen#:~:text=CALGreen%20is%20the%20first%2Din,to%201990%20levels%20by%202020.

[31] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

2. The CalGreen 2022 standards require deployment of additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards include requirements for both EV readiness, installation of EV chargers, and include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions. Providing EV charging infrastructure that meets current CALGreen requirements will not be sufficient to power the anticipated more extensive level of EV penetration in the future that is needed to meet SB 30 climate goals.

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.[32] Installing new natural gas infrastructure in new buildings will interfere with this goal. To meet the State's goal, communities have been adopting "Reach" codes that prohibit natural gas connections in new and remodeled buildings.

Advanced Clean Cars

The Advanced Clean Cars Program, originally adopted by CARB in 2012, was designed to bring together CARB's traditional passenger vehicle requirements to meet federal air quality standards and also support California's AB 32 goals to develop and implement programs to reduce GHG emissions back down to 1990 levels by 2020, a goal achieved in 2016 as a result of numerous emissions reduction programs.

Advanced Clean Cars II (ACC II) is phase two of the original rule. ACC II establishes a year-by-year process, starting in 2026, so all new cars and light trucks sold in California will be zero-emission vehicles by 2035, including plug-in hybrid electric vehicles. The regulation codifies the light-duty vehicle goals set out in Governor Newsom's Executive Order N-79-20. Currently, 16 percent of new light-duty vehicles sold in California are zero emissions or plug-in hybrids. By 2030, 68 percent of new vehicles sold in California would be zero emissions and 100 percent by 2035.

City of Santa Clara Climate Action Plan

On June 7, 2022, the City of Santa Clara adopted the 2022 Climate Action Plan (CAP).[33] It establishes revised goals and measures to reduce GHG emissions 40% by 2030, 80% by 2035, and achieve carbon neutrality by no later than 2045. The 2022 CAP aligns with all current State requirements and is assumed to be a qualified plan. A qualified CAP is one that requires future development projects that require environmental review under CEQA can streamline GHG impact analyses by demonstrating GHG reducing features are included as part of the design of the project.

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[32] California Energy Commission. 2021. F*inal Commission Report: California Building Decarbonization Assessment. Publication Number CEC-400-2021-006-CMF*.August

[33] City of Santa Clara, 2022. *City of Santa Clara Climate Action Plan.* June. Web: https://www.santaclaraca.gov/our-city/departments-a-f/community-development/planning-division/general-plan/climate-action-plan

The CAP also includes a checklist, so that if a project aligns with the checklist items then it is in compliance with the City's CAP.

<u>BAAQMD GHG Significance Thresholds</u>

For projects with stationary sources, the threshold is 10,000 metric tons per year (MT/yr) of CO_2e. Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. This includes the generators for the proposed project.

On April 20, 2022, BAAQMD adopted new thresholds of significance for operational GHG emissions from land use projects for projects beginning the CEQA process. The current thresholds of significance are:

A. Projects must include, at a minimum, the following project design elements:
   a. Buildings
      i. The project will not include natural gas appliances or natural gas plumbing (in both residential and non-residential development).
      ii. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
   b. Transportation
      i. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) <u>or meet a locally adopted Senate Bill 743 VMT target</u>, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
         1. Residential Projects: 15 percent below the existing VMT per capita
         2. Office Projects: 15 percent below the existing VMT per employee
         3. Retail Projects: no net increase in existing VMT
      ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

New land use projects are required to meet either section A or B from the above list, not both, to be considered less than significant.

Impact GHG-1: Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Impact GHG-2: Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the emergency generators only. The project-specific emergency generator information was input to the model, as described above within the operational period emissions section. CalEEMod output is included in *Attachment 2*

GHG emissions associated with project's stationary sources (i.e., generators and boilers) were computed at 3,909 MT/yr of CO_2e. This is below the 10,000 MT/yr of CO_2e threshold.

The City of Santa Clara has adopted a CAP that meets the State CEQA Guidelines Section 15183.5. If the project is in compliance with the City's CAP Checklist, then the project would be considered to have a less-than-significant impact on GHG emissions per BAAQMD GHG threshold B.

Supporting Documentation

Attachment 1 is the methodology used to compute health risk impacts, including the methods to compute increased cancer risk from exposure to project emissions.

Attachment 2 includes the CalEEMod output for project construction and operation emissions. Also included are any modeling assumptions.

Attachment 3 is the health risk assessment. This includes the summary of the dispersion modeling and the cancer risk calculations for operation. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[34] These guidelines incorporate substantial changes designed to provide for enhanced protection of children, as required by State law, compared to previous published risk assessment guidelines. CARB has provided additional guidance on implementing OEHHA's recommended methods.[35] This HRA used the 2015 OEHHA risk assessment guidelines and CARB guidance. The BAAQMD has adopted recommended procedures for applying the newest OEHHA guidelines as part of Regulation 2, Rule 5: New Source Review of Toxic Air Contaminants.[36] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

Cancer Risk

Potential increased cancer risk from inhalation of TACs is calculated based on the TAC concentration over the period of exposure, inhalation dose, the TAC cancer potency factor, and an age sensitivity factor to reflect the greater sensitivity of infants and children to cancer causing TACs. The inhalation dose depends on a person's breathing rate, exposure time and frequency and duration of exposure. These parameters vary depending on the age, or age range, of the persons being exposed and whether the exposure is considered to occur at a residential location or other sensitive receptor location.

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of

[34] OEHHA, 2015. *Air Toxics Hot Spots Program Risk Assessment Guidelines, The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*. Office of Environmental Health Hazard Assessment. February.
[35] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[36] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults, a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

Under previous OEHHA and BAAQMD HRA guidance, residential receptors are assumed to be at their home 24 hours a day, or 100 percent of the time. In the 2015 Risk Assessment Guidance, OEHHA includes adjustments to exposure duration to account for the fraction of time at home (FAH), which can be less than 100 percent of the time, based on updated population and activity statistics. The FAH factors are age-specific and are: 0.85 for third trimester of pregnancy to less than 2 years old, 0.72 for ages 2 to less than 16 years, and 0.73 for ages 16 to 70 years. Use of the FAH factors is allowed by the BAAQMD if there are no schools in the project vicinity have a cancer risk of one in a million or greater assuming 100 percent exposure (FAH = 1.0).

Functionally, cancer risk is calculated using the following parameters and formulas:

Cancer Risk (per million) = $CPF \times Inhalation\ Dose \times ASF \times ED/AT \times FAH \times 10^6$

Where:

CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = $C_{air} \times DBR^* \times A \times (EF/365) \times 10^{-6}$

Where:

C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
8HrBR = 8-hour breathing rate (L/kg body weight-8 hours)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

The health risk parameters used in this evaluation are summarized in Tables 1 and 2.

TABLE 1 - Health Risk Parameters used for Cancer Risk Calculations:

Parameter	*Exposure Type →*	Infant		Child	Adult
	Age Range →	3rd Trimester	0<2	2 < 16	16 - 30
Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$ (Refer to Table 2)					
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14*
Exposure Frequency (days/year)		350	350	350	350*
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home (FAH)		0.85-1.0	0.85-1.0	0.72-1.0	0.73*
* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.					

Table 2 - Cancer Potency Factors and Reference Exposure Levels

TAC	Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$	Reference Exposure Levels ($\mu g/m^3$)	
		Acute (1-hour)	Chronic (annual ave)
DPM	1.10E+00	-	5
7,12- Dimethylbenz(a)anthracene	3.90E+00	-	-
Arsenic	1.20E+01	2.0E-01	1.5E-02
Cadmium	1.50E+01	-	2.0E-02
Cobalt	2.70E+01	-	-
Formaldehyde	2.10E-02	5.5E+01	9.0E+00
Mercury	-	6.0E-01	3.0E-02
Nickel	9.10E-01	2.0E-01	1.4E-02

Non-Cancer Hazards

Non-cancer health hazards from TAC exposure are usually determined by comparing the predicted level of exposure to a chemical to the level of exposure that is not expected to cause any adverse effects (reference exposure level), even to the most susceptible people. Potential non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). OEHHA has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The total HI is calculated as the sum of the HIs for each TAC evaluated and the total HI is compared to the BAAQMD significance thresholds to determine whether a significant non-cancer health impact from a project would occur.

Typically, for projects involving construction or for residential projects located near roadways with substantial TAC emissions, the primary TAC of concern with non-cancer health effects is diesel particulate matter (DPM). For DPM, the chronic inhalation REL is 5 micrograms per cubic meter ($\mu g/m^3$).

Annual $PM_{2.5}$ Concentrations

While not a TAC, fine particulate matter ($PM_{2.5}$) has been identified by the BAAQMD as a pollutant with potential non-cancer health effects that should be included when evaluating potential community health impacts under the California Environmental Quality Act (CEQA). The thresholds of significance for $PM_{2.5}$ (project level and cumulative) are in terms of an increase in the annual average concentration. When considering $PM_{2.5}$ impacts, the contribution from all sources of $PM_{2.5}$ emissions should be included. For projects with potential impacts from nearby local roadways, the $PM_{2.5}$ impacts should include those from vehicle exhaust emissions, $PM_{2.5}$ generated from vehicle tire and brake wear, and fugitive emissions from re-suspended dust on the roads.

