LABCON CONSTRUCTION AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

Petaluma, California

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Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the proposed industrial/manufacturing facility located south of 3200 Lakeville Avenue on the parcel between Fisher Drive, Cader Lane, and South McDowell Boulevard in Petaluma, California. The air quality impacts and GHG emissions from this project would be associated with construction of the new building and associated parking lot(s) and trips generated by the operation of the facility. Air pollutant and GHG emissions associated with construction and operation 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 existing nearby sensitive receptors were evaluated. The analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1] BAAQMD recommends using a 1,000-foot screening radius around the project site for purposes of identifying community health risk from existing sources of TACs.

Project Description

The project would expand the existing Labcon facility by adding a new light industrial building containing approximately 32,800 square-feet of office space, 79,800 square feet of manufacturing space, and 60,300 square-feet of warehousing on a currently vacant site adjacent to the existing facility. Construction is proposed to begin in July 2023 and be completed by the end of 2024.

Setting

The project is located in Sonoma 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 ($PM_{2.5}$).

Air Pollutants of Concern

High ozone levels 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 high ozone levels. Controlling the emissions of these precursor pollutants is the focus of the Bay Area's attempts to reduce ozone levels. The highest ozone levels in the Bay Area occur in the eastern and southern inland valleys that are downwind of air pollutant sources. High ozone levels aggravate respiratory and cardiovascular diseases, reduced lung function, and increase coughing and chest discomfort.

Particulate matter is another problematic air pollutant of the Bay Area. 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 levels

[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

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. 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 and/or acute exposure can result in adverse health effects, TACs 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 of diesel exhaust 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. Health risks from TACs are estimated using the Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines, which were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide 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. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade, 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 NO_X and particulate matter ($PM_{2.5}$) 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]

[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.

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

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. Current standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

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

State Regulations

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*.[4] 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 Plan measures have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, and adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of additional regulations for stationary and mobile sources to reduce emissions of DPM. Several of these regulatory programs affect medium and heavy-duty diesel trucks that represent the bulk of DPM emissions from California highways. CARB regulations require on-road diesel trucks to be retrofitted with particulate matter controls or replaced to meet 2010 or later engine standards that have much lower DPM and $PM_{2.5}$ emissions. This regulation will substantially reduce these emissions between 2013 and 2023. While new trucks and buses will meet strict federal standards, CARB's program is intended to accelerate the rate at which the fleet either turns over so there are more cleaner vehicles on the road or is retrofitted to meet similar standards. With this regulation, older, more polluting trucks would be removed from the roads sooner.

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 particulate matter 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 stringent federal off-road equipment engine emission limits for new vehicles, will significantly reduce emissions of DPM and NO_X.

[4] California Air Resources Board, 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. October.

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 National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (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 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.[5] 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 is being 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 focus emission reduction measures 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. 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.[6] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by CalEnviroScreen.

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[7] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with California Environmental Quality Act (CEQA) requirements including thresholds of significance, mitigation measures, and background

[5] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.
[6] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[7] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

air quality information. They also include assessment methodologies for TACs, odors, and greenhouse gas (GHG) emissions.

City of Petaluma General Plan 2025

The City of Petaluma General Plan 2025[8] includes policies and programs to reduce exposure of the City's sensitive population to exposure of air pollution and TACs. The following policies and programs are applicable to the proposed project:

4-P-15 Improve air quality by reducing emissions from stationary point sources of air pollution (e.g., equipment at commercial and industrial facilities) and stationary area sources (e.g., wood-burning fireplaces & gas powered lawn mowers) which cumulatively emit large quantities of emissions.

A. Continue to work with the Bay Area Air Quality Management District to achieve emissions reductions for non-attainment pollutants; including carbon monoxide, ozone, and PM10, by implementation of air pollution control measures as required by State and federal statutes. The BAAQMD's CEQA Guidelines should be used as the foundation for the City's review of air quality impacts under CEQA.

B. Continue to use Petaluma's development review process and the CEQA regulations to evaluate and mitigate the local and cumulative effects of new development on air quality.

C. Continue to require development projects to abide by the standard construction dust abatement measures included in BAAQMD's CEQA Guidelines. These measures would reduce exhaust and particulate emissions from construction and grading activities.

D. Reduce emissions from residential and commercial uses by requiring the following:
- Use of high efficiency heating and other appliances, such as cooking equipment, refrigerators, and furnaces, and low NOx water heaters in new and existing residential units;
- Compliance with or exceed requirements of CCR Title 24 for new residential and commercial buildings;
- Incorporation of passive solar building design and landscaping conducive to passive solar energy use for both residential and commercial uses, i.e., building orientation in a south to southeast direction, encourage planting of deciduous trees on west sides of structures, landscaping with drought resistant species, and use of groundcovers rather than pavement to reduce heat reflection;
- Encourage the use of battery-powered, electric, or other similar equipment that does not impact local air quality for nonresidential maintenance activities;
- Provide natural gas hookups to fireplaces or require residential use of EPA-certified wood stoves, pellet stoves, or fireplace inserts. Current building code standards

[8] City of Petaluma, City of *Petaluma: General Plan 2025*, May 2008. Web: https://cityofpetaluma.org/documents/general-plan/

generally ban the installation of open-hearth, wood burning fireplaces and wood stoves in new construction. It does, however, allow for the use of low-polluting wood stoves and inserts in fireplaces approved by the federal Environmental Protection Agency, as well as fireplaces fueled by natural gas.

4-P-16 To reduce combustion emissions during construction and demolition phases, the contractor of future individual projects shall encourage the inclusion in construction contracts of the following requirements or measures shown to be equally effective:

- Maintain construction equipment engines in good condition and in proper tune per manufacturer's specification for the duration of construction;
- Minimize idling time of construction related equipment, including heavy-duty equipment, motor vehicles, and portable equipment;
- Use alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline);
- Use add-on control devices such as diesel oxidation catalysts or particulate filters;
- Use diesel equipment that meets the ARB's 2000 or newer certification standard for off-road heavy-duty diesel engines;
- Phase construction of the project;
- Limit the hours of operation of heavy-duty equipment.

It is noted the City is in the process of updating its general plan. It began the process in 2020. Plan Vision materials were adopted by the City Council in mid-2022 and plan elements will continue to be developed through 2023. The City plans to adopt its updated general plan by early 2023.[9]

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, people 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 in the single-family residences to the north of the project site, across Lakeville Highway (SR-116). This project would not introduce new sensitive receptors (i.e., residents) to the area.

Significance Thresholds

The current BAAQMD thresholds were used in this analysis and are summarized in Table 1. Impacts above these thresholds are considered potentially significant. In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA and these significance thresholds were contained in the District's 2011 CEQA Air Quality Guidelines. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA. The thresholds were

[9] https://www.planpetaluma.org/documents

challenged through a series of court challenges and were mostly upheld. BAAQMD updated the CEQA Air Quality Guidelines in 2017 to include the significance thresholds. In 2022, BAAQMD revised its GHG thresholds, eliminating quantified emissions limits. The latest BAAQMD significance thresholds used in this analysis are summarized in Table 1. Air quality impacts and community health risks are considered significant if they exceed these thresholds.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
ROG	54	54	10
NO_X	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	>10 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 µg/m^3	>0.8 µg/m^3	
Greenhouse Gas Emissions			
Land Use Projects – (Must Include A or B)	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).		

Note: ROG = reactive organic gases, NO_X = 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.

AIR QUALITY IMPACTS AND MITIGATION MEASURES

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

BAAQMD is the regional agency responsible for overseeing compliance with State and Federal laws, regulations, and programs within the San Francisco Bay Area Air Basin (SFBAAB). BAAQMD, with assistance from the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission (MTC), prepares and implements specific plans to meet the applicable laws, regulations, and programs. The most recent and comprehensive of which is the *Bay Area 2017 Clean Air Plan*.[10] 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 developed CEQA guidelines to assist lead agencies in evaluating the significance of air quality and GHG 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. Guidance provided in the BAAQMD CEQA guidelines recommends that Plans show consistency with the control measures listed within the Clean Air Plan. At the project-level, BAAQMD's CEQA guidance examines whether a project supports the Clean Air Plan's primary goals: (1) attain air quality standards, (2) reduce population exposure and protecting public health in the Bay Area; and (3) reduce GHG emissions and protect the climate. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see Impact below), 2) the project would be considered urban infill as it develops an area previously analyzed and approved to be an active industrial land use and would not adversely affect public health in the Bay Area, and 3) would not result in a significant impact on climate change.

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 State and Federal 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. The O_3 precursor pollutant thresholds are for ROG and NOx, while PM_{10} and $PM_{2.5}$ have specific thresholds. The thresholds apply to both construction period and operational period emissions.

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

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[11] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Modeling

Land Use Inputs

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

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
General Office Building	32.84	1,000 sq ft	32,840	7.4
Manufacturing	79.76	1,000 sq ft	79,760	
Unrefrigerated Warehouse (No Rail)	60.26	1,000 sq ft	60,260	
Parking Lot	288	Spaces	115,200	

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, including equipment list and schedule, were based on project-specific construction information provided by the project applicant.

The construction equipment worksheets provided by the applicant included the schedule for each phase, the quantity of equipment to be used, the average hours per day of each piece of equipment, and total number of workdays (included in *Attachment 2*). CalEEMod default values were used, as appropriate and where CalEEMod does not provide default values, or where the default values are not appropriate, conservative values were provided. The construction schedule provided by the applicant included a start date of July 2023 and continue through December 2024 (approximately 18 months, or 390 construction workdays). The earliest year of full operation was assumed to be 2025.

[11] See CARB's EMFAC2021 Emissions Inventory at https://arb.ca.gov/emfac/emissions-inventory.

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 soil material imported and/or exported to the site and the estimate of concrete and asphalt truck trips. 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 estimated from the anticipated grading volumes by assuming each truck could carry 10 tons per load. The number of concrete and asphalt total round haul trips were estimated by the applicant and provided for the analysis.

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2017 motor vehicle emission factor model. This model has been superseded by the EMFAC2021 model; however, CalEEMod has not been updated to include EMFAC2021. Therefore, the construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2021 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for construction trips was based on CalEEMod default assumptions, where worker trips are comprised of light-duty autos (EMFAC category LDA) and light duty trucks (EMFAC category LDT1and LDT2). Vendor trips are comprised of delivery and large trucks (EMFAC category MHDT and HHDT) and haul trips, including concrete trucks, are comprised of large trucks (EMFAC category HHDT). Travel distances are based on CalEEMod default lengths, which are 10.8 miles for worker travel, 7.3 miles for vendor trips and 20 miles for hauling (soil import/export). Since CalEEMod does not address concrete/asphalt trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Sonoma County for 2023-2024 was used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2021 emission database to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	50% LDA 25% LDT1 25% LDT2	50% MHDT 50% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0	CalEEMod default distance with 5-min truck idle time.
Demolition	460	-	29	6,400-sf of demo. CalEEMod default worker trips.
Site Preparation	195	-	1,688	13,500 cy soil imported. CalEEMod default worker trips.
Grading	450	-	1,688	13,500 cy soil imported. CalEEMod default worker trips.
Trenching/Foundation	50	-	360	1,800 cy concrete. CalEEMod default worker trips.
Building Construction	5,900	2,350	360	1,800 cy concrete. CalEEMod default worker and vendor trips.
Architectural Coating	2,160	-	-	CalEEMod default worker trips.
Paving	100	-	420	2,100 cy asphalt. CalEEMod default worker trips.

Notes: [1] Based on 2023-2024 EMFAC2021 light-duty vehicle fleet mix for Sonoma County.
[2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed. Concrete and asphalt trips estimated based on data provided by the applicant.

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions and dividing those emissions by the number of active workdays during that year. Table 4 shows the annualized average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 4, predicted annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023	0.10	0.87	0.05	0.04
2024	0.94	0.24	0.01	0.01
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (130 construction workdays)	1.47	14.84	0.69	0.59
2024 (259 construction workdays)	7.28	1.82	0.09	0.05
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No

Construction activities, particularly during site preparation and grading, would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less-than-significant if best management practices are implemented to mitigate these emissions. *Mitigation Measure AQ-1 would implement BAAQMD-recommended best management practices*.

Mitigation Measure AQ-1: **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. Additional measures are identified to reduce construction equipment exhaust emissions. The contractor shall implement the following best management practices 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. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

8. Post a publicly visible sign with the telephone number and 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 phone number shall also be visible to ensure compliance with applicable regulations.

Effectiveness of Mitigation Measure AQ-1

The measures above are consistent with BAAQMD-recommended basic control measures for reducing fugitive particulate matter that are contained in the BAAQMD CEQA Air Quality Guidelines. With the *BAAQMD-recommended best management practices* implemented by *Mitigation Measure AQ-1*, the impacts from fugitive PM_{10} and $PM_{2.5}$ dust would be *less-than-significant*.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by employees and from truck delivering to the facility. Evaporative ROG emissions from architectural coatings and consumer products are also associated with these types of projects. 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. CalEEMod default trip rates were used for this project, which are the same as those used in the Project traffic study.[12] The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2021 Adjustment

The default vehicle emission factors and fleet mix used in CalEEMod Version 2020.4.0 are based on EMFAC2017, which is an older CARB emission model for on-road mobile sources. Since the release of CalEEMod Version 2020.4.0, a new version of CARB's EMFAC emissions model was released. EMFAC2021 became available for use in January 2021. It includes the latest data on California's car and truck fleets and travel activity. Therefore, CalEEMod Version 2020.4.0 default vehicle emission factors and fleet mix were updated using the emission rates and fleet mix

[12] TJKM. 2022. *Labcon North America Warehouse Addition -Draft Traffic Impact Analysis Report* . June 29. Note the final traffic study had slightly different land use sizes that would not change the results of the analysis.

from 2025 Sonoma County in EMFAC2021 (See *Attachment 3*). More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support Document.[13]

Energy

CalEEMod Version 2020.4.0 defaults for energy use were used, which include the 2019 Title 24 Building Standards. GHG emissions modeling includes those indirect emissions from electricity consumption. This version of CalEEMod has a default emission factor of 120 pounds of CO_2 per megawatt of electricity produced, which is based on Sonoma Clean Power's 2019 emissions rate.

Other Inputs

Model default assumptions for solid waste emissions were applied to the project. However, the split between wastewater treatment types was changed to 100% aerobic conditions to represent the use of city sewer services.

Existing Uses

The majority of the site is vacant land owned by the applicant. However, there is a portion of the project site that is being used as a paved parking lot and a dumpster location. Given the minimal emissions use of the existing site, a CalEEMod model run was not developed to compute emissions from the use of the existing land.

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod Version 2020.4.0. The daily emissions were estimated assuming 365 days of operation. Table 5 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.

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2025 Project Operational Emissions (*tons/year*)	1.24	0.80	0.34	0.10
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2025 Project Operational Emissions (*lbs./day*)[1]	6.89	4.46	1.90	0.57
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

[13] See CARB 2021: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

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

Project impacts related to increased community 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., mobile and stationary sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of any stationary TAC emissions sources (i.e., generators). Traffic generated by the project would consist of light-duty gasoline-powered vehicles along with trucks, which would produce TAC and air pollutant emissions.

Project impacts to existing sensitive receptors were addressed for temporary construction activities and long-term operational conditions. There are also several sources of existing TACs and localized air pollutants in the vicinity of the project. The impact of the existing sources of TAC was also assessed in terms of the cumulative risk which includes the project contribution.

Community Risk Methodology for Construction and Operation

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations, and computing the Hazard Index (HI) for non-cancer health risks. The risk impacts from the project are the combination of risks from construction and operation sources. These sources include on-site construction activity, construction truck hauling, and increased traffic from the project. To evaluate the increased cancer risks from the project, a 30-year exposure period was used, per BAAQMD guidance,[14] with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

The project increased cancer risk is computed by summing the project construction cancer risk and operation cancer risk contributions. Unlike the increased maximum cancer risk, the annual $PM_{2.5}$ concentration and HI values are not additive but based on the annual maximum values for the entirety of the project. The project maximally exposed individual (MEI) is identified as the sensitive receptor that is most impacted by the project's construction and operation.

The methodology for computing community risks impacts is contained in *Attachment 1*. This involved the calculation of TAC and $PM_{2.5}$ emissions, dispersion modeling of these emissions, and computations of cancer risk and non-cancer health effects.

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations would be present for extended periods of time (i.e., chronic exposures). This includes the existing residences to the north of the site, as shown in Figure 1. Residential receptors are assumed to include all receptor groups

[14] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.

(i.e., third trimester, infants, children, and adults) with almost continuous exposure to project emissions.

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust emissions (i.e., DPM) pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. DPM poses both a potential health and nuisance impact to nearby receptors. A health risk assessment of the project construction activities was conducted that evaluated potential health effects to nearby sensitive receptors from construction emissions of DPM and $PM_{2.5}$.[15] This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod and EMFAC2021 models provided total annual PM_{10} exhaust emissions (assumed to be all DPM) and fugitive dust emissions ($PM_{2.5}$) for the off-road construction activities, equipment, and exhaust emissions from on-road vehicles. On-road vehicle emissions are a result of haul truck travel, worker travel, and vendor deliveries during construction. A trip length of one mile was used to represent vehicle travel while at or near the construction site. For analysis purposes, it was assumed emissions from on-road vehicles traveling at or near the site would occur onsite. The emissions used for the modeling of health risk impacts are included in *Attachment 4*.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[16] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions.

Construction Sources

Both equipment exhaust emissions and fugitive dust emissions were modeled as two area sources to represent the on-site construction emissions, one for exhaust emissions and one for fugitive dust emissions. The area source representing construction equipment exhaust emissions has a release height of 19.7 feet (6 meters) to reflect the height of the equipment exhaust pipes plus an additional distance. The additional distance for the height of the exhaust plume above the exhaust pipes accounts for plume rise of the exhaust gases. Emissions from the construction equipment, on-site, and off-site vehicle travel were distributed throughout the modeled area sources.

[15] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.
[16] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.

Fugitive dust emissions at construction sites come from a variety of sources, including truck and equipment travel, grading activities, truck loading (with loaders) and unloading (rear or bottom dumping), loaders and excavators moving and transferring soil and other materials, etc. All of these activities result in fugitive dust emissions at various heights at the point(s) of generation. Once generated, the dust plume will tend to rise as it moves downwind across the site and exit the site at a higher elevation than when it was generated. For all these reasons, a release height of 6.6 feet (2 meters) was used as the average release height across the construction site. Figure 1 shows the locations of both the area sources used in the analysis.

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013 - 2017) of hourly meteorological data prepared by Lakes Environmental for modeling in the City of Petaluma for use with the AERMOD. Construction emissions were modeled as occurring daily between 7:00 a.m. to 5:00 p.m., when the majority of construction activity is expected to occur. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023-2024 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5 feet (1.5 meters) were used to represent the breathing height of nearby single-family residences.[17]

Summary of Construction Community Risk Impacts

The maximum increased cancer risks were calculated using the modeled TAC concentrations combined with the OEHHA guidance for age sensitivity factors and exposure parameters as recommended by BAAQMD (see *Attachment 1)*. Non-cancer health hazards and maximum $PM_{2.5}$ concentrations were also calculated and identified. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Third trimester, infant, child, and adult exposures were assumed to occur at all residences during the entire construction period.

The maximum modeled annual $PM_{2.5}$ concentration was calculated based on combined exhaust and fugitive dust concentrations. The maximum computed HI value was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation refence exposure level of 5 $\mu g/m^3$.

The maximum modeled annual DPM and $PM_{2.5}$ concentrations were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEI). Results of this assessment indicated that the construction residential MEI was located at the single-family home north of the construction project site. The unmitigated maximum cancer risks, annual $PM_{2.5}$ concentration, and non-cancer hazards at the MEI from project construction activities would be below the single-source significance thresholds. Table 6 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and HIs for project related construction activities affecting the construction MEI. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

[17] 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

Table 6. Construction Risk Impacts at the Off-site MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impact				
Project Construction	Unmitigated	2.20 (infant)	0.05	<0.01
	BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

Figure 1. Locations of Project Construction Site, Construction Emissions Sources, Off-Site Sensitive Receptors, and Maximum TAC Impact

Community Health Risk from Project Operation

Health risks associated with project operation are typically associated with proposed new stationary sources of emissions (i.e., diesel-powered emergency generator(s)) and increases in vehicle traffic to and from the site, in particular heavy-duty diesel truck traffic. The project would not include any new stationary sources of pollution. Therefore, the only potential new emissions sources associated with operation of the project would be from vehicle traffic increases to and from the site.

The traffic study prepared for the proposed project estimated the number of new trips generated by the project to be approximately 903, based on ITE trip generation rates and the size of the new

land uses proposed.[18] This estimate was not adjusted to account for this project being an addition/expansion to an existing facility, one that is already generating trips to the area. Additionally, the majority of the new daily trips estimated for the project (88%) are assigned to the manufacturing and office functions of the project. The majority of these trips would be employee-generated resulting in emissions from light-duty gasoline vehicles or, potentially, electric vehicles. Therefore, the amount of DPM and/or $PM_{2.5}$ emissions from these trips would be negligible when compared to the volume of traffic using nearby Lakeville Highway. As a result, health risks associated with the project-related traffic increases would also be negligible.

Additionally, all outgoing shipping is already present on-site, as part of the existing distribution center adjacent to the northeast portion of the project site. There are approximately 10 to 15 heavy-duty trucks that deliver materials to the existing facility. The proposed project would not increase the number of these trips. Once completed, this project will reduce the number of outgoing truck trips between this facility and other facilities (i.e., product transfers) by between 60% to 80%.[19] Therefore, there is a possibility the project would reduce heavy-duty truck trips to-and-from the facility. The truck trips to and from the project are considered part of the impacts associated with Lakeville Highway and are not a significant source of DPM or $PM_{2.5}$.

For the reasons described above, health risks associated with operation of the project are estimated to be negligible compared to the risks associated with project construction and those associated with existing sources of TAC pollution in the area. Thus, project health risks are equal to those of project construction.

Cumulative Community Risks of all TAC Sources at the Offsite Project MEI

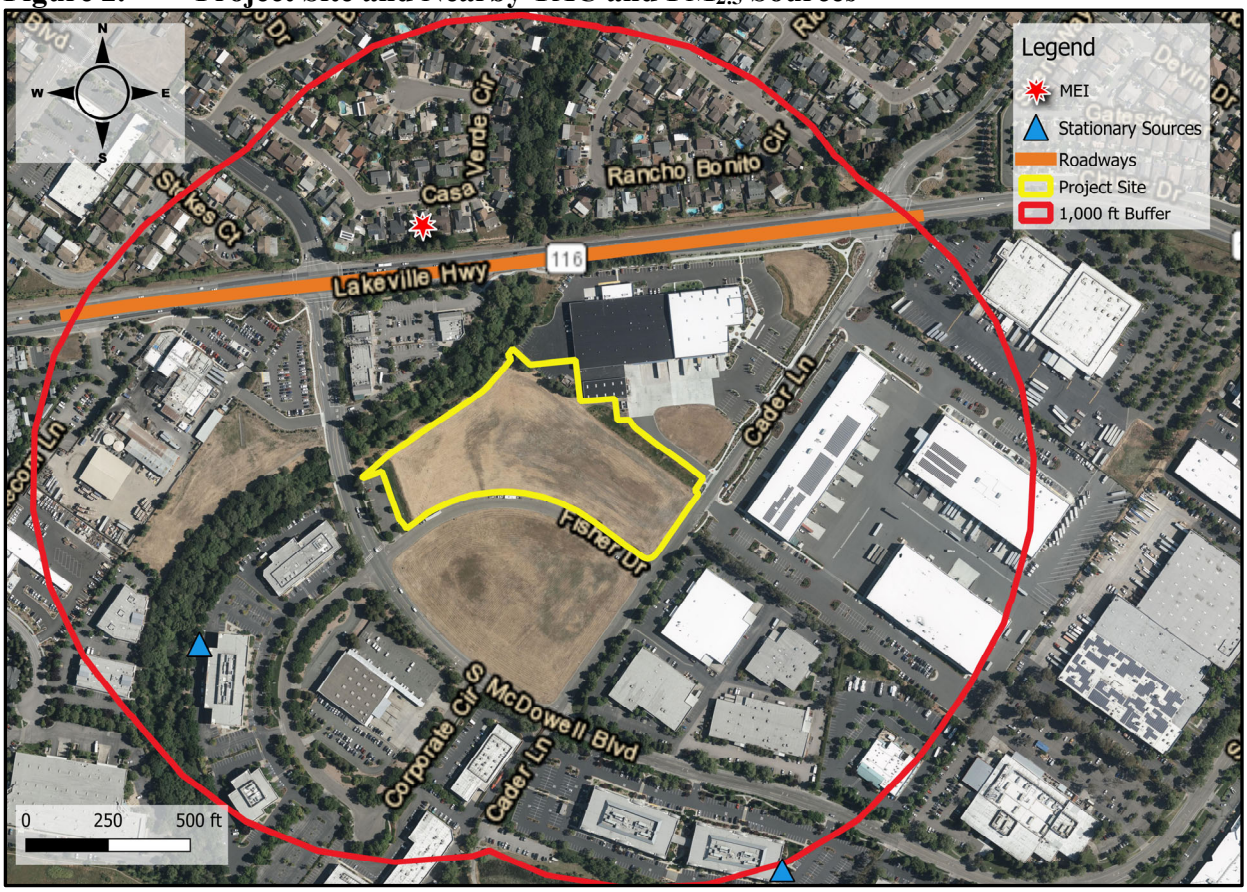
Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of a project site (i.e., influence area). These sources include rail lines, highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the provided traffic information indicated that Lakeville Highway (i.e., State Route 116) exceeds 10,000 vehicles per day. Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicle per day is considered a low-impact source of TACs and do not need to be considered in the CEQA analysis.[20]

A review of BAAQMD's stationary source geographic information systems (GIS) map tool identified two (2) stationary sources with the potential to affect the MEI. Figure 2 shows the project area included within the influence area and the location of the MEI. Community risk impacts from these sources upon the MEI are reported in Table 7. Details of the cumulative risk analysis are included in *Attachment 5.*

[18] TJKM. 2022. *Labcon North America Warehouse Addition -Draft Traffic Impact Analysis Report* . June 29.
[19] Per email correspondence between Labcon (Jim Happ) and Greg LeDoux & Associates, Inc., July 18, 2022.
[20] 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