Attachment 2: CalEEMod Modeling Inputs and Outputs

Total Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2023-2024	0.26	1.46	0.06	0.05	0.02	262.51	
	Total Construction Emissions						
Tons	0.26	1.46	0.06	0.05		262.51	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2023-2024	2.06	11.66	0.46	0.42			**250**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	2.06	11.66	0.46	0.42		0.00	
Average	2.06	11.66	0.46	0.42		0.00	250.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Project Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2023-2024	0.23	1.25	0.05	0.05	0.02	228.96	
	Total Construction Emissions						
Tons	0.23	1.25	0.05	0.05		228.96	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2023-2024	1.87	9.97	0.40	0.37			**250**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	1.87	9.97	0.40	0.37		0.00	
Average	1.87	9.97	0.40	0.37		0.00	250.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Recycled Water Utility Trestle Construction Criteria Air Pollutants							
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	PM2.5 Fugitive	**CO2e**	
Year	Tons					MT	
Construction Equipment							
2023-2024	0.02	0.21	0.01	0.01	0.001	33.55	
	Total Construction Emissions						
Tons	0.02	0.21	0.01	0.01		33.55	
Pounds/Workdays	*Average Daily Emissions*					Workdays	
2023-2024	0.18	1.69	0.06	0.05			**165**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			
	Total Construction Emissions						
Pounds	0.18	1.69	0.06	0.05		0.00	
Average	0.18	1.69	0.06	0.05		0.00	165.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Operational Criteria Air Pollutants							
Unmitigated	ROG	NOX	Total PM10	Total PM2.5			
Year	Tons						
Stationary (2 Geneators + 2 Boilers)	0.65	0.59	0.36	0.29			
Coooling Tower	-	-	0.61	0.36			
	Existing Use Emissions						
Existing Total							
	Net Annual Operational Emissions						
Tons/year	0.65	0.59	0.97	0.66			
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**			
	Average Daily Emissions						
Pounds Per Day	3.57	3.23	5.30	3.59			
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**			

Category	**CO2e**	
	Project	Existing
Mobile	88.19	
Area	0.25	
Energy	71.17	
Water	6.90	
Waste	6.58	
	0.73	
TOTAL	173	0.00
Net GHG Emissions		173.09
Stationary (2 Geneators + 2 Boilers)	3909	

Number of Days Per Year				
2023-2024	9/1/2023	8/13/2024	348	250
			348	**250** ***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	9/1/2023	9/29/2023	5	20
Site Preparation	9/30/2023	10/2/2023	5	2
Grading	10/3/2023	10/8/2023	5	4
Trenching	10/3/2023	10/8/2023	5	4
Building Construction	10/9/2023	7/15/2024	5	200
Architectural Coating	7/16/2024	7/29/2024	5	10
Paving	7/31/2024	8/13/2024	5	10

Air Quality/Noise Construction Information Data Request

Project Name: **Intel Central Utilities Building DEFAULTS**

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size		**Dwelling Units**		**1 total project acres disturbed**
		s.f. residential		
		s.f. retail		
		s.f. office/commercial		
	17,000	**s.f. other, specify:**	**General light industry**	
		s.f. parking garage		**spaces**
		s.f. parking lot		**spaces**
Construction Days (i.e, M-F)		**to**		
Construction Hours		**am to**		**pm**

Pile Driving? Y/N?

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? __YES_2 generators & a cooling tower

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: __3,000 kW/4,036 HP_______

Fuel Type: ____________

Location in project (Plans Desired if Available):

DO NOT MULTIPLY EQUIPMENT HOURS/DAY BY THE QUANTITY OF EQUIPMENT

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**9/1/2023**	**Total phase:**	**20**			**Overall Import/Export Volumes**
		End Date:	**9/29/2023**					
1	Concrete/Industrial Saws	81	0.73	8	20	8	9461	**Demolition Volume**
	Excavators	158	0.38			0	0	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	8	20	8	15808	(*or* total tons to be hauled)
3	Tractors/Loaders/Backhoes	97	0.37	8	20	8	17227	_?_ square feet *or*
	Other Equipment?							_?_ Hauling volume (tons)
								Any pavement demolished and hauled? _18,500 sqft
	Site Preparation	**Start Date:**	**9/30/2023**	**Total phase:**	**2**			
		End Date:	**10/2/2023**					
1	Graders	187	0.41	8	2	8	1227	
1	Rubber Tired Dozers	247	0.4	7	2	7	1383	
1	Tractors/Loaders/Backhoes	97	0.37	8	2	8	574	
	Other Equipment?							
	Grading / Excavation	**Start Date:**	**10/3/2023**	**Total phase:**	**4**			
		End Date:	**10/8/2023**					**Soil Hauling Volume**
	Excavators	158	0.38			0	0	Export volume = _1,000_ cubic yards?
1	Graders	187	0.41	8	4	8	2453	Import volume = _1,000_ cubic yards?
1	Rubber Tired Dozers	247	0.4	8	4	8	3162	
	Concrete/Industrial Saws	81	0.73			0	0	
2	Tractors/Loaders/Backhoes	97	0.37	7	4	7	2010	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**10/3/2023**	**Total phase:**	**4**			
		End Date:	**10/8/2023**					
1	Tractor/Loader/Backhoe	97	0.37	8	4	8	1148	
1	Excavators	158	0.38	8	4	8	1921	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**10/9/2023**	**Total phase:**	**200**			**Cement Trucks? _67_ Total Round-Trips**
		End Date:	**7/15/2024**					
1	Cranes	231	0.29	6	200	6	80388	Electric? (Y/N) ___ Otherwise assumed diesel
1	Forklifts	89	0.2	6	200	6	21360	Liquid Propane (LPG)? (Y/N) ___ Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	200	8	99456	Or temporary line power? (Y/N) ___
1	Tractors/Loaders/Backhoes	97	0.37	6	200	6	43068	
3	Welders	46	0.45	8	200	8	99360	
	Other Equipment?							
Building - Interior/Architectural Coating		**Start Date:**	**7/16/2024**	**Total phase:**	**10**			
		End Date:	**7/30/2024**					
1	Air Compressors	78	0.48	6	10	6	2246	
	Aerial Lift	62	0.31			0	0	
	Other Equipment?							
	Paving	**Start Date:**	**7/31/2024**	**Total phase:**	**10**			
		Start Date:	**8/14/2024**					
1	Cement and Mortar Mixers	9	0.56	6	10	6	302	
1	Pavers	130	0.42	6	10	6	3276	**Asphalt? ___ cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	8	10	8	3802	
1	Rollers	80	0.38	7	10	7	2128	
1	Tractors/Loaders/Backhoes	97	0.37	8	10	8	2871	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

Equipment listed in this sheet is to provide an example of inputs

Complete one sheet for each project component

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Quantity	Description	days STEEL DWN	days WET ACCO	days Civil level-it	Elect Mid State	Notes
	Demolition					
1	Concrete/Industrial Saws	0	0	10		
1	Excavators	0	0	20		
	Rubber-Tired Dozers	0	0			
1	Dump truck	0	0	20		1 truck trip total
	dirt dumpster					
	Site Preparation					
	Graders	0	0	0		
	Rubber Tired Dozers	0	0	0		
	Tractors/Loaders/Backhoes	0	0	0		
	Other Equipment?	0	0	0		
	Grading / Excavation					
	Excavators	0	0	0		
	Graders	0	0	0		
	Rubber Tired Dozers	0	0	0		
	Concrete/Industrial Saws	0	0	0		
	Tractors/Loaders/Backhoes	0	0	0		
	Other Equipment?	0	0	0		
	Trenching/Foundation					The trenching will occur at same time as building exterior
	Tractor/Loader/Backhoe	0	0			
1	Excavators	0	0	30		
1	Dump truck	0	0	30		4 truck trips total (1 for demolition phase and 4 for trenching phase)
	Building - Exterior	0	0			The building exterior will occur at same time as trenching
	Cranes	0	0	0		
2	Forklifts	25	0	60		
1	Generator Sets	25	0	0		
	Tractors/Loaders/Backhoes	0	0	0		
1	Welders	25	0	0		
	Other Equipment?		0			
Building - Interior/Architectural Coating						
	Air Compressors	0	0	0		
2	Aerial Lift	25	80	0		
	Other Equipment?	0	0	0		
	Paving	0	0			
	Cement and Mortar Mixers	0	0			
	Pavers	0	0			
1	Paving Equipment	0	0	5		
1	Rollers	0	0	5		
1	Tractors/Loaders/Backhoes	0	0	5		
	Other Equipment?					
	Additional Phases					

Intel CUB, Santa Clara, CA
Evaporative Cooling Tower PM Emissions per Cooling Tower

No. of Cooling Towers	2
No. Cooling Tower Cells	4
Operating Hours per Year	4,000
Circulating Water Flow Rate per Cell (gpm)	1,950
Total Circulating Water Flow Rate (gpm)	7,800
Influent Water Total Dissolved Solids (TDS) Conc. (ppm)*	370
Circulating Water Cycles of Concentration*	6
Cooling Tower Circulating Water TDS (ppm)	2,220
Mist Eliminator Efficiency (%)	0.005
Total Cooling Tower Drift (gpm)	0.39

Particulate Matter Emissions

	PM	**PM10**	**PM2.5**	
Fraction of PM**	1.0	0.7	0.42	
Hourly (lb/hr)	0.43	0.30	0.18	0.091
Average Daily (lb/day)	4.7	3.3	2.0	
Annual lb/yr)	1733	1213.1	727.9	
Annual (ton/yr)	0.87	0.61	0.36	

* Maximum TDS value based on 2022 City of Santa Clara Water Quality Report.
Circulating water cycles of concentration assumed.