Figure 2. Project Site and Nearby TAC and $PM_{2.5}$ Sources

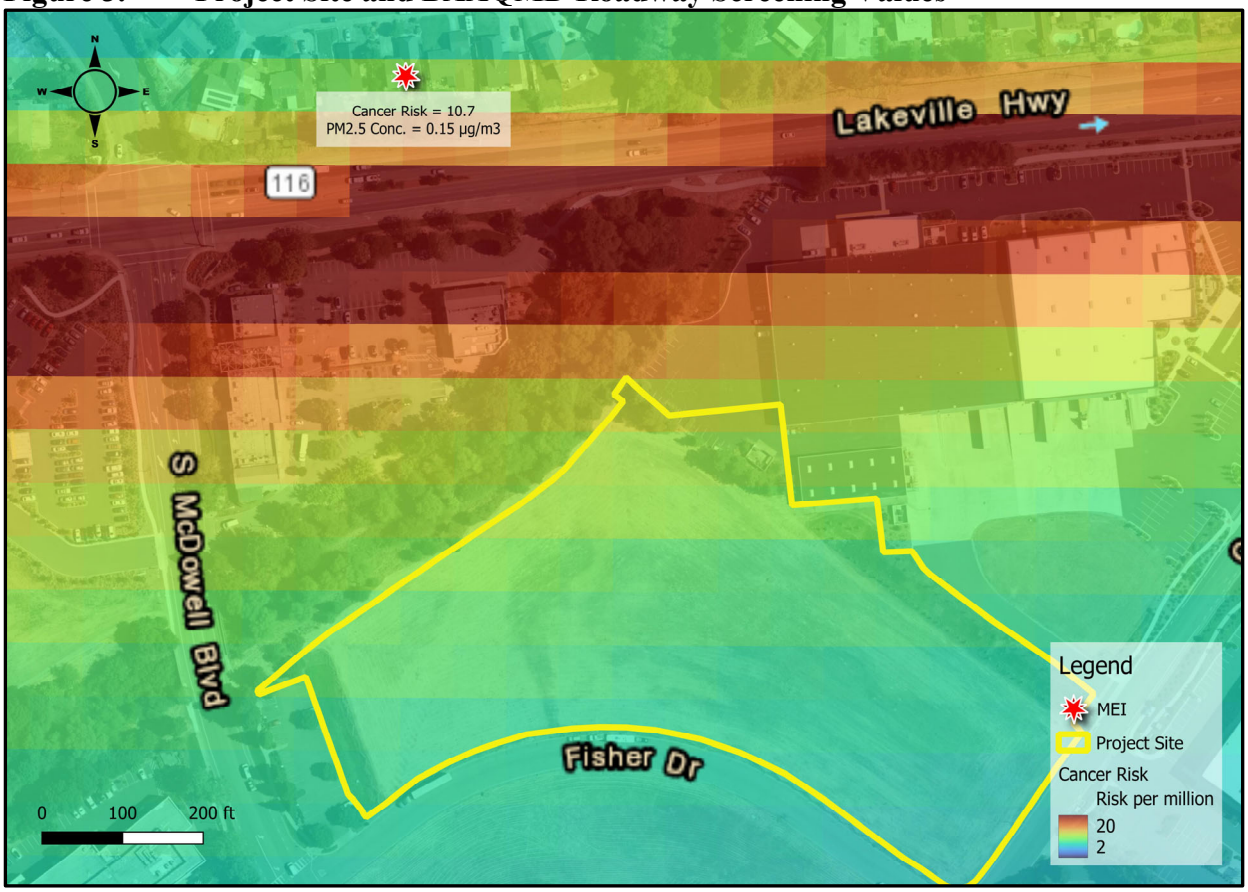


Cancer Risk and $PM_{2.5}$ Concentrations from Local Roadways

Cancer risk and $PM_{2.5}$ concentrations associated with traffic on Lakeville Highway was estimated using BAAQMD raster files. Historically, BAAQMD has provided GIS raster files with cancer risk and $PM_{2.5}$ concentrations for interstates, highways, and major roadways within the Bay Area. The values provided by the raster files were produced using AERMOD and 20x20-meter grid cells. Figure 3 shows the applicable areas of BAAQMD's raster roadway files.

The BAAQMD raster files were used to screen the cancer and $PM_{2.5}$ risks at the project's construction MEI and the screening levels are listed in Table 7. At the construction MEI, the increased cancer risk from Lakeville Highway would be 10.7 per million and the $PM_{2.5}$ concentration would be 0.15 $\mu g/m^3$. Note that these values are not adjusted for age sensitivity or exposure duration and are conservatively higher than values that would be obtained with refined modeling methods. Additionally, BAAQMD has found HI values to be minimal, and therefore not provided by their regional modeling.

Figure 3. Project Site and BAAQMD Roadway Screening Values



BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2020* GIS website,[21] which identifies the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Two sources were identified using this tool, both are diesel-fueled emergency power generators. The risk values provided by the website were adjusted for distance using the appropriate BAAQMD *Distance Multiplier Tool for Diesel Internal Combustion Engines*. Community risk impacts from the stationary sources upon the MEI are reported in Table 7. The distance adjustments and website report are provided in *Attachment 5*.

Summary of Cumulative Health Risk Impact at Construction MEI

Table 7 reports both the unmitigated project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEI). The project would not exceed the BAAQMD single-source thresholds for cancer risk, annual $PM_{2.5}$ concentration, and HI. Additionally, the cumulative impact of the project considering existing sources of DPM and $PM_{2.5}$ would not exceed the BAAQMD cumulative source thresholds. Thus, the health risk impacts associated with the proposed project are estimated to be less-than-significant.

[21] BAAQMD, https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Table 7. Impacts from Combined Sources at Project MEI

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction Impacts			
Project Construction Unmitigated	2.20 (infant)	0.05	<0.01
BAAQMD Single-Source Threshold	***10***	***0.3***	***1.0***
Exceed Single Source Threshold? Unmitigated	*No*	*No*	*No*
Cumulative Impacts			
Lakeville Highway (BAAQMD Raster Data)	10.7	0.15	NA
Facility 19465 (Generator)	5.02	<0.01	0.01
Facility 23958 (Generator)	<0.01	NA	NA
Cumulative Total Unmitigated	17.93	0.21	<0.02
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Cumulative Source Threshold? Unmitigated	*No*	*No*	*No*

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).[22] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission

[22] 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

inventory on an annual basis where the latest inventory includes 2000 through 2019 emissions.[23] In 2019, GHG emissions from statewide emitting activities were 418.2 MMT CO_2e. The 2019 emissions have decreased by 30 percent since peak levels in 2007 and are 7.2 MMT CO_2e lower than 2018 emissions level and almost 13 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 14.0 MT CO_2e per person to 10.5 MT CO_2e per person in 2019.

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 80 percent below 1990 levels.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State's main strategies to reduce GHGs from business-as-usual emissions projected in 2020 back down to 1990 levels. Business-as-usual (BAU) is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

[23] 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

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*.[24] 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.
- 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 draft Scoping Plan Update was published on May 10, 2022 and, once final, will lay out how the state can get to carbon neutrality by 2045 or earlier. It is also the first Scoping Plan that adds carbon neutrality as a science-based guide and touchstone beyond statutorily established emission reduction targets.[25]

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 Draft 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 draft 2022 Scoping Plan, CARB recommends:

[24] 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

[25] https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

- 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.

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. The Draft 2022 Scoping Plan Update addresses EO B-55-18 and would cost-effectively achieve carbon-neutrality by 2045 or earlier.

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 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., Association of Bay Area Governments [ABAG] and Metropolitan Transportation Commission [MTC]) to align their regional transportation, housing, and land use plans to reduce vehicle miles traveled 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.

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.[26] 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 (2019 California Building Standard Code) was effective as of January 1, 2020.

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 (2019 Energy Code) replaced the 2016 Energy Code as of January 1, 2020. 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.[27]

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.[28] 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.

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations and are regularly updated on a 3-year cycle. 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 2. The CalGreen standards have recently been

[26] 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.
[27] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf
[28] California Energy Commission. 2021. F*inal Commission Report: California Building Decarbonization Assessment. Publication Number CEC-400-2021-006-CMF*.August

updated (2022 version) to 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 and the actual installation of EV chargers. The 2022 CALGreen standards 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.

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.*

Petaluma Vehicle Miles Traveled CEQA Threshold

The City of Petaluma identifies VMT significance criteria in the *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines*[30], dated July 2021, indicating that a significant traffic VMT impact may occur at residential developments if a project's total home-based VMT per resident exceeds 16.8 percent below the citywide average. The current Citywide home-based VMT per capita is 19.3 miles, which translates to a significance threshold of 18.9 VMT per capita.

City of Petaluma General Plan 2025

The City of Petaluma General Plan 2025 includes policies and programs to reduce exposure of the City's sensitive population to exposure of air pollution, TACs, and GHG emissions. The following policies and programs are applicable to the proposed project:

4-P-15 Improve air quality by reducing emissions from stationary point sources of air pollution (e.g., equipment at commercial and industrial facilities) and stationary area sources (e.g., wood-burning fireplaces & gas-powered lawn mowers) which cumulatively emit large quantities of emissions.

[29] Governor's Office of Planning and Research. 2018. *Technical Advisory on Evaluating Transportation Impacts in CEQA*. December.
[30] Fehr & Peers. 2021. *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines.* July. See: https://cityofpetaluma.org/documents/vmt-tac-staff-report-and-attachments-8-3-21/

D. Continue to work with the Bay Area Air Quality Management District to achieve emissions reductions for non-attainment pollutants; including carbon monoxide, ozone, and PM10, by implementation of air pollution control measures as required by State and federal statutes. The BAAQMD's CEQA Guidelines should be used as the foundation for the City's review of air quality impacts under CEQA.

E. Continue to use Petaluma's development review process and the CEQA regulations to evaluate and mitigate the local and cumulative effects of new development on air quality.

F. Continue to require development projects to abide by the standard construction dust abatement measures included in BAAQMD's CEQA Guidelines. These measures would reduce exhaust and particulate emissions from construction and grading activities.

D. Reduce emissions from residential and commercial uses by requiring the following:

- Use of high efficiency heating and other appliances, such as cooking equipment, refrigerators, and furnaces, and low NOx water heaters in new and existing residential units;
- Compliance with or exceed requirements of CCR Title 24 for new residential and commercial buildings;
- Incorporation of passive solar building design and landscaping conducive to passive solar energy use for both residential and commercial uses, i.e., building orientation in a south to southeast direction, encourage planting of deciduous trees on west sides of structures, landscaping with drought resistant species, and use of groundcovers rather than pavement to reduce heat reflection;
- Encourage the use of battery-powered, electric, or other similar equipment that does not impact local air quality for nonresidential maintenance activities;
- Provide natural gas hookups to fireplaces or require residential use of EPA-certified wood stoves, pellet stoves, or fireplace inserts. Current building code standards generally ban the installation of open-hearth, wood burning fireplaces and wood stoves in new construction. It does, however, allow for the use of low-polluting wood stoves and inserts in fireplaces approved by the federal Environmental Protection Agency, as well as fireplaces fueled by natural gas.

4-P-24 Comply with AB 32 and its governing regulations to the full extent of the City's jurisdictional authority.

4-P-25 To the full extent of the City's jurisdictional authority, implement any additional adopted State legislative or regulatory standards, policies and practices designed to reduce greenhouse gas emissions, as those measures are developed.

4-P-26 Implement all measures identified in the municipal Climate Action Plan to meet the municipal target set in Resolution 2005-118 (20% below 2000 levels by 2010).

4-P-30 Continue to monitor new technology and innovative sustainable design practices for applicability to ensure future development minimizes or eliminates the use of fossil fuel and GHG-emitting energy consumption.

City of Petaluma Greenhouse Gas Emissions Reduction Action Plan

The City of Petaluma's Greenhouse Gas Emissions Reduction Action Plan addresses emissions from municipal government activities and sources per Resolution 2002-117. The purpose of the plan is to identify and prioritize programs, projects, and procedural policies that will help the City government achieve the municipal GHG emission goals of Resolution 2005-118 by more than 20 percent below 2000 levels by 2015. The plan does not apply to land development projects.

The Sonoma County Regional Climate Action Plan, developed in 2016, includes 2020 GHG emission reduction measures for Petaluma.[31] This plan is an advisory document that the City uses to assist in achieving reduction of GHG emissions. Development projects within the City of Petaluma are encouraged to comply with the intent of the Climate Action Plan and realize GHG reductions through voluntary application of reduction measures. The reduction measures are categorized by goals for State and Regional Measures and then by Local Measures. Under a Business-as-Usual (BAU) scenario, emissions in Petaluma would be 542,970 metric tons (MT) in 2020. State measures (e.g., vehicle reduction, cap and trade, renewable portfolios) would reduce these emissions by 119,660 MT. Regional measures are anticipated to reduce emissions by another 28,200 MT and Local Measures would reduce emissions by 18,490 MT. These emissions would be 31 percent below BAU projection and below estimated 1990 emission of 387,020 MT.

Petaluma Climate Action Framework

Adopted on August 5, 2019, the City of Petaluma's Climate Action Framework outlines the principles that guide the City's ongoing response to and discussion about the climate crisis. Based on four sections, the framework will guide the City as it works to avoid catastrophic climate change and adapt to its expected impacts. The Framework is the foundation for engagement and further input, but none of the actions proposed commit the City to a specific action nor does anything in the Framework amend any existing City legislation or regulation.

The following goals and action items from the City of Petaluma's Climate Action Framework are applicable to this project:

Mitigation and Sequestration Goals

- Develop a Climate Action Plan outlining the actions the City will take to achieve its climate goals.
- Eliminate emissions from the building sector through zero-emissions new construction (emissions embedded in materials and those emitted during construction and operation), building retrofits, appliance replacements, and use of renewable generated clean electricity.

[31] Sonoma County Regional Climate Protection Authority. 2016. *Climate Action 2020 and Beyond*. July.

- Reduce consumption emissions to the level necessary to meet our overall climate goals.

Mitigation and Sequestration Action Items

- Mandate all-electric new construction to eliminate fossil fuel use in new buildings.
- Require all new construction, additions, and major rehab projects to use low-embodied carbon materials, starting with concrete.

BAAQMD GHG Significance Thresholds

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 following framework is how BAAQMD will determine GHG significance moving forward.[32] Note BAAQMD intends that the thresholds apply to projects that begin the CEQA process after adoption of the thresholds, unless otherwise directed by the lead agency. The new 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) 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:
         1. Residential Projects: 15 percent (16.8 percent in Petaluma) below the existing VMT per capita
         2. Office Projects: 15 percent (16.8 percent in Petaluma) 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).

[32] Justification Report: BAAQMD CEQA Thresholds for Evaluating the Significance of Climate Impacts from Land Use Project and Plans. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en

Any new land use project would have to include either section A or B from the above list, not both, to be considered in compliance with BAAQMD's GHG thresholds of significance. The City of Petaluma has not adopted a GHG reduction strategy that meets the CEQA. Therefore, the project must comply with A above to be considered a less-than-significant impact.

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

The proposed building would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures, water-efficient irrigation systems, and compliance with current energy efficacy standards. The Project is evaluated against each of the section A BAAQMD GHG thresholds that apply:

Buildings:

i. The project will not include natural gas appliances or natural gas plumbing (in both residential and non-residential development).

Project Conforms – compliance with City Reach Code prohibits natural gas infrastructure in new buildings.

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.

Project Conforms – the Project would meet CALGreen Building Standards Code requirements that are considered to be energy efficient.

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) or meet a locally adopted Senate Bill 743 VMT target.

Project Conforms – The City of Petaluma has a VMT analysis methodology and threshold that meets SB 743 targets. The traffic analysis provided by the applicant included a conforming VMT analysis.[33] The project TAZ, located in the southeastern portion of the City south of Lakeville Highway, is considered a low-VMT area. Based on screening criteria adopted by the City of Petaluma, the project would have a less-than significant impact on VMT. Therefore, this part of the threshold has been met.

ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

Project Conforms – The Project would include electric vehicle charging infrastructure that meets or exceeds current Building Code CALGreen Tier 2 compliance.

[33] TJKM. 2022. *Labcon North America Warehouse Addition - Traffic Impact Analysis Report* . September 28.

Because the project would meet the BAAQMD GHG thresholds, it is considered to have less-than-significant GHG emissions impacts.

Supporting Documentation

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

Attachment 2 includes the CalEEMod output for project construction and operational emissions and any modeling assumptions.

Attachment 3 includes the EMFAC2021 emissions modeling. The input files for these calculations are voluminous and are available upon request in digital format.

Attachment 4 is the construction health risk assessment. This includes pollutant concentration produced from the dispersion modeling and the cancer risk calculations for construction. AERMOD dispersion modeling files for this assessment, which are quite voluminous, are available upon request and would be provided in digital format

Attachment 5 includes the cumulative community risk information used for the analysis.

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 as follows:

Parameter	***Exposure Type →***	**Infant**		**Child**	**Adult**
	Age Range →	**3rd Trimester**	**0<2**	**2 < 16**	**16 - 30**
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
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.					

Non-Cancer Hazards

Non-cancer health risk is 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 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

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Labcon Epansion - Petaluma

Sonoma-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	79.76	1000sqft	7.40	79,761.00	0
Parking Lot	288.00	Space	0.00	115,200.00	0
Unrefrigerated Warehouse-No Rail	60.26	1000sqft	0.00	60,261.00	0
General Office Building	32.84	1000sqft	0.00	32,836.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	75
Climate Zone	4			**Operational Year**	2025
Utility Company	Sonoma Clean Power				
CO2 Intensity (lb/MWhr)	119.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Based on default data

Land Use - Per site plan and traft traffic study. Estimated site acres to be 7.4 using Google earth.

Construction Phase - Based on construction data sheet provided by client

Off-road Equipment - Based on data sheet provided by client

Off-road Equipment - Based on data provided by client

Off-road Equipment -

Off-road Equipment - Based on data provided by the client

Off-road Equipment - Based on data provided by the client

Grading - Default + data provided by the client

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Off-road Equipment - Based on data provided by the client

Off-road Equipment - Based on data provided by the client

Demolition - Estimated using Google earth

Trips and VMT - Concrete deliveries = 360 (720 total trips). Asphalt = 2100 CY, 10 CY per delivery = 210 deliveries * 2 trips per = 420 asphalt trips.

Vehicle Trips - Based on default ratios and trip gen from draft traffic study

Vehicle Emission Factors - From EMFAC2021 to CalEEMod 2020 tool

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix - Based on VMT, EMFAC2021 activity.

Road Dust - Based on major/collector roadways - CT-EMFAC2017

Water And Wastewater - 100% municiple WWTP

Stationary Sources - Emergency Generators and Fire Pumps - No diesel powered equipment planned for the project per client

Construction Off-road Equipment Mitigation - Basic dust BMPs w/ T4i emissions controls

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	12.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim

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tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	20.00	90.00
tblConstructionPhase	NumDays	230.00	50.00
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	PhaseEndDate	9/20/2024	12/27/2024
tblConstructionPhase	PhaseEndDate	7/26/2024	11/17/2023
tblConstructionPhase	PhaseEndDate	9/8/2023	9/22/2023
tblConstructionPhase	PhaseEndDate	8/23/2024	8/2/2024
tblConstructionPhase	PhaseEndDate	8/11/2023	8/18/2023
tblFleetMix	HHD	6.6260e-003	0.02
tblFleetMix	HHD	6.6260e-003	0.02
tblFleetMix	HHD	6.6260e-003	0.02
tblFleetMix	HHD	6.6260e-003	0.02
tblFleetMix	LDA	0.55	0.50
tblFleetMix	LDA	0.55	0.50
tblFleetMix	LDA	0.55	0.50

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblFleetMix	LDA	0.55	0.50
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT1	0.06	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD1	0.03	0.04
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	LHD2	8.6190e-003	0.01
tblFleetMix	MCY	0.03	4.3220e-003
tblFleetMix	MCY	0.03	4.3220e-003
tblFleetMix	MCY	0.03	4.3220e-003
tblFleetMix	MCY	0.03	4.3220e-003
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MH	4.1400e-003	1.1230e-003
tblFleetMix	MH	4.1400e-003	1.1230e-003
tblFleetMix	MH	4.1400e-003	1.1230e-003
tblFleetMix	MH	4.1400e-003	1.1230e-003

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tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	MHD	0.01	0.02
tblFleetMix	OBUS	1.0950e-003	1.8070e-003
tblFleetMix	OBUS	1.0950e-003	1.8070e-003
tblFleetMix	OBUS	1.0950e-003	1.8070e-003
tblFleetMix	OBUS	1.0950e-003	1.8070e-003
tblFleetMix	SBUS	1.5400e-003	1.2000e-003
tblFleetMix	SBUS	1.5400e-003	1.2000e-003
tblFleetMix	SBUS	1.5400e-003	1.2000e-003
tblFleetMix	SBUS	1.5400e-003	1.2000e-003
tblFleetMix	UBUS	2.9300e-004	1.3500e-003
tblFleetMix	UBUS	2.9300e-004	1.3500e-003
tblFleetMix	UBUS	2.9300e-004	1.3500e-003
tblFleetMix	UBUS	2.9300e-004	1.3500e-003
tblGrading	MaterialImported	0.00	13,500.00
tblGrading	MaterialImported	0.00	13,500.00
tblLandUse	LotAcreage	1.83	7.40
tblLandUse	LotAcreage	2.59	0.00
tblLandUse	LotAcreage	1.38	0.00
tblLandUse	LotAcreage	0.75	0.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.41	0.41
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.31	0.31
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes

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tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Aerial Lifts
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	2.80
tblOffRoadEquipment	UsageHours	8.00	6.40
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	8.00	4.80
tblOffRoadEquipment	UsageHours	7.00	4.20
tblRoadDust	RoadSiltLoading	0.1	0.032
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripNumber	29.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,688.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,688.00	0.00
tblTripsAndVMT	VendorTripNumber	47.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

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tblTripsAndVMT	WorkerTripNumber	118.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	24.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleEF	HHD	0.02	0.23
tblVehicleEF	HHD	0.04	0.08
tblVehicleEF	HHD	5.37	4.38
tblVehicleEF	HHD	0.44	0.74
tblVehicleEF	HHD	0.01	1.4220e-003
tblVehicleEF	HHD	889.96	713.42
tblVehicleEF	HHD	1,418.69	1,693.64
tblVehicleEF	HHD	0.15	0.05
tblVehicleEF	HHD	0.14	0.12
tblVehicleEF	HHD	0.22	0.27
tblVehicleEF	HHD	1.8000e-005	2.7000e-005
tblVehicleEF	HHD	4.78	3.58
tblVehicleEF	HHD	2.81	2.15
tblVehicleEF	HHD	2.81	2.79
tblVehicleEF	HHD	2.8640e-003	2.8060e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	2.7400e-003	2.6780e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	8.4860e-003	8.4000e-003
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	8.0000e-006	4.0500e-004
tblVehicleEF	HHD	4.2000e-004	1.1500e-004
tblVehicleEF	HHD	0.37	0.27

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tblVehicleEF	HHD	4.0000e-006	0.00
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	2.5600e-004	1.0550e-003
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.3010e-003	6.0930e-003
tblVehicleEF	HHD	0.01	0.02
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	HHD	8.0000e-006	4.0500e-004
tblVehicleEF	HHD	4.2000e-004	1.1500e-004
tblVehicleEF	HHD	0.42	0.53
tblVehicleEF	HHD	4.0000e-006	0.00
tblVehicleEF	HHD	0.08	0.11
tblVehicleEF	HHD	2.5600e-004	1.0550e-003
tblVehicleEF	HHD	2.0000e-006	0.00
tblVehicleEF	LDA	1.9810e-003	2.0910e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.55	0.67
tblVehicleEF	LDA	2.13	3.08
tblVehicleEF	LDA	236.61	253.42
tblVehicleEF	LDA	49.40	66.69
tblVehicleEF	LDA	4.3200e-003	4.3980e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.03	0.04
tblVehicleEF	LDA	0.17	0.24
tblVehicleEF	LDA	0.04	8.3920e-003
tblVehicleEF	LDA	1.4600e-003	1.2330e-003
tblVehicleEF	LDA	1.7030e-003	1.9350e-003
tblVehicleEF	LDA	0.02	2.9370e-003
tblVehicleEF	LDA	1.3460e-003	1.1360e-003

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tblVehicleEF	LDA	1.5660e-003	1.7800e-003
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	7.6710e-003	8.0660e-003
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.20	0.31
tblVehicleEF	LDA	2.3400e-003	2.4300e-003
tblVehicleEF	LDA	4.8900e-004	6.4000e-004
tblVehicleEF	LDA	0.04	0.30
tblVehicleEF	LDA	0.10	0.09
tblVehicleEF	LDA	0.03	0.00
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.22	0.34
tblVehicleEF	LDT1	5.3460e-003	7.5200e-003
tblVehicleEF	LDT1	0.07	0.12
tblVehicleEF	LDT1	1.11	1.66
tblVehicleEF	LDT1	2.44	6.46
tblVehicleEF	LDT1	290.80	336.42
tblVehicleEF	LDT1	62.26	92.13
tblVehicleEF	LDT1	7.5950e-003	0.01
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.10	0.16
tblVehicleEF	LDT1	0.27	0.45
tblVehicleEF	LDT1	0.04	0.01
tblVehicleEF	LDT1	1.9860e-003	2.2150e-003
tblVehicleEF	LDT1	2.3830e-003	3.2380e-003
tblVehicleEF	LDT1	0.02	3.7600e-003

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tblVehicleEF	LDT1	1.8290e-003	2.0400e-003
tblVehicleEF	LDT1	2.1910e-003	2.9770e-003
tblVehicleEF	LDT1	0.11	0.75
tblVehicleEF	LDT1	0.24	0.21
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.13	0.61
tblVehicleEF	LDT1	0.38	0.66
tblVehicleEF	LDT1	2.8780e-003	3.2260e-003
tblVehicleEF	LDT1	6.1600e-004	8.8400e-004
tblVehicleEF	LDT1	0.11	0.75
tblVehicleEF	LDT1	0.24	0.21
tblVehicleEF	LDT1	0.09	0.00
tblVehicleEF	LDT1	0.03	0.05
tblVehicleEF	LDT1	0.13	0.61
tblVehicleEF	LDT1	0.41	0.73
tblVehicleEF	LDT2	3.5280e-003	2.9730e-003
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.81	0.86
tblVehicleEF	LDT2	2.78	3.90
tblVehicleEF	LDT2	305.45	341.05
tblVehicleEF	LDT2	65.56	89.08
tblVehicleEF	LDT2	6.3450e-003	6.3340e-003
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	0.27	0.35
tblVehicleEF	LDT2	0.04	0.01
tblVehicleEF	LDT2	1.5000e-003	1.3900e-003
tblVehicleEF	LDT2	1.7710e-003	2.1380e-003

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tblVehicleEF	LDT2	0.02	3.5700e-003
tblVehicleEF	LDT2	1.3810e-003	1.2790e-003
tblVehicleEF	LDT2	1.6280e-003	1.9660e-003
tblVehicleEF	LDT2	0.07	0.33
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.08	0.25
tblVehicleEF	LDT2	0.32	0.41
tblVehicleEF	LDT2	3.0220e-003	3.2700e-003
tblVehicleEF	LDT2	6.4900e-004	8.5400e-004
tblVehicleEF	LDT2	0.07	0.33
tblVehicleEF	LDT2	0.15	0.09
tblVehicleEF	LDT2	0.06	0.00
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.08	0.25
tblVehicleEF	LDT2	0.35	0.44
tblVehicleEF	LHD1	4.0030e-003	4.4210e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	0.16	0.17
tblVehicleEF	LHD1	1.12	0.98
tblVehicleEF	LHD1	0.93	1.72
tblVehicleEF	LHD1	9.51	9.26
tblVehicleEF	LHD1	751.80	766.70
tblVehicleEF	LHD1	9.25	14.33
tblVehicleEF	LHD1	9.7400e-004	8.7400e-004
tblVehicleEF	LHD1	0.06	0.06
tblVehicleEF	LHD1	0.02	0.03

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tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.53	1.21
tblVehicleEF	LHD1	0.26	0.36
tblVehicleEF	LHD1	1.1400e-003	1.0060e-003
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.9340e-003
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	2.4400e-004	2.0900e-004
tblVehicleEF	LHD1	1.0900e-003	9.6300e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5560e-003	2.4840e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	2.2400e-004	1.9200e-004
tblVehicleEF	LHD1	2.0910e-003	0.12
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0320e-003	0.00
tblVehicleEF	LHD1	0.14	0.13
tblVehicleEF	LHD1	0.33	0.17
tblVehicleEF	LHD1	0.07	0.10
tblVehicleEF	LHD1	9.2000e-005	9.0000e-005
tblVehicleEF	LHD1	7.3020e-003	7.4520e-003
tblVehicleEF	LHD1	9.2000e-005	1.4200e-004
tblVehicleEF	LHD1	2.0910e-003	0.12
tblVehicleEF	LHD1	0.09	0.03
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0320e-003	0.00
tblVehicleEF	LHD1	0.17	0.16
tblVehicleEF	LHD1	0.33	0.17