** South Coast AQMD, Final-Methodology to Calculate Particulate
Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A.

Table 3 - Criteria Pollutant Emissions from CUB Boilers

Criteria Pollutant	Emissions (lb/hr)	Emissions (tons/yr)
CO	0.66	2.87
NOx	0.09	0.38
PM10	0.06	0.26
VOC	0.04	0.19
SO_2	0.00	0.02

Notes: Emissions are for two boilers operating at maximum heat capacity 8760 hrs/year

PM10, PM2.5 and PM emissions are equivalent

22-156 Intel CUB Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	22-156 Intel CUB
Construction Start Date	9/1/2023
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	32.8
Location	3065 Bowers Ave, Santa Clara, CA 95054, USA
County	Santa Clara
City	Santa Clara
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1888
EDFZ	1
Electric Utility	Silicon Valley Power
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

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

General Light Industry	17.0	1000sqft	1.03	17,000	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers

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.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	17.9	17.2	0.76	2.70	3.42	0.70	1.23	1.90	0.83	2,775
Mit.	17.8	9.13	0.20	2.70	2.74	0.18	1.23	1.27	0.83	2,775
% Reduced	1%	47%	74%	—	20%	74%	—	33%	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	2.15	26.1	1.01	7.20	8.21	0.91	2.47	3.38	0.27	7,886
Mit.	0.53	16.4	0.20	7.20	7.36	0.18	2.47	2.60	0.27	7,886
% Reduced	76%	37%	80%	—	10%	80%	—	23%	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	0.95	3.87	0.15	0.18	0.30	0.14	0.06	0.18	0.11	804
Mit.	0.63	3.68	0.08	0.18	0.23	0.07	0.06	0.11	0.11	804
% Reduced	34%	5%	48%	—	26%	47%	—	38%	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—

Unmit.	0.17	0.71	0.03	0.03	0.06	0.03	0.01	0.03	0.02	133
Mit.	0.12	0.67	0.01	0.03	0.04	0.01	0.01	0.02	0.02	133
% Reduced	34%	5%	48%	—	26%	47%	—	38%	—	—

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—
2023	1.79	17.2	0.76	2.70	3.42	0.70	1.23	1.90	0.83	2,775
2024	17.9	9.62	0.37	0.43	0.73	0.34	0.10	0.43	0.57	2,002
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—
2023	2.15	26.1	1.01	7.20	8.21	0.91	2.47	3.38	0.27	7,886
2024	1.16	9.64	0.37	0.36	0.73	0.34	0.09	0.43	0.01	1,997
Average Daily	—	—	—	—	—	—	—	—	—	—
2023	0.33	2.96	0.12	0.18	0.30	0.11	0.06	0.17	0.11	579
2024	0.95	3.87	0.15	0.15	0.30	0.14	0.04	0.18	0.10	804
Annual	—	—	—	—	—	—	—	—	—	—
2023	0.06	0.54	0.02	0.03	0.06	0.02	0.01	0.03	0.02	95.8
2024	0.17	0.71	0.03	0.03	0.05	0.03	0.01	0.03	0.02	133

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—
2023	0.37	9.04	0.10	2.70	2.74	0.10	1.23	1.27	0.83	2,775

2024	17.8	9.13	0.20	0.43	0.55	0.18	0.10	0.27	0.57	2,002
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—
2023	0.53	16.4	0.20	7.20	7.36	0.18	2.47	2.60	0.27	7,886
2024	0.36	9.14	0.20	0.36	0.55	0.18	0.09	0.27	0.01	1,997
Average Daily	—	—	—	—	—	—	—	—	—	—
2023	0.09	2.21	0.04	0.18	0.22	0.04	0.06	0.09	0.11	579
2024	0.63	3.68	0.08	0.15	0.23	0.07	0.04	0.11	0.10	804
Annual	—	—	—	—	—	—	—	—	—	—
2023	0.02	0.40	0.01	0.03	0.04	0.01	0.01	0.02	0.02	95.8
2024	0.12	0.67	0.01	0.03	0.04	0.01	0.01	0.02	0.02	133

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.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	1.86	2.34	1.44	0.55	1.99	1.44	0.14	1.58	6.81	23,818
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	1.73	2.38	1.43	0.55	1.99	1.43	0.14	1.57	4.49	23,777
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	2.54	2.11	1.43	0.50	1.43	1.43	0.13	1.43	5.36	22,680
Annual (Max)	—	—	—	—	—	—	—	—	—	—
Unmit.	0.46	0.39	0.26	0.09	0.26	0.26	0.02	0.26	0.89	3,755

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Area	0.53	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7
Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.86	2.34	1.44	0.55	1.99	1.44	0.14	1.58	6.81	23,818
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Area	0.41	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7
Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.73	2.38	1.43	0.55	1.99	1.43	0.14	1.57	4.49	23,777
Average Daily	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	0.23	< 0.005	0.50	0.51	< 0.005	0.13	0.13	0.94	533
Area	0.47	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.50
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7

Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	2.85	3.00	1.47	0.00	1.47	1.47	0.00	1.47	0.00	23,612
Total	3.57	3.23	1.47	0.50	1.97	1.47	0.13	1.60	5.36	24,661
Annual	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2
Area	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	71.2
Water	—	—	—	—	—	—	—	—	—	6.90
Waste	—	—	—	—	—	—	—	—	—	6.58
Refrig.	—	—	—	—	—	—	—	—	0.73	0.73
Stationary	0.52	0.55	0.27	0.00	0.27	0.27	0.00	0.27	0.00	3,909
Total	0.65	0.59	0.27	0.09	0.36	0.27	0.02	0.29	0.89	4,083

2.6. Operations Emissions by Sector, Mitigated

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

Sector	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Mobile	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Area	0.53	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7
Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.86	2.34	1.44	0.55	1.99	1.44	0.14	1.58	6.81	23,818
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—

Mobile	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Area	0.41	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7
Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.73	2.38	1.43	0.55	1.99	1.43	0.14	1.57	4.49	23,777
Average Daily	—	—	—	—	—	—	—	—	—	—
Mobile	0.25	0.23	< 0.005	0.50	0.51	< 0.005	0.13	0.13	0.94	533
Area	0.47	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.50
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	430
Water	—	—	—	—	—	—	—	—	—	41.7
Waste	—	—	—	—	—	—	—	—	—	39.7
Refrig.	—	—	—	—	—	—	—	—	4.43	4.43
Stationary	2.85	3.00	1.47	0.00	1.47	1.47	0.00	1.47	0.00	23,612
Total	3.57	3.23	1.47	0.50	1.97	1.47	0.13	1.60	5.36	24,661
Annual	—	—	—	—	—	—	—	—	—	—
Mobile	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2
Area	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25
Energy	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	71.2
Water	—	—	—	—	—	—	—	—	—	6.90
Waste	—	—	—	—	—	—	—	—	—	6.58
Refrig.	—	—	—	—	—	—	—	—	0.73	0.73
Stationary	0.52	0.55	0.27	0.00	0.27	0.27	0.00	0.27	0.00	3,909
Total	0.65	0.59	0.27	0.09	0.36	0.27	0.02	0.29	0.89	4,083

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.74	17.0	0.76	—	0.76	0.70	—	0.70	—	2,502
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	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	0.10	0.93	0.04	—	0.04	0.04	—	0.04	—	137
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.17	0.01	—	0.01	0.01	—	0.01	—	22.7
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	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	0.05	0.04	0.00	0.43	0.43	0.00	0.10	0.10	0.51	113
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	0.20	< 0.005	0.13	0.13	< 0.005	0.03	0.03	0.32	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.02	0.02	0.00	0.01	0.01	0.01	5.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.75
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.45

3.2. Demolition (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	8.81	0.10	—	0.10	0.09	—	0.09	—	2,502
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	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	0.48	0.01	—	0.01	0.01	—	0.01	—	137
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	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	0.09	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	22.7
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—	—
Onsite truck	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	0.05	0.04	0.00	0.43	0.43	0.00	0.10	0.10	0.51	113
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.20	< 0.005	0.13	0.13	< 0.005	0.03	0.03	0.32	160
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.02	0.02	0.00	0.01	0.01	0.01	5.80
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.75
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.96
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.45

3.3. Site Preparation (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	1.54	15.1	0.72	—	0.72	0.66	—	0.66	—	2,070
Dust From Material Movement	—	—	—	2.44	2.44	—	1.17	1.17	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.54	15.1	0.72	—	0.72	0.66	—	0.66	—	2,070
Dust From Material Movement	—	—	—	2.44	2.44	—	1.17	1.17	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3
Dust From Material Movement	—	—	—	0.01	0.01	—	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
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.88
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 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
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.00	0.26	0.26	0.00	0.06	0.06	0.30	68.0
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.26	0.26	0.00	0.06	0.06	0.01	62.7
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.35
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.06
Vendor	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

3.4. Site Preparation (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.27	6.40	0.04	—	0.04	0.04	—	0.04	—	2,070
Dust From Material Movement	—	—	—	2.44	2.44	—	1.17	1.17	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.27	6.40	0.04	—	0.04	0.04	—	0.04	—	2,070
Dust From Material Movement	—	—	—	2.44	2.44	—	1.17	1.17	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.04	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3
Dust From Material Movement	—	—	—	0.01	0.01	—	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
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.88
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 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
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.02	0.00	0.26	0.26	0.00	0.06	0.06	0.30	68.0
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.26	0.26	0.00	0.06	0.06	0.01	62.7
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.35
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.06
Vendor	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

3.5. Grading (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.78	17.5	0.83	—	0.83	0.77	—	0.77	—	2,462
Dust From Material Movement	—	—	—	2.78	2.78	—	1.34	1.34	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.19	0.01	—	0.01	0.01	—	0.01	—	27.0
Dust From Material Movement	—	—	—	0.03	0.03	—	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
Annual	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.04	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.47
Dust From Material Movement	—	—	—	0.01	0.01	—	< 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
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.00	0.34	0.34	0.00	0.08	0.08	0.01	83.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.09	6.34	0.08	3.91	4.00	0.06	1.01	1.06	0.26	4,866
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.93
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.05	53.4
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.83

3.6. Grading (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	7.70	0.05	—	0.05	0.05	—	0.05	—	2,462
Dust From Material Movement	—	—	—	2.78	2.78	—	1.34	1.34	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.08	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.0
Dust From Material Movement	—	—	—	0.03	0.03	—	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
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.47
Dust From Material Movement	—	—	—	0.01	0.01	—	< 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
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.00	0.34	0.34	0.00	0.08	0.08	0.01	83.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.09	6.34	0.08	3.91	4.00	0.06	1.01	1.06	0.26	4,866
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.93