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tblVehicleEF	LHD1	0.08	0.11
tblVehicleEF	LHD2	2.8120e-003	2.9950e-003
tblVehicleEF	LHD2	7.6000e-003	7.2940e-003
tblVehicleEF	LHD2	7.6030e-003	0.01
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.75	0.59
tblVehicleEF	LHD2	0.52	1.08
tblVehicleEF	LHD2	14.77	14.31
tblVehicleEF	LHD2	761.89	837.07
tblVehicleEF	LHD2	6.68	8.92
tblVehicleEF	LHD2	1.9280e-003	1.8160e-003
tblVehicleEF	LHD2	0.07	0.09
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.12	0.11
tblVehicleEF	LHD2	1.29	1.08
tblVehicleEF	LHD2	0.17	0.22
tblVehicleEF	LHD2	1.5310e-003	1.4430e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	1.0500e-004	7.8000e-005
tblVehicleEF	LHD2	1.4640e-003	1.3810e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7280e-003	2.6850e-003
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	9.6000e-005	7.2000e-005
tblVehicleEF	LHD2	8.7700e-004	0.05
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02

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tblVehicleEF	LHD2	4.8300e-004	0.00
tblVehicleEF	LHD2	0.13	0.13
tblVehicleEF	LHD2	0.10	0.07
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	1.4100e-004	1.3700e-004
tblVehicleEF	LHD2	7.3400e-003	8.0570e-003
tblVehicleEF	LHD2	6.6000e-005	8.8000e-005
tblVehicleEF	LHD2	8.7700e-004	0.05
tblVehicleEF	LHD2	0.04	0.01
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	4.8300e-004	0.00
tblVehicleEF	LHD2	0.15	0.15
tblVehicleEF	LHD2	0.10	0.07
tblVehicleEF	LHD2	0.04	0.06
tblVehicleEF	MCY	0.36	0.20
tblVehicleEF	MCY	0.27	0.22
tblVehicleEF	MCY	21.08	15.51
tblVehicleEF	MCY	9.22	8.77
tblVehicleEF	MCY	217.51	191.52
tblVehicleEF	MCY	63.10	55.33
tblVehicleEF	MCY	0.07	0.04
tblVehicleEF	MCY	0.02	9.7380e-003
tblVehicleEF	MCY	1.19	0.67
tblVehicleEF	MCY	0.28	0.17
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	2.1620e-003	1.9900e-003
tblVehicleEF	MCY	3.1630e-003	3.6490e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	2.0240e-003	1.8650e-003

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tblVehicleEF	MCY	2.9820e-003	3.4400e-003
tblVehicleEF	MCY	0.91	4.85
tblVehicleEF	MCY	0.87	3.55
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	2.47	1.34
tblVehicleEF	MCY	0.76	3.92
tblVehicleEF	MCY	2.06	1.65
tblVehicleEF	MCY	2.1520e-003	1.8930e-003
tblVehicleEF	MCY	6.2400e-004	5.4700e-004
tblVehicleEF	MCY	0.91	0.14
tblVehicleEF	MCY	0.87	3.55
tblVehicleEF	MCY	0.48	0.00
tblVehicleEF	MCY	3.03	1.59
tblVehicleEF	MCY	0.76	3.92
tblVehicleEF	MCY	2.24	1.79
tblVehicleEF	MDV	4.0540e-003	3.8170e-003
tblVehicleEF	MDV	0.08	0.11
tblVehicleEF	MDV	0.86	0.97
tblVehicleEF	MDV	3.16	4.31
tblVehicleEF	MDV	376.28	416.15
tblVehicleEF	MDV	80.13	107.77
tblVehicleEF	MDV	8.4830e-003	8.9640e-003
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.33	0.46
tblVehicleEF	MDV	0.04	0.01
tblVehicleEF	MDV	1.5660e-003	1.4930e-003
tblVehicleEF	MDV	1.8520e-003	2.2190e-003
tblVehicleEF	MDV	0.02	3.6540e-003

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tblVehicleEF	MDV	1.4460e-003	1.3790e-003
tblVehicleEF	MDV	1.7030e-003	2.0410e-003
tblVehicleEF	MDV	0.08	0.43
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.08	0.00
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.09	0.33
tblVehicleEF	MDV	0.40	0.55
tblVehicleEF	MDV	3.7190e-003	3.9870e-003
tblVehicleEF	MDV	7.9300e-004	1.0330e-003
tblVehicleEF	MDV	0.08	0.43
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.08	0.00
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.09	0.33
tblVehicleEF	MDV	0.44	0.60
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.25	1.10
tblVehicleEF	MH	2.00	2.26
tblVehicleEF	MH	1,505.95	1,637.06
tblVehicleEF	MH	17.37	20.60
tblVehicleEF	MH	0.07	0.08
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.85	1.92
tblVehicleEF	MH	0.24	0.29
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.04	0.05

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tblVehicleEF	MH	2.4500e-004	2.6700e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.3210e-003	3.3570e-003
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	2.2500e-004	2.4600e-004
tblVehicleEF	MH	0.68	32.01
tblVehicleEF	MH	0.06	8.17
tblVehicleEF	MH	0.25	0.00
tblVehicleEF	MH	0.09	0.09
tblVehicleEF	MH	0.02	0.20
tblVehicleEF	MH	0.09	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	1.7200e-004	2.0400e-004
tblVehicleEF	MH	0.68	32.01
tblVehicleEF	MH	0.06	8.17
tblVehicleEF	MH	0.25	0.00
tblVehicleEF	MH	0.11	0.11
tblVehicleEF	MH	0.02	0.20
tblVehicleEF	MH	0.10	0.12
tblVehicleEF	MHD	2.3490e-003	0.01
tblVehicleEF	MHD	1.5330e-003	7.8020e-003
tblVehicleEF	MHD	6.4340e-003	7.2390e-003
tblVehicleEF	MHD	0.33	0.67
tblVehicleEF	MHD	0.22	0.25
tblVehicleEF	MHD	0.80	0.86
tblVehicleEF	MHD	68.68	162.53
tblVehicleEF	MHD	1,026.30	1,198.76
tblVehicleEF	MHD	6.19	7.30
tblVehicleEF	MHD	0.01	0.03

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tblVehicleEF	MHD	0.14	0.16
tblVehicleEF	MHD	4.5760e-003	5.1370e-003
tblVehicleEF	MHD	0.39	0.84
tblVehicleEF	MHD	1.57	0.91
tblVehicleEF	MHD	1.85	1.48
tblVehicleEF	MHD	2.9900e-004	1.6130e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	7.8810e-003	9.8580e-003
tblVehicleEF	MHD	8.2000e-005	9.3000e-005
tblVehicleEF	MHD	2.8600e-004	1.5430e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	7.5360e-003	9.4250e-003
tblVehicleEF	MHD	7.5000e-005	8.6000e-005
tblVehicleEF	MHD	3.2600e-004	0.02
tblVehicleEF	MHD	0.02	4.8460e-003
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	6.5100e-004	1.5150e-003
tblVehicleEF	MHD	9.7500e-003	0.01
tblVehicleEF	MHD	6.1000e-005	7.2000e-005
tblVehicleEF	MHD	3.2600e-004	0.02
tblVehicleEF	MHD	0.02	4.8460e-003
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	1.6800e-004	0.00
tblVehicleEF	MHD	0.02	0.04
tblVehicleEF	MHD	0.02	0.04

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tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	OBUS	7.1450e-003	8.2470e-003
tblVehicleEF	OBUS	4.5070e-003	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.65	0.62
tblVehicleEF	OBUS	0.54	0.65
tblVehicleEF	OBUS	2.11	2.49
tblVehicleEF	OBUS	102.51	95.04
tblVehicleEF	OBUS	1,312.38	1,493.67
tblVehicleEF	OBUS	15.81	19.01
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.13	0.15
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.43	0.39
tblVehicleEF	OBUS	1.51	1.13
tblVehicleEF	OBUS	1.10	0.89
tblVehicleEF	OBUS	1.4200e-004	4.2400e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	7.9840e-003	0.02
tblVehicleEF	OBUS	1.7600e-004	2.0400e-004
tblVehicleEF	OBUS	1.3600e-004	4.0600e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	7.6260e-003	0.02
tblVehicleEF	OBUS	1.6100e-004	1.8800e-004
tblVehicleEF	OBUS	1.4060e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	6.0600e-004	0.00
tblVehicleEF	OBUS	0.03	0.06

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tblVehicleEF	OBUS	0.07	0.10
tblVehicleEF	OBUS	0.10	0.12
tblVehicleEF	OBUS	9.7300e-004	9.0200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.5600e-004	1.8800e-004
tblVehicleEF	OBUS	1.4060e-003	0.09
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.07	0.07
tblVehicleEF	OBUS	6.0600e-004	0.00
tblVehicleEF	OBUS	0.04	0.08
tblVehicleEF	OBUS	0.07	0.10
tblVehicleEF	OBUS	0.11	0.13
tblVehicleEF	SBUS	0.03	0.09
tblVehicleEF	SBUS	4.2340e-003	0.22
tblVehicleEF	SBUS	2.7040e-003	2.1580e-003
tblVehicleEF	SBUS	1.59	1.06
tblVehicleEF	SBUS	0.32	0.95
tblVehicleEF	SBUS	0.39	0.30
tblVehicleEF	SBUS	334.60	179.82
tblVehicleEF	SBUS	1,065.38	1,091.51
tblVehicleEF	SBUS	2.29	1.87
tblVehicleEF	SBUS	0.05	0.03
tblVehicleEF	SBUS	0.15	0.15
tblVehicleEF	SBUS	2.7540e-003	2.3970e-003
tblVehicleEF	SBUS	3.11	1.36
tblVehicleEF	SBUS	4.09	2.63
tblVehicleEF	SBUS	1.05	0.43
tblVehicleEF	SBUS	2.5480e-003	1.1300e-003
tblVehicleEF	SBUS	0.74	0.04

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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.9000e-005	2.1000e-005
tblVehicleEF	SBUS	2.4370e-003	1.0790e-003
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.8200e-003	2.7840e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	2.7000e-005	2.0000e-005
tblVehicleEF	SBUS	2.5400e-004	0.01
tblVehicleEF	SBUS	2.6100e-003	3.4700e-003
tblVehicleEF	SBUS	0.15	0.10
tblVehicleEF	SBUS	1.2000e-004	0.00
tblVehicleEF	SBUS	0.07	0.05
tblVehicleEF	SBUS	5.8280e-003	6.4270e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	SBUS	3.1750e-003	1.5410e-003
tblVehicleEF	SBUS	0.01	9.7030e-003
tblVehicleEF	SBUS	2.3000e-005	1.8000e-005
tblVehicleEF	SBUS	2.5400e-004	0.01
tblVehicleEF	SBUS	2.6100e-003	3.4700e-003
tblVehicleEF	SBUS	0.22	0.22
tblVehicleEF	SBUS	1.2000e-004	0.00
tblVehicleEF	SBUS	0.08	0.27
tblVehicleEF	SBUS	5.8280e-003	6.4270e-003
tblVehicleEF	SBUS	0.02	0.01
tblVehicleEF	UBUS	2.29	0.60
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	17.52	8.81
tblVehicleEF	UBUS	0.84	2.66

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tblVehicleEF	UBUS	1,702.90	1,251.03
tblVehicleEF	UBUS	8.29	20.64
tblVehicleEF	UBUS	0.28	0.17
tblVehicleEF	UBUS	6.6330e-003	0.02
tblVehicleEF	UBUS	0.64	0.29
tblVehicleEF	UBUS	0.08	0.20
tblVehicleEF	UBUS	0.08	0.11
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	4.6580e-003	3.1740e-003
tblVehicleEF	UBUS	8.5000e-005	1.3100e-004
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	7.7720e-003	6.3890e-003
tblVehicleEF	UBUS	4.4500e-003	3.0240e-003
tblVehicleEF	UBUS	7.9000e-005	1.2100e-004
tblVehicleEF	UBUS	1.9200e-004	0.04
tblVehicleEF	UBUS	2.5600e-003	0.01
tblVehicleEF	UBUS	1.0800e-004	0.00
tblVehicleEF	UBUS	0.03	0.04
tblVehicleEF	UBUS	5.7800e-004	0.03
tblVehicleEF	UBUS	0.05	0.09
tblVehicleEF	UBUS	9.4990e-003	7.5470e-003
tblVehicleEF	UBUS	8.2000e-005	2.0400e-004
tblVehicleEF	UBUS	1.9200e-004	0.04
tblVehicleEF	UBUS	2.5600e-003	0.01
tblVehicleEF	UBUS	1.0800e-004	0.00
tblVehicleEF	UBUS	2.33	0.64
tblVehicleEF	UBUS	5.7800e-004	0.03
tblVehicleEF	UBUS	0.05	0.10
tblVehicleTrips	ST_TR	6.42	7.76

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tblVehicleTrips	ST_TR	2.21	2.97
tblVehicleTrips	ST_TR	1.74	1.71
tblVehicleTrips	SU_TR	5.09	6.15
tblVehicleTrips	SU_TR	0.70	0.94
tblVehicleTrips	SU_TR	1.74	1.71
tblVehicleTrips	WD_TR	3.93	4.75
tblVehicleTrips	WD_TR	9.74	13.07
tblVehicleTrips	WD_TR	1.74	1.71
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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Year	tons/yr										MT/yr					
2023	0.0882	0.8684	0.7238	1.4100e-003	0.2623	0.0394	0.3017	0.1283	0.0364	0.1647	0.0000	123.2143	123.2143	0.0381	0.0000	124.1669
2024	0.9291	0.0432	0.0747	1.1000e-004	0.0000	1.5400e-003	1.5400e-003	0.0000	1.4200e-003	1.4200e-003	0.0000	9.8407	9.8407	3.1800e-003	0.0000	9.9203
Maximum	**0.9291**	**0.8684**	**0.7238**	**1.4100e-003**	**0.2623**	**0.0394**	**0.3017**	**0.1283**	**0.0364**	**0.1647**	**0.0000**	**123.2143**	**123.2143**	**0.0381**	**0.0000**	**124.1669**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0244	0.5096	0.8979	1.4100e-003	0.1180	3.3600e-003	0.1214	0.0577	3.3600e-003	0.0611	0.0000	123.2141	123.2141	0.0381	0.0000	124.1667
2024	0.9278	0.0560	0.0848	1.1000e-004	0.0000	1.3900e-003	1.3900e-003	0.0000	1.3900e-003	1.3900e-003	0.0000	9.8407	9.8407	3.1800e-003	0.0000	9.9202
Maximum	**0.9278**	**0.5096**	**0.8979**	**1.4100e-003**	**0.1180**	**3.3600e-003**	**0.1214**	**0.0577**	**3.3600e-003**	**0.0611**	**0.0000**	**123.2141**	**123.2141**	**0.0381**	**0.0000**	**124.1667**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.40**	**37.95**	**-23.08**	**0.00**	**55.00**	**88.39**	**59.50**	**55.00**	**87.44**	**62.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**7-3-2023**	**10-2-2023**	0.8305	0.4454
2	**10-3-2023**	**1-2-2024**	0.1079	0.0775
5	**7-3-2024**	**9-30-2024**	0.3129	0.3145

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		Highest	0.8305	0.4454

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7755	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003
Energy	0.0153	0.1386	0.1164	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	230.3955	230.3955	0.0248	5.4200e-003	232.6289
Mobile	0.4489	0.6633	3.4483	9.6500e-003	0.3220	9.5200e-003	0.3316	0.0834	8.9700e-003	0.0924	0.0000	918.8635	918.8635	0.0403	0.0539	935.9422
Waste						0.0000	0.0000		0.0000	0.0000	37.7726	0.0000	37.7726	2.2323	0.0000	93.5799
Water						0.0000	0.0000		0.0000	0.0000	13.5210	11.9353	25.4563	0.0498	0.0298	35.5827
Total	**1.2396**	**0.8020**	**3.5690**	**0.0105**	**0.3220**	**0.0201**	**0.3421**	**0.0834**	**0.0195**	**0.1029**	**51.2936**	**1,161.2025**	**1,212.4961**	**2.3472**	**0.0892**	**1,297.7425**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.7755	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003

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Energy	0.0153	0.1386	0.1164	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	230.3955	230.3955	0.0248	5.4200e-003	232.6289
Mobile	0.4489	0.6633	3.4483	9.6500e-003	0.3220	9.5200e-003	0.3316	0.0834	8.9700e-003	0.0924	0.0000	918.8635	918.8635	0.0403	0.0539	935.9422
Waste						0.0000	0.0000		0.0000	0.0000	37.7726	0.0000	37.7726	2.2323	0.0000	93.5799
Water						0.0000	0.0000		0.0000	0.0000	13.5210	11.9353	25.4563	0.0498	0.0298	35.5827
Total	**1.2396**	**0.8020**	**3.5690**	**0.0105**	**0.3220**	**0.0201**	**0.3421**	**0.0834**	**0.0195**	**0.1029**	**51.2936**	**1,161.2025**	**1,212.4961**	**2.3472**	**0.0892**	**1,297.7425**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/3/2023	7/28/2023	5	20	
2	Site Preparation	Site Preparation	7/29/2023	8/18/2023	5	15	
3	Grading	Grading	8/12/2023	9/22/2023	5	30	
4	Trenching/Foundation	Trenching	8/12/2023	8/25/2023	5	10	
5	Building Construction	Building Construction	9/9/2023	11/17/2023	5	50	
6	Paving	Paving	7/27/2024	8/2/2024	5	5	
7	Architectural Coating	Architectural Coating	8/24/2024	12/27/2024	5	90	

Acres of Grading (Site Preparation Phase): 30

Acres of Grading (Grading Phase): 30

Acres of Paving: 0

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Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 259,287; Non-Residential Outdoor: 86,429; Striped Parking Area: 6,912

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	4.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	2.80	231	0.29
Building Construction	Forklifts	3	6.40	89	0.20
Building Construction	Generator Sets	0	0.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	4.20	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	1	4.80	130	0.42
Paving	Paving Equipment	2	4.80	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	0	0.00	78	0.48
Demolition	Tractors/Loaders/Backhoes	3	5.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Trenching/Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Trenching/Foundation	Excavators	1	8.00	158	0.38
Paving	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Architectural Coating	Aerial Lifts	1	6.00	63	0.31

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	6	0.00	0.00	0.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Paving	8	0.00	0.00	0.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching/Foundation	2	0.00	0.00	0.00	10.80	7.30	7.30	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.1500e-003	0.0000	3.1500e-003	4.8000e-004	0.0000	4.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0239	0.2306	0.2198	4.2000e-004		0.0108	0.0108		9.9400e-003	9.9400e-003	0.0000	36.4127	36.4127	0.0110	0.0000	36.6887
Total	**0.0239**	**0.2306**	**0.2198**	**4.2000e-004**	**3.1500e-003**	**0.0108**	**0.0139**	**4.8000e-004**	**9.9400e-003**	**0.0104**	**0.0000**	**36.4127**	**36.4127**	**0.0110**	**0.0000**	**36.6887**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.4200e-003	0.0000	1.4200e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.5700e-003	0.1497	0.2712	4.2000e-004		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	36.4127	36.4127	0.0110	0.0000	36.6887
Total	**6.5700e-003**	**0.1497**	**0.2712**	**4.2000e-004**	**1.4200e-003**	**6.7000e-004**	**2.0900e-003**	**2.1000e-004**	**6.7000e-004**	**8.8000e-004**	**0.0000**	**36.4127**	**36.4127**	**0.0110**	**0.0000**	**36.6887**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1522	0.0000	0.1522	0.0763	0.0000	0.0763	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2067	0.0993	2.6000e-004		8.9200e-003	8.9200e-003		8.2000e-003	8.2000e-003	0.0000	23.2788	23.2788	7.5300e-003	0.0000	23.4671
Total	**0.0194**	**0.2067**	**0.0993**	**2.6000e-004**	**0.1522**	**8.9200e-003**	**0.1611**	**0.0763**	**8.2000e-003**	**0.0845**	**0.0000**	**23.2788**	**23.2788**	**7.5300e-003**	**0.0000**	**23.4671**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0685	0.0000	0.0685	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4700e-003	0.0738	0.1458	2.6000e-004		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	23.2788	23.2788	7.5300e-003	0.0000	23.4670
Total	**4.4700e-003**	**0.0738**	**0.1458**	**2.6000e-004**	**0.0685**	**4.3000e-004**	**0.0689**	**0.0343**	**4.3000e-004**	**0.0348**	**0.0000**	**23.2788**	**23.2788**	**7.5300e-003**	**0.0000**	**23.4670**

Mitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1070	0.0000	0.1070	0.0515	0.0000	0.0515	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0257	0.2690	0.2213	4.4000e-004		0.0116	0.0116		0.0107	0.0107	0.0000	39.0909	39.0909	0.0126	0.0000	39.4070
Total	**0.0257**	**0.2690**	**0.2213**	**4.4000e-004**	**0.1070**	**0.0116**	**0.1186**	**0.0515**	**0.0107**	**0.0622**	**0.0000**	**39.0909**	**39.0909**	**0.0126**	**0.0000**	**39.4070**

Unmitigated Construction Off-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0482	0.0000	0.0482	0.0232	0.0000	0.0232	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8000e-003	0.1550	0.2849	4.4000e-004		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	39.0909	39.0909	0.0126	0.0000	39.4069
Total	**7.8000e-003**	**0.1550**	**0.2849**	**4.4000e-004**	**0.0482**	**7.3000e-004**	**0.0489**	**0.0232**	**7.3000e-004**	**0.0239**	**0.0000**	**39.0909**	**39.0909**	**0.0126**	**0.0000**	**39.4069**

Mitigated Construction Off-Site

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Trenching/Foundation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7000e-003	0.0154	0.0275	4.0000e-005		7.6000e-004	7.6000e-004		7.0000e-004	7.0000e-004	0.0000	3.6422	3.6422	1.1800e-003	0.0000	3.6716
Total	**1.7000e-003**	**0.0154**	**0.0275**	**4.0000e-005**		**7.6000e-004**	**7.6000e-004**		**7.0000e-004**	**7.0000e-004**	**0.0000**	**3.6422**	**3.6422**	**1.1800e-003**	**0.0000**	**3.6716**

Unmitigated Construction Off-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.7000e-004	0.0182	0.0314	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.6422	3.6422	1.1800e-003	0.0000	3.6716
Total	**6.7000e-004**	**0.0182**	**0.0314**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.6422**	**3.6422**	**1.1800e-003**	**0.0000**	**3.6716**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0176	0.1466	0.1560	2.5000e-004		7.3300e-003	7.3300e-003		6.8500e-003	6.8500e-003	0.0000	20.7896	20.7896	5.7200e-003	0.0000	20.9325
Total	**0.0176**	**0.1466**	**0.1560**	**2.5000e-004**		**7.3300e-003**	**7.3300e-003**		**6.8500e-003**	**6.8500e-003**	**0.0000**	**20.7896**	**20.7896**	**5.7200e-003**	**0.0000**	**20.9325**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

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Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9100e-003	0.1130	0.1647	2.5000e-004		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000	20.7896	20.7896	5.7200e-003	0.0000	20.9325
Total	**4.9100e-003**	**0.1130**	**0.1647**	**2.5000e-004**		**1.4700e-003**	**1.4700e-003**		**1.4700e-003**	**1.4700e-003**	**0.0000**	**20.7896**	**20.7896**	**5.7200e-003**	**0.0000**	**20.9325**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5700e-003	0.0255	0.0380	6.0000e-005		1.2400e-003	1.2400e-003		1.1400e-003	1.1400e-003	0.0000	4.8906	4.8906	1.5800e-003	0.0000	4.9301
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5700e-003**	**0.0255**	**0.0380**	**6.0000e-005**		**1.2400e-003**	**1.2400e-003**		**1.1400e-003**	**1.1400e-003**	**0.0000**	**4.8906**	**4.8906**	**1.5800e-003**	**0.0000**	**4.9301**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.0500e-003	0.0244	0.0421	6.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	4.8906	4.8906	1.5800e-003	0.0000	4.9301
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.0500e-003**	**0.0244**	**0.0421**	**6.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**4.8906**	**4.8906**	**1.5800e-003**	**0.0000**	**4.9301**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9254					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1600e-003	0.0177	0.0367	6.0000e-005		3.1000e-004	3.1000e-004		2.8000e-004	2.8000e-004	0.0000	4.9501	4.9501	1.6000e-003	0.0000	4.9901
Total	**0.9265**	**0.0177**	**0.0367**	**6.0000e-005**		**3.1000e-004**	**3.1000e-004**		**2.8000e-004**	**2.8000e-004**	**0.0000**	**4.9501**	**4.9501**	**1.6000e-003**	**0.0000**	**4.9901**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.9254					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3900e-003	0.0317	0.0428	6.0000e-005		1.2900e-003	1.2900e-003		1.2900e-003	1.2900e-003	0.0000	4.9501	4.9501	1.6000e-003	0.0000	4.9901
Total	**0.9268**	**0.0317**	**0.0428**	**6.0000e-005**		**1.2900e-003**	**1.2900e-003**		**1.2900e-003**	**1.2900e-003**	**0.0000**	**4.9501**	**4.9501**	**1.6000e-003**	**0.0000**	**4.9901**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4489	0.6633	3.4483	9.6500e-003	0.3220	9.5200e-003	0.3316	0.0834	8.9700e-003	0.0924	0.0000	918.8635	918.8635	0.0403	0.0539	935.9422
Unmitigated	0.4489	0.6633	3.4483	9.6500e-003	0.3220	9.5200e-003	0.3316	0.0834	8.9700e-003	0.0924	0.0000	918.8635	918.8635	0.0403	0.0539	935.9422

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Manufacturing	378.86	618.95	490.53	1,252,804	1,252,804
Parking Lot	0.00	0.00	0.00		
General Office Building	429.17	97.52	30.87	776,404	776,404
Unrefrigerated Warehouse-No Rail	103.05	103.05	103.05	300,845	300,845
Total	911.08	819.51	624.44	2,330,052	2,330,052

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4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Manufacturing	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
Unrefrigerated Warehouse-No Rai	9.50	7.30	7.30	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.496277	0.042517	0.213536	0.139361	0.044626	0.012312	0.023102	0.018467	0.001807	0.001350	0.004322	0.001200	0.001123
Manufacturing	0.496277	0.042517	0.213536	0.139361	0.044626	0.012312	0.023102	0.018467	0.001807	0.001350	0.004322	0.001200	0.001123
Parking Lot	0.496277	0.042517	0.213536	0.139361	0.044626	0.012312	0.023102	0.018467	0.001807	0.001350	0.004322	0.001200	0.001123
Unrefrigerated Warehouse-No Rail	0.496277	0.042517	0.213536	0.139361	0.044626	0.012312	0.023102	0.018467	0.001807	0.001350	0.004322	0.001200	0.001123

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.5156	79.5156	0.0219	2.6500e-003	80.8523

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Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	79.5156	79.5156	0.0219	2.6500e-003	80.8523
NaturalGas Mitigated	0.0153	0.1386	0.1164	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.8800	150.8800	2.8900e-003	2.7700e-003	151.7766
NaturalGas Unmitigated	0.0153	0.1386	0.1164	8.3000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	150.8800	150.8800	2.8900e-003	2.7700e-003	151.7766

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	531943	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	28.3865	28.3865	5.4000e-004	5.2000e-004	28.5552
Manufacturing	2.08814e+006	0.0113	0.1024	0.0860	6.1000e-004		7.7800e-003	7.7800e-003		7.7800e-003	7.7800e-003	0.0000	111.4313	111.4313	2.1400e-003	2.0400e-003	112.0934
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	207298	1.1200e-003	0.0102	8.5400e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	11.0622	11.0622	2.1000e-004	2.0000e-004	11.1279
Total		**0.0153**	**0.1386**	**0.1164**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.8800**	**150.8800**	**2.8900e-003**	**2.7600e-003**	**151.7766**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