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.05	53.4
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.15
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.83

3.7. Building Construction (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	9.81	0.41	—	0.41	0.38	—	0.38	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20	1.61	0.07	—	0.07	0.06	—	0.06	—	297
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.29	0.01	—	0.01	0.01	—	0.01	—	49.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.24	0.24	0.00	0.06	0.06	0.01	59.7
Vendor	< 0.005	0.11	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.01	80.9
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	< 0.005	51.8
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.04	0.04	0.00	0.01	0.01	0.02	9.94
Vendor	< 0.005	0.02	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	13.3
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.52
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	< 0.005	1.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.20
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.41

3.8. Building Construction (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	8.95	0.20	—	0.20	0.18	—	0.18	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	1.47	0.03	—	0.03	0.03	—	0.03	—	297
Onsite truck	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	0.27	0.01	—	0.01	0.01	—	0.01	—	49.2
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.24	0.24	0.00	0.06	0.06	0.01	59.7
Vendor	< 0.005	0.11	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.01	80.9
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	< 0.005	51.8
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.04	0.04	0.00	0.01	0.01	0.02	9.94
Vendor	< 0.005	0.02	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	13.3
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	0.01	8.52
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	< 0.005	1.65
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.20
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.41

3.9. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	0.37	—	0.37	0.34	—	0.34	—	1,807

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.13	9.44	0.37	—	0.37	0.34	—	0.34	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.44	3.64	0.14	—	0.14	0.13	—	0.13	—	697
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	0.66	0.03	—	0.03	0.02	—	0.02	—	115
Onsite truck	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	0.02	0.02	0.00	0.24	0.24	0.00	0.06	0.06	0.27	63.4
Vendor	< 0.005	0.10	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.20	80.1
Hauling	< 0.005	0.06	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.10	51.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.24	0.24	0.00	0.06	0.06	0.01	58.6
Vendor	< 0.005	0.11	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.01	79.9
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	< 0.005	51.0
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	0.04	22.9
Vendor	< 0.005	0.04	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.03	30.8
Hauling	< 0.005	0.02	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02	19.7
Annual	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	0.02	0.02	0.00	< 0.005	< 0.005	0.01	3.79
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	5.11
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.26

3.10. Building Construction (2024) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	8.95	0.20	—	0.20	0.18	—	0.18	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	8.95	0.20	—	0.20	0.18	—	0.18	—	1,807
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	3.45	0.08	—	0.08	0.07	—	0.07	—	697
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.63	0.01	—	0.01	0.01	—	0.01	—	115
Onsite truck	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	0.02	0.02	0.00	0.24	0.24	0.00	0.06	0.06	0.27	63.4

Vendor	< 0.005	0.10	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.20	80.1
Hauling	< 0.005	0.06	< 0.005	0.04	0.04	< 0.005	0.01	0.01	0.10	51.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.24	0.24	0.00	0.06	0.06	0.01	58.6
Vendor	< 0.005	0.11	< 0.005	0.07	0.07	< 0.005	0.02	0.02	0.01	79.9
Hauling	< 0.005	0.07	< 0.005	0.04	0.04	< 0.005	0.01	0.01	< 0.005	51.0
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	0.04	22.9
Vendor	< 0.005	0.04	< 0.005	0.03	0.03	< 0.005	0.01	0.01	0.03	30.8
Hauling	< 0.005	0.02	< 0.005	0.02	0.02	< 0.005	< 0.005	< 0.005	0.02	19.7
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.02	0.02	0.00	< 0.005	< 0.005	0.01	3.79
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.01	5.11
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.26

3.11. Paving (2024) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.90	0.23	—	0.23	0.21	—	0.21	—	995
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.01	0.13	0.01	—	0.01	0.01	—	0.01	—	27.3
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.51
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.04	0.03	0.00	0.43	0.43	0.00	0.10	0.10	0.47	111
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	0.01	2.85
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.47
Vendor	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

3.12. Paving (2024) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e

Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.19	4.63	0.06	—	0.06	0.05	—	0.05	—	995
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.01	0.13	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	27.3
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.51
Paving	0.00	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.04	0.03	0.00	0.43	0.43	0.00	0.10	0.10	0.47	111
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	0.01	2.85
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.47
Vendor	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

3.13. Architectural Coating (2024) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	0.03	—	0.03	0.03	—	0.03	—	134
Architectural Coatings	17.7	—	—	—	—	—	—	—	—	—
Onsite truck	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	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.67
Architectural Coatings	0.49	—	—	—	—	—	—	—	—	—
Onsite truck	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	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61
Architectural Coatings	0.09	—	—	—	—	—	—	—	—	—

Onsite truck	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	< 0.005	< 0.005	0.00	0.05	0.05	0.00	0.01	0.01	0.05	12.7
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.33
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.05
Vendor	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

3.14. Architectural Coating (2024) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	1.07	0.03	—	0.03	0.03	—	0.03	—	134
Architectural Coatings	17.7	—	—	—	—	—	—	—	—	—
Onsite truck	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	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.67
Architectural Coatings	0.49	—	—	—	—	—	—	—	—	—
Onsite truck	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	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.61
Architectural Coatings	0.09	—	—	—	—	—	—	—	—	—
Onsite truck	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	< 0.005	< 0.005	0.00	0.05	0.05	0.00	0.01	0.01	0.05	12.7
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.33
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.05
Vendor	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

3.15. Trenching (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.23	2.14	0.09	—	0.09	0.09	—	0.09	—	433
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.75
Onsite truck	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	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.79
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.17	0.17	0.00	0.04	0.04	0.01	41.8
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.46

Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.08
Vendor	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

3.16. Trenching (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	2.28	0.04	—	0.04	0.03	—	0.03	—	433
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.75
Onsite truck	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	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.79
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.17	0.17	0.00	0.04	0.04	0.01	41.8
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.46
Vendor	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
Annual	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	< 0.005	0.08
Vendor	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

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Total	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Total	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2
Total	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2

4.1.2. Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Total	0.29	0.23	< 0.005	0.55	0.56	< 0.005	0.14	0.14	2.39	619
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Total	0.28	0.27	< 0.005	0.55	0.56	< 0.005	0.14	0.14	0.06	581
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2
Total	0.05	0.04	< 0.005	0.09	0.09	< 0.005	0.02	0.02	0.15	88.2

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	430
Total	—	—	—	—	—	—	—	—	—	430
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	430
Total	—	—	—	—	—	—	—	—	—	430
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	71.2
Total	—	—	—	—	—	—	—	—	—	71.2

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	430
Total	—	—	—	—	—	—	—	—	—	430
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	430
Total	—	—	—	—	—	—	—	—	—	430
Annual	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	71.2
Total	—	—	—	—	—	—	—	—	—	71.2

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	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
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	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

4.3. Area Emissions by Source

4.3.2. Unmitigated

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

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.36	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Total	0.53	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.36	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—
Total	0.41	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.07	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25
Total	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25

4.3.1. Mitigated

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

Source	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.36	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.12	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Total	0.53	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.05
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.36	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.05	—	—	—	—	—	—	—	—	—
Total	0.41	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.07	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.01	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25
Total	0.09	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.25

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	41.7
Total	—	—	—	—	—	—	—	—	—	41.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	41.7
Total	—	—	—	—	—	—	—	—	—	41.7
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	6.90
Total	—	—	—	—	—	—	—	—	—	6.90

4.4.1. Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	41.7
Total	—	—	—	—	—	—	—	—	—	41.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	41.7
Total	—	—	—	—	—	—	—	—	—	41.7
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	6.90
Total	—	—	—	—	—	—	—	—	—	6.90

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	39.7
Total	—	—	—	—	—	—	—	—	—	39.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	39.7
Total	—	—	—	—	—	—	—	—	—	39.7
Annual	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	6.58
Total	—	—	—	—	—	—	—	—	—	6.58

4.5.1. Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	39.7
Total	—	—	—	—	—	—	—	—	—	39.7
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	39.7
Total	—	—	—	—	—	—	—	—	—	39.7
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	6.58
Total	—	—	—	—	—	—	—	—	—	6.58

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	4.43	4.43
Total	—	—	—	—	—	—	—	—	4.43	4.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	4.43	4.43
Total	—	—	—	—	—	—	—	—	4.43	4.43
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	0.73	0.73
Total	—	—	—	—	—	—	—	—	0.73	0.73

4.6.2. Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	4.43	4.43
Total	—	—	—	—	—	—	—	—	4.43	4.43
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	4.43	4.43
Total	—	—	—	—	—	—	—	—	4.43	4.43
Annual	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	0.73	0.73
Total	—	—	—	—	—	—	—	—	0.73	0.73

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Annual	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.33	0.16	0.01	0.00	0.01	0.01	0.00	0.01	0.00	154
Process Boiler	0.19	0.39	0.26	0.00	0.26	0.26	0.00	0.26	0.00	3,755
Total	0.52	0.55	0.27	0.00	0.27	0.27	0.00	0.27	0.00	3,909

4.8.2. Mitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680

Total	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Process Boiler	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Total	1.04	2.11	1.43	0.00	1.43	1.43	0.00	1.43	0.00	22,680
Annual	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.33	0.16	0.01	0.00	0.01	0.01	0.00	0.01	0.00	154
Process Boiler	0.19	0.39	0.26	0.00	0.26	0.26	0.00	0.26	0.00	3,755
Total	0.52	0.55	0.27	0.00	0.27	0.27	0.00	0.27	0.00	3,909