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Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	531943	2.8700e-003	0.0261	0.0219	1.6000e-004		1.9800e-003	1.9800e-003		1.9800e-003	1.9800e-003	0.0000	28.3865	28.3865	5.4000e-004	5.2000e-004	28.5552
Manufacturing	2.08814e+006	0.0113	0.1024	0.0860	6.1000e-004		7.7800e-003	7.7800e-003		7.7800e-003	7.7800e-003	0.0000	111.4313	111.4313	2.1400e-003	2.0400e-003	112.0934
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	207298	1.1200e-003	0.0102	8.5400e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	11.0622	11.0622	2.1000e-004	2.0000e-004	11.1279
Total		**0.0153**	**0.1386**	**0.1164**	**8.3000e-004**		**0.0105**	**0.0105**		**0.0105**	**0.0105**	**0.0000**	**150.8800**	**150.8800**	**2.8900e-003**	**2.7600e-003**	**151.7766**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	563794	30.6828	8.4400e-003	1.0200e-003	31.1986
Manufacturing	646064	35.1601	9.6700e-003	1.1700e-003	35.7512
Parking Lot	40320	2.1943	6.0000e-004	7.0000e-005	2.2312
Unrefrigerated Warehouse-No	210914	11.4783	3.1600e-003	3.8000e-004	11.6713
Total		**79.5156**	**0.0219**	**2.6400e-003**	**80.8523**

Mitigated

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	563794	30.6828	8.4400e-003	1.0200e-003	31.1986
Manufacturing	646064	35.1601	9.6700e-003	1.1700e-003	35.7512
Parking Lot	40320	2.1943	6.0000e-004	7.0000e-005	2.2312
Unrefrigerated Warehouse-No	210914	11.4783	3.1600e-003	3.8000e-004	11.6713
Total		**79.5156**	**0.0219**	**2.6400e-003**	**80.8523**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7755	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003
Unmitigated	0.7755	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0925					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6825					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9000e-004	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003
Total	**0.7755**	**4.0000e-005**	**4.2200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2300e-003**	**8.2300e-003**	**2.0000e-005**	**0.0000**	**8.7700e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0925					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.6825					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.9000e-004	4.0000e-005	4.2200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.2300e-003	8.2300e-003	2.0000e-005	0.0000	8.7700e-003
Total	**0.7755**	**4.0000e-005**	**4.2200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.2300e-003**	**8.2300e-003**	**2.0000e-005**	**0.0000**	**8.7700e-003**

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7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	25.4563	0.0498	0.0298	35.5827
Unmitigated	25.4563	0.0498	0.0298	35.5827

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.83678 / 3.57738	4.4653	7.7700e-003	4.5700e-003	6.0216
Manufacturing	18.4445 / 0	11.9572	0.0240	0.0144	16.8390
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000

Labcon Epansion - Petaluma - Sonoma-San Francisco County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unrefrigerated Warehouse-No Rail	13.9351 / 0	9.0339	0.0181	0.0109	12.7222
Total		**25.4563**	**0.0498**	**0.0298**	**35.5827**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	5.83678 / 3.57738	4.4653	7.7700e-003	4.5700e-003	6.0216
Manufacturing	18.4445 / 0	11.9572	0.0240	0.0144	16.8390
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	13.9351 / 0	9.0339	0.0181	0.0109	12.7222
Total		**25.4563**	**0.0498**	**0.0298**	**35.5827**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

Labcon Epansion - Petaluma - Sonoma-San Francisco County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	37.7726	2.2323	0.0000	93.5799
Unmitigated	37.7726	2.2323	0.0000	93.5799

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	30.54	6.1993	0.3664	0.0000	15.3586
Manufacturing	98.9	20.0758	1.1865	0.0000	49.7370
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	56.64	11.4974	0.6795	0.0000	28.4843
Total		**37.7726**	**2.2323**	**0.0000**	**93.5799**

Mitigated

Labcon Epansion - Petaluma - Sonoma-San Francisco County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	30.54	6.1993	0.3664	0.0000	15.3586
Manufacturing	98.9	20.0758	1.1865	0.0000	49.7370
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No	56.64	11.4974	0.6795	0.0000	28.4843
Total		**37.7726**	**2.2323**	**0.0000**	**93.5799**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

CalEEMod EMFAC2021 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004545	0.003124	0.010863	0.230791493	0.008255	0	0	0.093131	0
A	CH4_RUNEX	0.002681	0.009108	0.003529	0.004809	0.011377	0.007865	0.008041	0.088052266	0.010804	0.588593472	0.206215	0.21921	0.013818
A	CH4_STREX	0.077691	0.139722	0.096227	0.124149	0.02061	0.011908	0.008254	9.65079E-08	0.023415	0.02499644	0.225999	0.002092	0.026439
A	CO_IDLEX	0	0	0	0	0.170417	0.136807	0.676052	4.375067569	0.580923	0	0	1.034107	0
A	CO_RUNEX	0.786199	1.926025	0.977102	1.150438	1.068681	0.628219	0.334867	0.755844934	0.830303	9.92675697	16.42277	0.974798	1.418418
A	CO_STREX	3.549503	7.342675	4.381695	4.946923	1.694217	1.105473	1.013095	0.001712213	2.700876	2.633171829	8.828526	0.300473	2.468101
A	CO2_NBIO_IDLEX	0	0	0	0	9.39158	14.40123	163.4169	737.8965892	89.27324	0	0	181.253	0
A	CO2_NBIO_RUNEX	265.1253	340.6772	352.2582	429.3678	783.0916	852.0745	1225.092	1747.826321	1534.523	1302.554848	192.7603	1106.528	1650.453
A	CO2_NBIO_STREX	69.58308	94.25307	92.21436	111.3482	14.30821	9.177553	8.158565	0.072085412	20.41972	20.95134974	57.29853	1.841367	21.53988
A	NOX_IDLEX	0	0	0	0	0.084385	0.113958	0.891554	3.783231357	0.368225	0	0	1.429168	0
A	NOX_RUNEX	0.051171	0.191251	0.090676	0.132983	1.378264	1.185178	1.059715	2.348648369	1.179965	0.318588154	0.700004	2.88252	1.959627
A	NOX_STREX	0.273775	0.499004	0.397075	0.536665	0.37376	0.231183	1.465527	2.717646549	0.843348	0.217336438	0.182578	0.415518	0.289957
A	PM10_IDLEX	0	0	0	0	0.001024	0.001425	0.002346	0.003328722	0.000445	0	0	0.001245	0
A	PM10_PMBW	0.0085	0.010728	0.010214	0.010481	0.078	0.091	0.045259	0.084068025	0.051591	0.106322429	0.012	0.044916	0.044938
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.00997	0.010728	0.012	0.033594946	0.012	0.025538122	0.004	0.011169	0.01337
A	PM10_RUNEX	0.001371	0.002483	0.001485	0.00163	0.027132	0.029079	0.012785	0.023142747	0.019326	0.002340942	0.002009	0.015518	0.046304
A	PM10_STREX	0.002092	0.003593	0.002236	0.002427	0.000234	8.93E-05	0.000112	2.94371E-06	0.000232	0.000120929	0.003977	2.04E-05	0.000299
A	PM25_IDLEX	0	0	0	0	0.000979	0.001364	0.002244	0.003178805	0.000426	0	0	0.001189	0
A	PM25_PMBW	0.002975	0.003755	0.003575	0.003668	0.0273	0.03185	0.015841	0.029423809	0.018057	0.03721285	0.0042	0.015721	0.015728
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002492	0.002682	0.003	0.008398737	0.003	0.006384531	0.001	0.002792	0.003342
A	PM25_RUNEX	0.001264	0.002288	0.001366	0.001505	0.02592	0.027804	0.012225	0.022135994	0.018474	0.002228406	0.001887	0.014831	0.044255
A	PM25_STREX	0.001923	0.003304	0.002056	0.002232	0.000215	8.21E-05	0.000103	2.70663E-06	0.000213	0.00011119	0.003757	1.88E-05	0.000275
A	ROG_DIURN	0.325574	0.813731	0.336136	0.432948	0.123328	0.053904	0.023782	0.000672522	0.088263	0.046286408	4.768303	0.007996	33.5547
A	ROG_HTSK	0.09607	0.221928	0.095602	0.117434	0.031996	0.014346	0.006082	0.000192007	0.022071	0.016426028	3.541851	0.002767	9.029749
A	ROG_IDLEX	0	0	0	0	0.020303	0.015982	0.026912	0.278645572	0.048942	0	0	0.099515	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.010796	0.041888	0.014519	0.021268	0.145417	0.1371	0.035988	0.024669994	0.06803	0.029477635	1.435052	0.053233	0.098829
A	ROG_RUNLS	0.252819	0.674933	0.260761	0.341862	0.181372	0.075512	0.05021	0.001764588	0.101719	0.035575999	3.880655	0.00451	0.212767
A	ROG_STREX	0.366445	0.758124	0.46234	0.651054	0.104581	0.05788	0.046111	5.23518E-07	0.126169	0.09858418	1.733896	0.011536	0.113322
A	SO2_IDLEX	0	0	0	0	9.08E-05	0.000138	0.001527	0.006349526	0.000848	0	0	0.001556	0
A	SO2_RUNEX	0.002588	0.003326	0.003439	0.004188	0.007611	0.008204	0.011633	0.015748309	0.014777	0.006478991	0.001906	0.009836	0.016165
A	SO2_STREX	0.000679	0.00092	0.0009	0.001087	0.000141	9.07E-05	8.07E-05	7.12638E-07	0.000202	0.000207125	0.000566	1.82E-05	0.000213
A	TOG_DIURN	0.325574	0.813731	0.336136	0.432948	0.123328	0.053904	0.023782	0.000672522	0.088263	0.046286408	0.146676	0.007996	33.5547
A	TOG_HTSK	0.09607	0.221928	0.095602	0.117434	0.031996	0.014346	0.006082	0.000192007	0.022071	0.016426028	3.541851	0.002767	9.029749
A	TOG_IDLEX	0	0	0	0	0.028361	0.021522	0.041272	0.536166731	0.064205	0	0	0.213789	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.015701	0.061056	0.021161	0.030888	0.175315	0.158897	0.049095	0.1156948	0.090335	0.623781526	1.689351	0.27896	0.129048
A	TOG_RUNLS	0.252819	0.674933	0.260761	0.341862	0.181372	0.075512	0.05021	0.001764588	0.101719	0.035575999	3.880655	0.00451	0.212767
A	TOG_STREX	0.40121	0.830048	0.506204	0.712815	0.114502	0.063372	0.050485	5.73186E-07	0.138139	0.107937269	1.883893	0.012631	0.124073
A	N2O_IDLEX	0	0	0	0	0.000887	0.001819	0.025177	0.119375354	0.012339	0	0	0.026769	0
A	N2O_RUNEX	0.005196	0.012922	0.00727	0.010686	0.057203	0.08732	0.160048	0.279302991	0.145695	0.185481196	0.045246	0.154563	0.077769
A	N2O_STREX	0.033232	0.044173	0.040516	0.045703	0.028648	0.01868	0.005632	6.79289E-05	0.019112	0.026578945	0.01036	0.002282	0.029539

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	23	0	460	0	29	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4968	0	580
Site Preparation	13	0	195	0	1688	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2106	0	33760
Grading	15	0	450	0	1688	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4860	0	33760
Trenching/Foundation	5	0	50	0	360	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	540	0	2628
Building Construction	118	47	5900	2350	360	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	63720	17155	2628
Paving	20	0	100	0	420	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	1080	0	3066
Architectural Coating	24	0	2160	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	23328	0	0

Number of Days Per Year					
2021	7/3/23	12/31/23	182	130	
2022	1/1/24	12/27/24	362	259	
			544	**390**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	7/3/2023	7/28/2023	5	20
Site Preparation	7/29/2023	8/18/2023	5	15
Grading	8/12/2023	9/22/2023	5	30
Trenching/Foundation	8/12/2023	8/25/2023	5	10
Building Construction	9/9/2023	11/17/2023	5	50
Paving	7/27/2024	8/2/2024	5	5
Architectural Coating	8/24/2024	12/27/2024	5	90

Summary of Construction Traffic Emissions (EMFAC2021)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
						Grams								
Hauling	3163.73	209034.90	77655.646	1232.379	22850.18	10775.80	33626.0	3438.23	4596.61	8034.84	136926450.7	7778.078	21887.76	143643456
Vendor	1030.68	39643.34	16483.0	244.212	5129.35	1815.37	6944.7	771.80	787.25	1559.06	26568924.03	1117.88	3945.078	27772504
Worker	15248.13	13026.41	156396.7	307.711	30080.00	1951.15	32031.1	4526.08	712.13	5238.21	31522060.14	1363.983	1121.22	31890283
Total (g)	19442.53	261704.6444	250535.35	1784.302649	58059.521	14542.31348	72601.834	8736.11321	6095.994166	14832.10738	195017434.9	10259.94	26954.06	203306243
Total (lbs)	42.86	576.96	552.34	3.93	128.00	32.1	160.06	19.26	13.44	32.70	429939.8486	22.6193	59.42353	448213.54
Total (tons)	0.0214	0.288	0.276	0.002	0.064	0.0160	0.0800	0.0096	0.007	0.016	214.97	0.01	0.03	224.10677
Total (MT)											195.02	0.01	0.03	203.30624

YEAR														
							Tons							
2023	0.0072	0.0965	0.0924	0.0007	0.0214	0.0054	0.0268	0.0032	0.0022	0.0055	65.2448	0.003433	0.009018	68.017898
2024	0.0143	0.1920	0.1838	0.0013	0.0426	0.0107	0.0533	0.0064	0.0045	0.0109	129.7726	0.006827	0.017936	135.28835

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	23	0	460	0	29	1	1	1	LD_Mix	HDT_Mix	HHDT	460	0	29
Site Preparation	13	0	195	0	1688	1	1	1	LD_Mix	HDT_Mix	HHDT	195	0	1688
Grading	15	0	450	0	1688	1	1	1	LD_Mix	HDT_Mix	HHDT	450	0	1688
Trenching/Foundation	5	0	50	0	360	1	1	1	LD_Mix	HDT_Mix	HHDT	50	0	360
Building Construction	118	47	5900	2350	360	1	1	1	LD_Mix	HDT_Mix	HHDT	5900	2350	360
Paving	20	0	100	0	420	1	1	1	LD_Mix	HDT_Mix	HHDT	100	0	420
Architectural Coating	24	0	2160	0	0	1	1	1	LD_Mix	HDT_Mix	HHDT	2160	0	0