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.9.2. Mitigated

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

Equipment Type	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—

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

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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
Demolition	Demolition	9/1/2023	9/29/2023	5.00	20.0	—
Site Preparation	Site Preparation	9/30/2023	10/2/2023	5.00	2.00	—
Grading	Grading	10/3/2023	10/8/2023	5.00	4.00	—
Building Construction	Building Construction	10/9/2023	7/15/2024	5.00	200	—
Paving	Paving	7/31/2024	8/13/2024	5.00	10.0	—
Architectural Coating	Architectural Coating	7/16/2024	7/29/2024	5.00	10.0	—
Trenching	Trenching	10/3/2023	10/8/2023	5.00	4.00	—

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
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Average	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00	7.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Average	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Average	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Average	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Average	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48
Trenching	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Trenching	Excavators	Diesel	Average	1.00	8.00	36.0	0.38

5.2.2. Mitigated

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

Demolition	Tractors/Loaders/Backh	Diesel	Tier 4 Interim	3.00	8.00	84.0	0.37
Demolition	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Interim	1.00	8.00	33.0	0.73
Site Preparation	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Site Preparation	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	7.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Tier 4 Interim	1.00	8.00	148	0.41
Grading	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	2.00	7.00	84.0	0.37
Grading	Rubber Tired Dozers	Diesel	Tier 4 Interim	1.00	8.00	367	0.40
Building Construction	Cranes	Diesel	Tier 4 Interim	1.00	6.00	367	0.29
Building Construction	Forklifts	Diesel	Tier 4 Interim	1.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	6.00	84.0	0.37
Building Construction	Welders	Diesel	Tier 4 Interim	3.00	8.00	46.0	0.45
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Paving	Pavers	Diesel	Tier 4 Interim	1.00	6.00	81.0	0.42
Paving	Paving Equipment	Diesel	Tier 4 Interim	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Interim	1.00	7.00	36.0	0.38
Paving	Cement and Mortar Mixers	Diesel	Average	1.00	6.00	10.0	0.56
Architectural Coating	Air Compressors	Diesel	Tier 4 Interim	1.00	6.00	37.0	0.48
Trenching	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Trenching	Excavators	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	2.05	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2
Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	62.5	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	7.14	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	2.79	8.40	HHDT,MHDT
Building Construction	Hauling	0.67	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT

Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.43	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	12.5	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	2.05	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	7.50	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	—	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	10.0	11.7	LDA,LDT1,LDT2

Grading	Vendor	—	8.40	HHDT,MHDT
Grading	Hauling	62.5	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	7.14	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	2.79	8.40	HHDT,MHDT
Building Construction	Hauling	0.67	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	12.5	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	1.43	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	5.00	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.00	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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	25,500	8,500	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	1.88	0.00	—
Grading	1,000	1,000	4.00	0.00	—
Paving	0.00	0.00	0.00	0.00	0.00

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
General Light Industry	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	387	0.03	< 0.005

2024	0.00	387	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
General Light Industry	84.3	33.8	85.0	28,180	779	312	785	260,284

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	84.3	33.8	85.0	28,180	779	312	785	260,284

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

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	25,500	8,500	—

5.10.3. Landscape Equipment

Season	Unit	Value

Snow Days	day/yr	0.00
Summer Days	day/yr	180

5.10.4. Landscape Equipment - Mitigated

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)
General Light Industry	403,639	387	0.0330	0.0040	0.00

5.11.2. Mitigated

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)
General Light Industry	403,639	387	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)
General Light Industry	3,931,250	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	3,931,250	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	21.1	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	21.1	—

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	R-410A	2,088	0.30	4.00	4.00	18.0

5.14.2. Mitigated

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	R-410A	2,088	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

5.15.2. Mitigated

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
Emergency Generator	Diesel	2.00	0.00	50.0	4,036	0.73

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)
Boiler - CNG (2–5 MMBTU)	CNG	2.00	4.00	96.0	35,040

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

5.18.1.2. Mitigated

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

5.18.1.2. Mitigated

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)

5.18.2.2. Mitigated

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	12.2	annual days of extreme heat
Extreme Precipitation	2.50	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	10.5	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	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	N/A	N/A	N/A	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	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

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	17.6
AQ-PM	22.5
AQ-DPM	79.3

Drinking Water	50.2
Lead Risk Housing	56.7
Pesticides	1.97
Toxic Releases	37.8
Traffic	82.5
Effect Indicators	—
CleanUp Sites	99.9
Groundwater	98.4
Haz Waste Facilities/Generators	98.4
Impaired Water Bodies	33.2
Solid Waste	95.0
Sensitive Population	—
Asthma	28.6
Cardio-vascular	47.5
Low Birth Weights	54.6
Socioeconomic Factor Indicators	—
Education	55.8
Housing	89.2
Linguistic	15.6
Poverty	35.2
Unemployment	4.89

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	45.14307712

Employed	91.65918132
Median HI	61.15744899
Education	—
Bachelor's or higher	65.78981137
High school enrollment	100
Preschool enrollment	13.49929424
Transportation	—
Auto Access	27.46054151
Active commuting	73.93814962
Social	—
2-parent households	61.7862184
Voting	61.15744899
Neighborhood	—
Alcohol availability	28.82073656
Park access	60.96496856
Retail density	92.32644681
Supermarket access	33.32477865
Tree canopy	70.70447838
Housing	—
Homeownership	12.81919672
Housing habitability	13.48646221
Low-inc homeowner severe housing cost burden	53.29141537
Low-inc renter severe housing cost burden	41.94790196
Uncrowded housing	15.44976261
Health Outcomes	—
Insured adults	32.06723983
Arthritis	83.7

Asthma ER Admissions	64.9
High Blood Pressure	83.5
Cancer (excluding skin)	68.9
Asthma	49.0
Coronary Heart Disease	74.7
Chronic Obstructive Pulmonary Disease	62.6
Diagnosed Diabetes	65.9
Life Expectancy at Birth	62.1
Cognitively Disabled	52.2
Physically Disabled	19.5
Heart Attack ER Admissions	48.1
Mental Health Not Good	47.3
Chronic Kidney Disease	79.8
Obesity	59.2
Pedestrian Injuries	89.9
Physical Health Not Good	53.6
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	61.9
Current Smoker	48.5
No Leisure Time for Physical Activity	45.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	31.0
Elderly	65.5
English Speaking	23.0

Foreign-born	90.5
Outdoor Workers	43.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	22.9
Traffic Density	71.8
Traffic Access	74.4
Other Indices	—
Hardship	56.2
Other Decision Support	—
2016 Voting	56.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60.0
Healthy Places Index Score for Project Location (b)	56.0
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	Provied by construction worksheet.
Construction: Construction Phases	Defaults based on project applicant provided start date.
Construction: Off-Road Equipment	CalEEMod defaults.
Construction: Trips and VMT	Demolition = Est 18,500-sf pavement hauling (2.05 trips/day), Building Construction = Est 67 total concrete truck round trips (0.665 trips/day).
Construction: On-Road Fugitive Dust	Road silt loading = 0.5g/m2. Air District BMP for Construction-Related Fugtive Dust Emissions.
Operations: Energy Use	Santa Clara REACH Code no natural gas.
Operations: Water and Waste Water	Wastewater treatment 100% aerobic - no septic tanks or facultative lagoons.
Operations: Boilers EF	CalEEMod NOx Default
Operations: Generators + Pumps EF	BACT Tier4 for >1,000-hp Engines
Operations: Emergency Generators and Fire Pumps	two 2,800-kw, 4,036-hp diesel generators, 50 hrs/yr

22-156 Intel Recycled Water Construction Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	22-156 Intel Recycled Water Construction
Construction Start Date	9/1/2023
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.00
Precipitation (days)	32.8
Location	3065 Bowers Ave, Santa Clara, CA 95054, USA
County	Santa Clara
City	Santa Clara
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	1888
EDFZ	1
Electric Utility	Silicon Valley Power
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.13

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	1.00	User Defined Unit	0.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

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.	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.65	5.86	0.21	0.17	0.31	0.20	0.04	0.22	1,013
Mit.	0.24	6.80	0.18	0.17	0.33	0.17	0.04	0.19	1,013
% Reduced	62%	-16%	14%	—	-6%	14%	—	13%	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.65	5.86	0.21	0.09	0.31	0.20	0.02	0.22	1,011
Mit.	0.24	6.81	0.18	0.09	0.28	0.17	0.02	0.19	1,011
% Reduced	62%	-16%	14%	—	10%	14%	—	13%	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.12	1.08	0.04	0.02	0.05	0.03	< 0.005	0.04	186
Mit.	0.04	1.27	0.03	0.02	0.05	0.03	< 0.005	0.04	186
% Reduced	63%	-18%	9%	—	6%	9%	—	8%	—
Annual (Max)	—	—	—	—	—	—	—	—	—
Unmit.	0.02	0.20	0.01	< 0.005	0.01	0.01	< 0.005	0.01	30.7
Mit.	0.01	0.23	0.01	< 0.005	0.01	0.01	< 0.005	0.01	30.7

% Reduced	63%	-18%	9%	—	6%	9%	—	8%	—

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2023	0.65	5.86	0.21	0.17	0.31	0.20	0.04	0.22	1,013
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2023	0.65	5.86	0.21	0.09	0.31	0.20	0.02	0.22	1,011
2024	0.40	3.39	0.16	0.06	0.22	0.14	0.01	0.16	777
Average Daily	—	—	—	—	—	—	—	—	—
2023	0.12	1.08	0.04	0.02	0.05	0.03	< 0.005	0.04	186
2024	0.01	0.08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.0
Annual	—	—	—	—	—	—	—	—	—
2023	0.02	0.20	0.01	< 0.005	0.01	0.01	< 0.005	0.01	30.7
2024	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.82

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—
2023	0.24	6.80	0.18	0.17	0.33	0.17	0.04	0.19	1,013
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—
2023	0.24	6.81	0.18	0.09	0.28	0.17	0.02	0.19	1,011

2024	0.13	3.38	0.07	0.06	0.10	0.06	0.01	0.06	777
Average Daily	—	—	—	—	—	—	—	—	—
2023	0.04	1.27	0.03	0.02	0.05	0.03	< 0.005	0.04	186
2024	< 0.005	0.10	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	17.0
Annual	—	—	—	—	—	—	—	—	—
2023	0.01	0.23	0.01	< 0.005	0.01	0.01	< 0.005	0.01	30.7
2024	< 0.005	0.02	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.82

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32	2.51	0.09	—	0.09	0.08	—	0.08	387
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	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	0.14	0.01	—	0.01	< 0.005	—	< 0.005	21.2
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.51

Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.17	0.17	0.00	0.04	0.04	45.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	2.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.21
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04

3.2. Demolition (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	3.03	0.09	—	0.09	0.08	—	0.08	387
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	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	< 0.005	0.17	< 0.005	—	< 0.005	< 0.005	—	< 0.005	21.2
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.51
Demolition	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.00	0.17	0.17	0.00	0.04	0.04	45.3
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.90
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	2.32
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.21
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.38
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.04

3.3. Building Construction (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.52	0.17	—	0.17	0.15	—	0.15	542
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.45	3.52	0.17	—	0.17	0.15	—	0.15	542
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07	0.58	0.03	—	0.03	0.03	—	0.03	89.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.11	0.01	—	0.01	< 0.005	—	< 0.005	14.7
Onsite truck	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
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	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
Hauling	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
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Building Construction (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	3.40	0.09	—	0.09	0.08	—	0.08	542
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	3.40	0.09	—	0.09	0.08	—	0.08	542
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.56	0.01	—	0.01	0.01	—	0.01	89.1
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.10	< 0.005	—	< 0.005	< 0.005	—	< 0.005	14.7

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

3.5. Paving (2024) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.38	3.37	0.16	—	0.16	0.14	—	0.14	715
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.80
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.62
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.06	0.06	0.00	0.01	0.01	61.5
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.85
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.14
Vendor	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

3.6. Paving (2024) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	3.35	0.04	—	0.04	0.04	—	0.04	715
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.80
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.62
Paving	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.00	0.06	0.06	0.00	0.01	0.01	61.5
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.85
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.14
Vendor	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

3.7. Architectural Coating (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	1.46	0.01	—	0.01	0.01	—	0.01	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	1.46	0.01	—	0.01	0.01	—	0.01	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.29	< 0.005	—	< 0.005	< 0.005	—	< 0.005	58.6
Architectural Coatings	0.00	—	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.69
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	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
Vendor	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	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
Hauling	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
Vendor	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
Annual	—	—	—	—	—	—	—	—	—
Worker	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
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Architectural Coating (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	2.29	0.07	—	0.07	0.06	—	0.06	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	2.29	0.07	—	0.07	0.06	—	0.06	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.45	0.01	—	0.01	0.01	—	0.01	58.6
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.08	< 0.005	—	< 0.005	< 0.005	—	< 0.005	9.69
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	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

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

3.9. Architectural Coating (2024) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08	1.45	0.01	—	0.01	0.01	—	0.01	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	0.03	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.38
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.06
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—
Worker	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
Hauling	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
Vendor	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

3.10. Architectural Coating (2024) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	2.29	0.07	—	0.07	0.06	—	0.06	296
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.05	< 0.005	—	< 0.005	< 0.005	—	< 0.005	6.38
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.06
Architectural Coatings	0.00	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Vendor	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
Average Daily	—	—	—	—	—	—	—	—	—

Worker	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
Hauling	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
Vendor	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

3.11. Trenching (2023) - Unmitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.87	0.03	—	0.03	0.03	—	0.03	142
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.87	0.03	—	0.03	0.03	—	0.03	142
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.07	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.7
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.93
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	22.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	10.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	20.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	1.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.83
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.14

3.12. Trenching (2023) - Mitigated

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

Location	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	1.10	0.03	—	0.03	0.03	—	0.03	142
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	1.10	0.03	—	0.03	0.03	—	0.03	142
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.09	< 0.005	—	< 0.005	< 0.005	—	< 0.005	11.7
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.93
Dust From Material Movement	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	22.7

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	10.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.00	0.09	0.09	0.00	0.02	0.02	20.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.01	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	10.1
Average Daily	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	0.01	0.01	0.00	< 0.005	< 0.005	1.74
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.83
Annual	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.29
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.14

4. Operations Emissions Details

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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

Vegetation	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

Land Use	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

Species	ROG	NOx	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	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
Demolition	Demolition	9/1/2023	9/28/2023	5.00	20.0	—
Building Construction	Building Construction	9/29/2023	12/21/2023	5.00	60.0	—
Paving	Paving	1/12/2024	1/18/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	9/22/2023	1/11/2024	5.00	80.0	—
Trenching	Trenching	9/29/2023	11/9/2023	5.00	30.0	—

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
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	1.00	8.00	36.0	0.38

Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Paving Equipment	Diesel	Average	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Average	2.00	8.00	46.0	0.31
Trenching	Excavators	Diesel	Average	1.00	8.00	36.0	0.38

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Tier 4 Interim	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38
Building Construction	Forklifts	Diesel	Tier 4 Interim	2.00	6.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Welders	Diesel	Tier 4 Interim	1.00	8.00	46.0	0.45
Paving	Paving Equipment	Diesel	Tier 4 Interim	1.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Tier 4 Interim	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Tier 4 Interim	1.00	8.00	84.0	0.37
Architectural Coating	Aerial Lifts	Diesel	Tier 4 Interim	2.00	8.00	46.0	0.31
Trenching	Excavators	Diesel	Tier 4 Interim	1.00	8.00	36.0	0.38

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	5.00	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.05	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	7.50	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	2.50	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.13	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	5.00	11.7	LDA,LDT1,LDT2
Demolition	Vendor	—	8.40	HHDT,MHDT
Demolition	Hauling	0.05	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	0.00	11.7	LDA,LDT1,LDT2
Building Construction	Vendor	0.00	8.40	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	7.50	11.7	LDA,LDT1,LDT2
Paving	Vendor	—	8.40	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	0.00	11.7	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	8.40	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT
Trenching	—	—	—	—
Trenching	Worker	2.50	11.7	LDA,LDT1,LDT2
Trenching	Vendor	—	8.40	HHDT,MHDT
Trenching	Hauling	0.13	20.0	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

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	—

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)
Demolition	0.00	0.00	0.00	—	—
Paving	0.00	0.00	0.00	0.00	0.00
Trenching	—	40.0	0.00	0.00	—

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%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	387	0.03	< 0.005
2024	0.00	387	0.03	< 0.005

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

5.18.1.2. Mitigated

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

5.18.1.2. Mitigated

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)

5.18.2.2. Mitigated

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	12.2	annual days of extreme heat
Extreme Precipitation	2.50	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	10.5	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 (2040–2059 average under RCP 8.5), and consider different increments of sea level rise coupled with extreme storm events. Users may select from four model simulations to view the range in potential inundation depth 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 50 meters (m) by 50 m, or about 164 feet (ft) by 164 ft.
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	N/A	N/A	N/A	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	N/A	N/A	N/A	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	N/A	N/A	N/A	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	N/A	N/A	N/A	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 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	17.6
AQ-PM	22.5
AQ-DPM	79.3
Drinking Water	50.2
Lead Risk Housing	56.7
Pesticides	1.97
Toxic Releases	37.8
Traffic	82.5
Effect Indicators	—
CleanUp Sites	99.9
Groundwater	98.4
Haz Waste Facilities/Generators	98.4
Impaired Water Bodies	33.2
Solid Waste	95.0
Sensitive Population	—
Asthma	28.6
Cardio-vascular	47.5
Low Birth Weights	54.6
Socioeconomic Factor Indicators	—
Education	55.8
Housing	89.2
Linguistic	15.6
Poverty	35.2

Unemployment	4.89

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	45.14307712
Employed	91.65918132
Median HI	61.15744899
Education	—
Bachelor's or higher	65.78981137
High school enrollment	100
Preschool enrollment	13.49929424
Transportation	—
Auto Access	27.46054151
Active commuting	73.93814962
Social	—
2-parent households	61.7862184
Voting	61.15744899
Neighborhood	—
Alcohol availability	28.82073656
Park access	60.96496856
Retail density	92.32644681
Supermarket access	33.32477865
Tree canopy	70.70447838
Housing	—
Homeownership	12.81919672

Housing habitability	13.48646221
Low-inc homeowner severe housing cost burden	53.29141537
Low-inc renter severe housing cost burden	41.94790196
Uncrowded housing	15.44976261
Health Outcomes	—
Insured adults	32.06723983
Arthritis	83.7
Asthma ER Admissions	64.9
High Blood Pressure	83.5
Cancer (excluding skin)	68.9
Asthma	49.0
Coronary Heart Disease	74.7
Chronic Obstructive Pulmonary Disease	62.6
Diagnosed Diabetes	65.9
Life Expectancy at Birth	62.1
Cognitively Disabled	52.2
Physically Disabled	19.5
Heart Attack ER Admissions	48.1
Mental Health Not Good	47.3
Chronic Kidney Disease	79.8
Obesity	59.2
Pedestrian Injuries	89.9
Physical Health Not Good	53.6
Stroke	70.4
Health Risk Behaviors	—
Binge Drinking	61.9
Current Smoker	48.5

No Leisure Time for Physical Activity	45.4
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	31.0
Elderly	65.5
English Speaking	23.0
Foreign-born	90.5
Outdoor Workers	43.6
Climate Change Adaptive Capacity	—
Impervious Surface Cover	22.9
Traffic Density	71.8
Traffic Access	74.4
Other Indices	—
Hardship	56.2
Other Decision Support	—
2016 Voting	56.2

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	60.0
Healthy Places Index Score for Project Location (b)	56.0
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
Construction: Construction Phases	Applicant provided construction schedule
Construction: Off-Road Equipment	Applicant provided construction equipment
Construction: Trips and VMT	Dump truck trips in demo and trenching phase included.
Construction: On-Road Fugitive Dust	BAAQMD silt loading and speed adjustments.
Construction: Dust From Material Movement	40-cy exported

Attachment 3: Project Emissions and Health Risk Calculations

Project Generators Health Risk Assessment and Calculations

Intel CUB, Santa Clara, CA

Standby Emergency Generator Impacts - w/ BAAQMD BACT Requirements for engines >1,000-hp

Off-site Sensitive Receptors

MEI Location = 1.5 meter receptor height

DPM Emission Rates		
	DPM Emissions per Generator	
Source Type	Max Daily (lb/day)	Annual (lb/year)
Two, 3,000-kW, 4,036-hp Generator BACT Requirements	0.036	12.99
CalEEMod DPM Emissions	0.01	tons/year

Modeling Information		
Model	AERMOD	
Source	Diesel Generator Engine	
Source Type	Point	
Meteorological Data	2013-2017 San Jose Airport Meterological Data	
Point Source Stack Parameters		
Generator Engine Size (hp)***	4036	
Stack Height (ft) ***	11.50	1st Level Exhaust Release
Stack Diameter (ft)**	0.60	
Exhaust Gas Flowrate (CFM)***	21012	
Stack Exit Velocity (ft/sec)***	1239	
Exhaust Temperature (˚F)***	878	
Emissions Rate (lb/hr)	0.0015	0.0007 Each Gen

* AERMOD default

**BAAQMD default generator parameters

*** Generator Spec Sheet

Intel CUB, Santa Clara, CA - Cancer Risks from Project Operation
Project Emergency Generators
Impacts at MEI Receptor- 1.5m Receptor Height
Impact at Project MEI (27-year Exposure)

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
ASF =	10	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00	1.10E+00
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Project Generators Operation Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			
Exposure Year	**Exposure Duration (years)**	**Age**	**DPM Conc (ug/m3) Year**	**Annual**	**Age Sensitivity Factor**	**Cancer Risk (per million)**
0	0.25	-0.25 - 0*	2024	0.00005	10	0.001
1	1	0 - 1	2024	0.00005	10	0.008
2	1	1 - 2	2025	0.00005	10	0.008
3	1	2 - 3	2026	0.00005	3	0.001
4	1	3 - 4	2027	0.00005	3	0.001
5	1	4 - 5	2028	0.00005	3	0.001
6	1	5 - 6	2029	0.00005	3	0.001
7	1	6 - 7	2030	0.00005	3	0.001
8	1	7 - 8	2031	0.00005	3	0.001
9	1	8 - 9	2032	0.00005	3	0.001
10	1	9 - 10	2033	0.00005	3	0.001
11	1	10 - 11	2034	0.00005	3	0.001
12	1	11 - 12	2035	0.00005	3	0.001
13	1	12 - 13	2036	0.00005	3	0.001
14	1	13 - 14	2037	0.00005	3	0.001
15	1	14 - 15	2038	0.00005	3	0.001
16	1	15 - 16	2039	0.00005	3	0.001
17	1	16-17	2040	0.00005	1	0.000
18	1	17-18	2041	0.00005	1	0.000
19	1	18-19	2042	0.00005	1	0.000
20	1	19-20	2043	0.00005	1	0.000
21	1	20-21	2044	0.00005	1	0.000
22	1	21-22	2045	0.00005	1	0.000
23	1	22-23	2046	0.00005	1	0.000
24	1	23-24	2047	0.00005	1	0.000
25	1	24-25	2048	0.00005	1	0.000
26	1	25-26	2049	0.00005	1	0.000
27	1	26-27	2050	0.00005	1	0.000
28	1	27-28	2051	0.00005	1	0.000
29	1	28-29	2052	0.00005	1	0.000
30	1	29-30	2053	0.00005	1	0.000
Total Increased Cancer Risk						**0.04**

* Third trimester of pregnancy

Hazard Index	**Total PM2.5**
0.00001	0.0001

Project Cooling Towers Health Risk Assessment and Calculations

Intel CUB, Santa Clara, CA
Evaporative Cooling Tower PM Emissions per Cooling Tower

No. of Cooling Towers			2	
No. Cooling Tower Cells			4	
Operating Hours per Year			4,000	
Circulating Water Flow Rate per Cell (gpm)			1,950	
Total Circulating Water Flow Rate (gpm)			7,800	
Influent Water Total Dissolved Solids (TDS) Conc. (ppm)*			370	
Circulating Water Cycles of Concentration*			6	
Cooling Tower Circulating Water TDS (ppm)			2,220	
Mist Eliminator Efficiency (%)			0.005	
Total Cooling Tower Drift (gpm)			0.39	
Particulate Matter Emissions				
	PM	**PM10**	**PM2.5**	
Fraction of PM**	1.0	0.7	0.42	
Hourly (lb/hr)	0.43	0.30	0.18	0.091
Average Daily (lb/day)	4.7	3.3	2.0	
Annual lb/yr)	1733	1213.1	727.9	
Annual (ton/yr)	0.87	0.61	0.36	

* Maximum TDS value based on 2022 City of Santa Clara Water Quality Report.
Circulating water cycles of concentration assumed.
** South Coast AQMD, Final-Methodology to Calculate Particulate
Matter (PM) 2.5 and PM2.5 Significance Thresholds, Appendix A.

Intel CUB, Santa Clara, CA - Project Cooling Tower - PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at MEI Receptor (1.5 m receptor height)

Emission Year	2025
Receptor Information	MEI receptor
Number of Receptors	1
Receptor Height	1.5 meter
Receptor Distances	At MEI location
Meteorological Conditions	
BAQMD San Jose International Airport M	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Wind Direction	Variable

PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3) MEI
2013-2017	0.05

Project Boilers Health Risk Assessment and Calculations

Intel Central Utility Building, Santa Clara, CA
Boiler PM2.5 Emissions and Stack Parameters

	Stack Location				Stack		Stack Gas[1]					
	UTM-X	UTM-Y	Building Height		Height	Diameter[1]	Temp.	Velocity	PM2.5 Emission Rate[2]			
Description	(m)	(m)	(ft)	(m)	(m)	(m)	(K)	(m/s)	(tons/year)	(lb/day)	(lb/hr)	(g/s)
Boiler 1 - 4 MMBtu/hr	590553.0	4137101.0	25	7.62	10.67	0.41	438.25	5.03	0.1305	0.715	0.0298	0.00375
Boiler 2 - 4 MMBtu/hr	590553.0	4137097.0	25	7.62	10.67	0.41	438.25	5.03	0.1305	0.715	0.0298	0.00375

[1] Stack Parameters (diameter, temperature and velocity) based on default values for a small boiler in Appendix A Modeling Parameters from:
San Joaquin Valley Air Pollution Control District, *Final Draft Staff Report, Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document.* March 18, 2015.

[2] Provided by applicant. Assumes operation for 24 hours/day, 365 days/year.

Intel CUB - Project Boilers Operation
AERMOD Risk Modeling Parameters, Maximum TAC Concentrations & Non-Cancer Health Effects
Off-Site Residential Receptors - 1.5 meter Receptor Heights

Receptor Information

Number of Receptors	148
Receptor Height =	1.5 meters
Receptor distances =	variable - at nearby residences

Meteorological Conditions

San JoseAirport Met Data	2013-2017
Land Use Classification	Urban
Wind speed =	variable
Wind direction =	variable

Maximum Residential MEI Concentrations

	TAC Emission		Annual TAC Concentrations			1-Hour TAC Concentrations		
	Rate per Boiler		Boiler 1	Boiler 2	Total	Boiler 1	Boiler 2	Total
TAC	(lb/hr)	(g/s)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)	(μg/m^3)
7,12- Dimethylbenz(a)anthracene	4.02E-06	5.06E-07	6.66E-07	6.72E-07	1.34E-06	3.38E-05	3.37E-05	6.75E-05
Arsenic	7.84E-07	9.88E-08	1.30E-07	1.31E-07	2.61E-07	6.60E-06	6.58E-06	1.32E-05
Cadmium	4.31E-06	5.44E-07	7.15E-07	7.21E-07	1.44E-06	3.63E-05	3.62E-05	7.25E-05
Cobolt	3.29E-07	4.15E-08	5.46E-08	5.51E-08	1.10E-07	2.77E-06	2.76E-06	5.53E-06
Formaldehyde	2.94E-04	3.71E-05	4.87E-05	4.92E-05	9.79E-05	2.47E-03	2.47E-03	4.94E-03
Mercury	1.02E-06	1.28E-07	1.69E-07	1.70E-07	3.39E-07	8.58E-06	8.55E-06	1.71E-05
Nickel	8.24E-06	1.04E-06	1.36E-06	1.38E-06	2.74E-06	6.93E-05	6.91E-05	1.38E-04
Modeled X/Q Conc. (μg/m^3)/(g/s)			1.315	1.327		66.754	66.591	

7,12 Dimethylbenz(a)anthracene emissions calculated as Benzo(a)pyrene equivalent emissions using a Potency Equivalent Factor (PEF) of 64 per BAAQMD Regulation 2 Rule 5..

2025 - Non-Cancer Health Effects

	Maximum Concentration		Hazard Index	
	1-Hour	Ammual		
TAC	(μg/m^3)	(μg/m^3)	Acute	Chronic
7,12- Dimethylbenz(a)anthracene	-	-	-	-
Arsenic	1.32E-05	2.61E-07	6.59E-05	1.74E-05
Cadmium	-	1.44E-06	-	7.18E-05
Cobolt	-	-	-	-
Formaldehyde	4.94E-03	9.79E-05	8.98E-05	1.09E-05
Mercury	1.71E-05	3.39E-07	2.86E-05	1.13E-05
Nickel	1.38E-04	2.74E-06	6.92E-04	1.96E-04
Total			**8.76E-04**	**3.07E-04**

* Maximum for residential receptors

Intel CUB - Project Boilers Operation
Maximum Residential Cancer Risk from Project Construction & Operation
at Off-Site Residential MEI Location
30-Year Residential Exposure

Cancer Risk Calculation Method

Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT x FAH x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

Inhalation Dose = C_{air} x DBR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 to 2	2 to 16	17 - 70
Parameter				
ASF	10	10	3	1
DBR* =	361	1090	572	261
A =	1	1	1	1
EF =	350	350	350	350
ED =	0.25	2	14	14
AT =	70	70	70	70
FAH =	1.00	1.00	1.00	0.73

* 95th percentile breathing rates for infants and 80th percentile for children and adults

Cancer Potency Factors and Reference Exposure Levels (REL)

TAC	CPF $(mg/kg\text{-}day)^{-1}$	REL $(\mu g/m^3)$ Acute (1-hour)	REL $(\mu g/m^3)$ Chronic (ann ave)
7,12- Dimethylbenz(a)anthracene	3.90E+00	-	-
Arsenic	1.20E+01	2.0E-01	1.5E-02
Cadmium	1.50E+01	-	2.0E-02
Cobolt	2.70E+01	-	-
Formaldehyde	2.10E-02	5.5E+01	9.0E+00
Mercury		6.0E-01	3.0E-02
Nickel	9.10E-01	2.0E-01	1.4E-02

Project Construction & Operation Cancer Risk - at Residential MEI Receptor

				Maximum - Exposure Information - Annual Conc (µg/m3)							Cancer Risk (per million)							
Exposure Year Age	Initial Exposure Year	Exposure Duration (years)	Age Sensitivity Factor	7,12-Dimethyl(a) anthracene	Arsenic	Cadmium	Cobolt	Formal-dehyde	Mercury	Nickel	7,12-Dimethyl(a) anthracene	Arsenic	Cadmium	Cobolt	Formal-dehyde	Mercury	Nickel	Total
0	2025	0.25	10	1.34E-06	2.61E-07	1.44E-06	1.10E-07	9.79E-05	3.39E-07	2.74E-06	6.45E-05	3.87E-05	2.66E-04	3.66E-05	2.54E-05	0.00E+00	3.08E-05	4.62E-04
0 - 1	2025	1	10	1.34E-06	2.61E-07	1.44E-06	1.10E-07	9.79E-05	3.39E-07	2.74E-06	7.79E-04	4.68E-04	3.22E-03	4.42E-04	3.07E-04	0.00E+00	3.73E-04	5.59E-03
1 < 2	2026	1	10	4.18E-08	5.22E-07	2.87E-06	2.19E-07	1.96E-04	6.79E-07	5.48E-06	2.43E-05	9.36E-04	6.43E-03	8.84E-04	6.14E-04	0.00E+00	7.45E-04	9.64E-03
2 < 16	2028	14	3	4.18E-08	5.22E-07	2.87E-06	2.19E-07	1.96E-04	6.79E-07	5.48E-06	5.36E-05	2.06E-03	1.42E-02	1.95E-03	1.35E-03	0.00E+00	1.64E-03	2.12E-02
16 - 70	2042	14	1	4.18E-08	5.22E-07	2.87E-06	2.19E-07	1.96E-04	6.79E-07	5.48E-06	5.95E-06	2.29E-04	1.57E-03	2.16E-04	1.50E-04	0.00E+00	1.82E-04	2.36E-03
Total Increased Cancer Risk											**0.0009**	**0.0037**	**0.0257**	**0.0035**	**0.0025**	**0.0000**	**0.0030**	**0.0393**

* Third trimester of pregnancy

Intel Corporation - CUB Boilers

Emission Factors

Burner Maximum Heat Input (MMBtu/hr): 4 per boiler = 8 per two boilers

								For 2 boilers		
CAS No	Pollutant		Emission Factor ($lb/10^6$ scf)		Emission Factor (lb/MMBtu)	AP-42 Source:		Hourly Emissions (lb/hr)		Annual Emissions (lb/year)
91-57-6	2-Methylnaphthalene		2.40E-05		2.35E-08	Table 1.4-3		1.88E-07		1.65E-03
56-49-5	3-Methylcholanthrene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
	7,12- Dimethylbenz(a)anthracene	<	1.60E-05	<	1.57E-08	Table 1.4-3	<	1.25E-07	<	1.10E-03
83-32-9	Acenaphthene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
203-96-8	Acenaphthylene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
120-12-7	Anthracene	<	2.40E-06	<	2.35E-09	Table 1.4-3	<	1.88E-08	<	1.65E-04
7440-38-2	Arsenic		2.00E-04		1.96E-07	Table 1.4-4		1.57E-06		1.37E-02
7440-39-3	Barium		4.40E-03		4.31E-06	Table 1.4-4		3.45E-05		3.02E-01
56-55-3	Benz(a)anthracene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
71-43-2	Benzene		2.10E-03		2.06E-06	Table 1.4-3		1.65E-05		1.44E-01
50-32-8	Benzo(a)pyrene	<	1.20E-06	<	1.18E-09	Table 1.4-3	<	9.41E-09	<	8.24E-05
205-99-2	Benzo(b)fluoranthene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
191-24-2	Benzo(g,h,i)perylene	<	1.20E-06	<	1.18E-09	Table 1.4-3	<	9.41E-09	<	8.24E-05
207-08-9	Benzo(k)fluoranthene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
7440-41-7	Beryllium	<	1.20E-05	<	1.18E-08	Table 1.4-4	<	9.41E-08	<	8.24E-04
106-97-8	Butane		2.10E+00		2.06E-03	Table 1.4-3		1.65E-02		1.44E+02
7440-43-9	Cadmium		1.10E-03		1.08E-06	Table 1.4-4		8.63E-06		7.56E-02
7440-47-3	Chromium		1.40E-03		1.37E-06	Table 1.4-4		1.10E-05		9.62E-02
218-01-9	Chrysene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
7440-48-4	Cobalt		8.40E-05		8.24E-08	Table 1.4-4		6.59E-07		5.77E-03
7440-50-8	Copper		8.50E-04		8.33E-07	Table 1.4-4		6.67E-06		5.84E-02
53-70-3	Dibenzo(a,h)anthracene	<	1.20E-06	<	1.18E-09	Table 1.4-3	<	9.41E-09	<	8.24E-05
25321-22- 6	Dichlorobenzene		1.20E-03		1.18E-06	Table 1.4-3		9.41E-06		8.24E-02
74-84-0	Ethane		3.10E+00		3.04E-03	Table 1.4-3		2.43E-02		2.13E+02
206-44-0	Fluoranthene		3.00E-06		2.94E-09	Table 1.4-3		2.35E-08		2.06E-04
86-73-7	Fluorene		2.80E-06		2.75E-09	Table 1.4-3		2.20E-08		1.92E-04
50-00-0	Formaldehyde		7.50E-02		7.35E-05	Table 1.4-3		5.88E-04		5.15E+00
110-54-3	Hexane		1.80E+00		1.76E-03	Table 1.4-3		1.41E-02		1.24E+02
193-39-5	Indeno(1,2,3-cd)pyrene	<	1.80E-06	<	1.76E-09	Table 1.4-3	<	1.41E-08	<	1.24E-04
7439-92-1	Lead		5.00E-04		4.90E-07	Table 1.4-2		3.92E-06		3.44E-02
7439-96-5	Manganese		3.80E-04		3.73E-07	Table 1.4-4		2.98E-06		2.61E-02
7439-97-6	Mercury		2.60E-04		2.55E-07	Table 1.4-4		2.04E-06		1.79E-02
7439-98-7	Molybdenum		1.10E-03		1.08E-06	Table 1.4-4		8.63E-06		7.56E-02
91-20-3	Naphthalene		6.10E-04		5.98E-07	Table 1.4-3		4.78E-06		4.19E-02
7440-02-0	Nickel		2.10E-03		2.06E-06	Table 1.4-4		1.65E-05		1.44E-01
109-66-0	Pentane		2.60E+00		2.55E-03	Table 1.4-3		2.04E-02		1.79E+02
85-01-8	Phenanathrene		1.70E-05		1.67E-08	Table 1.4-3		1.33E-07		1.17E-03
74-98-6	Propane		1.60E+00		1.57E-03	Table 1.4-3		1.25E-02		1.10E+02
129-00-0	Pyrene		5.00E-06		4.90E-09	Table 1.4-3		3.92E-08		3.44E-04
7782-49-2	Selenium	<	2.40E-05	<	2.35E-08	Table 1.4-4	<	1.88E-07	<	1.65E-03
108-88-3	Toluene		3.40E-03		3.33E-06	Table 1.4-3		2.67E-05		2.34E-01
7440-62-2	Vanadium		2.30E-03		2.25E-06	Table 1.4-4		1.80E-05		1.58E-01
7440-66-6	Zinc		2.90E-02		2.84E-05	Table 1.4-4		2.27E-04		1.99E+00

Equations:

Hourly Emissions = Emission Factor (lb/Mmbtu) * Burner Maximum Heat Input (MMBtu/hr)* 2 boilers

Annual Emissions = Hourly Emissions (lb/hr) * (8760 hrs/year) *(Utilization (100% assumed worst case))

Per AP-42: To convert emission factor from $lb/10^6$ scf to lb/MMBTU, divide by 1,020