Number of Days Per Year					
2021	7/3/23	12/31/23	182	130	
2022	1/1/24	12/27/24	362	259	
			544	**390**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	7/3/23	7/28/23	5	20
Site Preparation	7/29/23	8/18/23	5	15
Grading	8/12/23	9/22/23	5	30
Trenching/Foundation	8/12/23	8/25/23	5	10
Building Construction	9/9/23	11/17/23	5	50
Paving	7/27/24	8/2/24	5	5
Architectural Coating	8/24/24	12/27/24	5	90

Summary of Construction Traffic Emissions (EMFAC2021)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
						Grams								
Hauling	1390.52	40221.10	23327.779	100.438	1358.96	655.10	2014.1	204.48	286.97	491.45	11297938.25	1449.145	1812.302	11874233
Vendor	581.66	14412.93	8409.0	41.524	702.65	254.55	957.2	105.73	113.45	219.17	4561893.817	406.5516	692.7839	4778507.2
Worker	13468.03	4256.72	54257.3	35.210	2785.19	201.82	2987.0	419.08	85.39	504.47	3561933.398	953.2278	423.2224	3711884.4
Total (g)	15440.21	58890.74009	85994.148	177.1714577	4846.79	1111.474211	5958.2642	729.2879	485.8119871	1215.099887	19421765.47	2808.925	2928.308	20364624
Total (lbs)	34.04	129.83	189.58	0.39	10.69	2.5	13.14	1.61	1.07	2.68	42817.66351	6.192619	6.455814	44896.312
Total (tons)	0.0170	0.065	0.095	0.000	0.005	0.0012	0.0066	0.0008	0.001	0.001	21.41	0.00	0.00	22.448156
Total (MT)											19.42	0.00	0.00	20.364624

YEAR														
							Tons							
2023	0.0057	0.0217	0.0317	0.0001	0.0018	0.0004	0.0022	0.0003	0.0002	0.0004	6.4977	0.00094	0.00098	6.8131648
2024	0.0113	0.0432	0.0631	0.0001	0.0036	0.0008	0.0044	0.0005	0.0004	0.0009	12.9240	0.001869	0.001949	13.55146

CalEEMod EMFAC2021 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004421	0.002995	0.011554	0.227256009	0.008247	0	0	0.093565	0
A	CH4_RUNEX	0.002091	0.00752	0.002973	0.003817	0.010082	0.007294	0.007802	0.082604215	0.010241	0.595837346	0.195104	0.215204	0.011664
A	CH4_STREX	0.067606	0.124429	0.086246	0.107819	0.019487	0.011176	0.007239	7.62201E-08	0.021979	0.023411516	0.216236	0.002158	0.025076
A	CO_IDLEX	0	0	0	0	0.170269	0.13563	0.669053	4.383392175	0.615018	0	0	1.058369	0
A	CO_RUNEX	0.669681	1.657785	0.861223	0.973897	0.979595	0.589195	0.248835	0.735764084	0.645085	8.813333273	15.5108	0.95339	1.099941
A	CO_STREX	3.075087	6.456135	3.903522	4.313857	1.724932	1.079612	0.857949	0.001421945	2.488863	2.66471502	8.766231	0.303983	2.260908
A	CO2_NBIO_IDLEX	0	0	0	0	9.261566	14.31127	162.5341	713.4240861	95.04069	0	0	179.8199	0
A	CO2_NBIO_RUNEX	245.8213	326.3359	330.8311	403.6723	766.696	837.0734	1198.76	1693.641964	1493.666	1251.032329	191.5224	1091.512	1637.058
A	CO2_NBIO_STREX	64.69413	89.36982	86.40518	104.5364	14.33173	8.916699	7.297039	0.04608416	19.00656	20.63927465	55.32899	1.865005	20.60109
A	NOX_IDLEX	0	0	0	0	0.080996	0.110416	0.838428	3.579840528	0.389622	0	0	1.363271	0
A	NOX_RUNEX	0.039214	0.158411	0.07328	0.102103	1.207728	1.077274	0.912935	2.145731623	1.12778	0.291877272	0.667708	2.632136	1.924186
A	NOX_STREX	0.241845	0.450159	0.348356	0.456285	0.360722	0.221416	1.481785	2.787226081	0.886877	0.196353842	0.170815	0.434549	0.293554
A	PM10_IDLEX	0	0	0	0	0.001006	0.001443	0.001613	0.002806057	0.000424	0	0	0.00113	0
A	PM10_PMBW	0.008392	0.010742	0.010199	0.010441	0.077794	0.090788	0.045093	0.083559011	0.051963	0.106400292	0.012	0.044818	0.044934
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009934	0.010742	0.012	0.033599224	0.012	0.025554966	0.004	0.011137	0.01343
A	PM10_RUNEX	0.001233	0.002215	0.00139	0.001493	0.025154	0.028244	0.009858	0.02236211	0.019024	0.003174417	0.00199	0.014381	0.046016
A	PM10_STREX	0.001935	0.003238	0.002138	0.002219	0.000209	7.78E-05	9.3E-05	1.70034E-06	0.000204	0.000131139	0.003649	2.12E-05	0.000267
A	PM25_IDLEX	0	0	0	0	0.000963	0.001381	0.001543	0.0026783	0.000406	0	0	0.001079	0
A	PM25_PMBW	0.002937	0.00376	0.00357	0.003654	0.027228	0.031776	0.015783	0.029245654	0.018187	0.037240102	0.0042	0.015686	0.015727
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002484	0.002685	0.003	0.008399806	0.003	0.006388742	0.001	0.002784	0.003357
A	PM25_RUNEX	0.001136	0.00204	0.001279	0.001379	0.024031	0.027006	0.009425	0.021389394	0.018187	0.003024111	0.001865	0.013743	0.043983
A	PM25_STREX	0.00178	0.002977	0.001966	0.002041	0.000192	7.15E-05	8.55E-05	1.5634E-06	0.000188	0.000120578	0.00344	1.95E-05	0.000246
A	ROG_DIURN	0.299353	0.752967	0.327137	0.426268	0.117986	0.053576	0.019038	0.000405358	0.085609	0.037503974	4.852721	0.010888	32.01
A	ROG_HTSK	0.086501	0.205117	0.089941	0.110574	0.029867	0.013787	0.004846	0.000114752	0.02036	0.012393092	3.545394	0.00347	8.173138
A	ROG_IDLEX	0	0	0	0	0.019693	0.015548	0.024391	0.274576937	0.050259	0	0	0.101012	0
A	ROG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	ROG_RUNEX	0.008066	0.034202	0.011938	0.016438	0.132158	0.130391	0.026831	0.022165085	0.059254	0.036714064	1.338618	0.051338	0.08921
A	ROG_RUNLS	0.230148	0.608059	0.251253	0.331578	0.171946	0.073579	0.038929	0.001054757	0.096122	0.034092953	3.921125	0.006427	0.19706
A	ROG_STREX	0.310232	0.663164	0.406337	0.552335	0.09839	0.054044	0.039593	4.13462E-07	0.118712	0.092213413	1.651793	0.011905	0.10506
A	SO2_IDLEX	0	0	0	0	8.96E-05	0.000137	0.001515	0.006093226	0.000902	0	0	0.001541	0
A	SO2_RUNEX	0.00243	0.003226	0.00327	0.003987	0.007452	0.008057	0.011368	0.015211399	0.01435	0.0075472	0.001893	0.009703	0.016026
A	SO2_STREX	0.00064	0.000884	0.000854	0.001033	0.000142	8.82E-05	7.21E-05	4.55589E-07	0.000188	0.00020404	0.000547	1.84E-05	0.000204
A	TOG_DIURN	0.299353	0.752967	0.327137	0.426268	0.117986	0.053576	0.019038	0.000405358	0.085609	0.037503974	0.143621	0.010888	32.01
A	TOG_HTSK	0.086501	0.205117	0.089941	0.110574	0.029867	0.013787	0.004846	0.000114752	0.02036	0.012393092	3.545394	0.00347	8.173138
A	TOG_IDLEX	0	0	0	0	0.027476	0.020869	0.039115	0.528167959	0.065495	0	0	0.216061	0
A	TOG_RESTL	0	0	0	0	0	0	0	0	0	0	0	0	0
A	TOG_RUNEX	0.011737	0.049865	0.017401	0.023886	0.158714	0.150729	0.038261	0.107394747	0.078786	0.638947864	1.585491	0.272864	0.114539
A	TOG_RUNLS	0.230148	0.608059	0.251253	0.331578	0.171946	0.073579	0.038929	0.001054757	0.096122	0.034092953	3.921125	0.006427	0.19706
A	TOG_STREX	0.339665	0.726081	0.444888	0.604737	0.107725	0.059172	0.04335	4.52688E-07	0.129975	0.10096208	1.794952	0.013035	0.115028
A	N2O_IDLEX	0	0	0	0	0.000874	0.001816	0.025119	0.115639802	0.013368	0	0	0.026507	0
A	N2O_RUNEX	0.004398	0.011094	0.006334	0.008964	0.055139	0.086578	0.158494	0.270868532	0.148758	0.171601889	0.043854	0.1516	0.077983
A	N2O_STREX	0.030981	0.041877	0.037747	0.041709	0.028101	0.017917	0.005137	2.73578E-05	0.018136	0.023940172	0.009738	0.002397	0.030539

CalEEMod EMFAC2021 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.496277	0.042517	0.213536	0.139361	0.044626	0.012312	0.023102	0.018467	0.001807	0.00135	0.004322	0.0012	0.001123

Attachment 4: Project Construction Emissions and Health Risk Calculations

Labcon Warehouse Addition

DPM Emissions and Modeling Emission Rates - Without Controls

Construction Year	Activity	Area Source	DPM Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023	Construction	DPM_CONST	0.0398	79.6	0.06125	7.72E-03	28343.7	2.72E-07
2024	Construction	DPM_CONST	0.0024	4.7	0.0018	0.0002292	28343.7	8.085E-09
		Construction Hours						
		Weekday hr/day =	10	(7am - 5pm)				
		days/yr =	Varies					
		hours/year =	Varies					

Labcon Warehouse Addition

PM2.5 Fugitive Dust Emissions for Modeling - Without Controls

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	(lb/yr)	(lb/hr)	(g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2023	Construction	PM25_CONST	0.1286	257.1	0.19780	2.49E-02	28343.7	8.79E-07
2024	Construction	PM25_CONST	0.0005	1.1	0.0004	0.0000520	28343.7	1.84E-09
		Construction Hours						
		Weekday hr/day =	10	(7am - 5pm)				
		days/yr =	Varies					
		hours/year =	Varies					

Labcon Addition Project, Petaluma, CA - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Calculations
Impacts at Off-Site Residential Receptors - 1.5 meter receptor height

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 - 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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		Exposure Information				Infant/Child	Adult			Adult		Maximum	
	Exposure		DPM Conc (ug/m3)		Age	Cancer	Modeled DPM Conc (ug/m3)		Age	Cancer			
Exposure	Duration				Sensitivity	Risk			Sensitivity	Risk		Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	HI	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2023	0.0120	10	0.16							
1	1	0 - 1	2023	0.0120	10	1.97	2023	0.0120	1	0.03	0.002	0.0407	0.053
2	1	1 - 2	2024	0.0004	10	0.06	2024	0.0004	1	0.00	0.000	0.0001	0.0004
3	1	2 - 3	2025	0.0000	3	0.00	2025	0.0000	1	0.00			
4	1	3 - 4	2026	0.0000	3	0.00	2026	0.0000	1	0.00			
5	1	4 - 5	2027	0.0000	3	0.00	2027	0.0000	1	0.00			
6	1	5 - 6	2028	0.0000	3	0.00	2028	0.0000	1	0.00			
7	1	6 - 7	2029	0.0000	3	0.00	2029	0.0000	1	0.00			
8	1	7 - 8	2030	0.0000	3	0.00	2030	0.0000	1	0.00			
9	1	8 - 9	2031	0.0000	3	0.00	2031	0.0000	1	0.00			
10	1	9 - 10	2032	0.0000	3	0.00	2032	0.0000	1	0.00			
11	1	10 - 11	2033	0.0000	3	0.00	2033	0.0000	1	0.00			
12	1	11 - 12	2034	0.0000	3	0.00	2034	0.0000	1	0.00			
13	1	12 - 13	2035	0.0000	3	0.00	2035	0.0000	1	0.00			
14	1	13 - 14	2036	0.0000	3	0.00	2036	0.0000	1	0.00			
15	1	14 - 15	2037	0.0000	3	0.00	2037	0.0000	1	0.00			
16	1	15 - 16	2038	0.0000	3	0.00	2038	0.0000	1	0.00			
17	1	16-17	2039	0.0000	1	0.00	2039	0.0000	1	0.00			
18	1	17-18	2040	0.0000	1	0.00	2040	0.0000	1	0.00			
19	1	18-19	2041	0.0000	1	0.00	2041	0.0000	1	0.00			
20	1	19-20	2042	0.0000	1	0.00	2042	0.0000	1	0.00			
21	1	20-21	2043	0.0000	1	0.00	2043	0.0000	1	0.00			
22	1	21-22	2044	0.0000	1	0.00	2044	0.0000	1	0.00			
23	1	22-23	2045	0.0000	1	0.00	2045	0.0000	1	0.00			
24	1	23-24	2046	0.0000	1	0.00	2046	0.0000	1	0.00			
25	1	24-25	2047	0.0000	1	0.00	2047	0.0000	1	0.00			
26	1	25-26	2048	0.0000	1	0.00	2048	0.0000	1	0.00			
27	1	26-27	2049	0.0000	1	0.00	2049	0.0000	1	0.00			
28	1	27-28	2050	0.0000	1	0.00	2050	0.0000	1	0.00			
29	1	28-29	2051	0.0000	1	0.00	2051	0.0000	1	0.00			
30	1	29-30	2052	0.0000	1	0.00	2052	0.0000	1	0.00			
Total Increased Cancer Risk						**2.20**				**0.04**			

* Third trimester of pregnancy

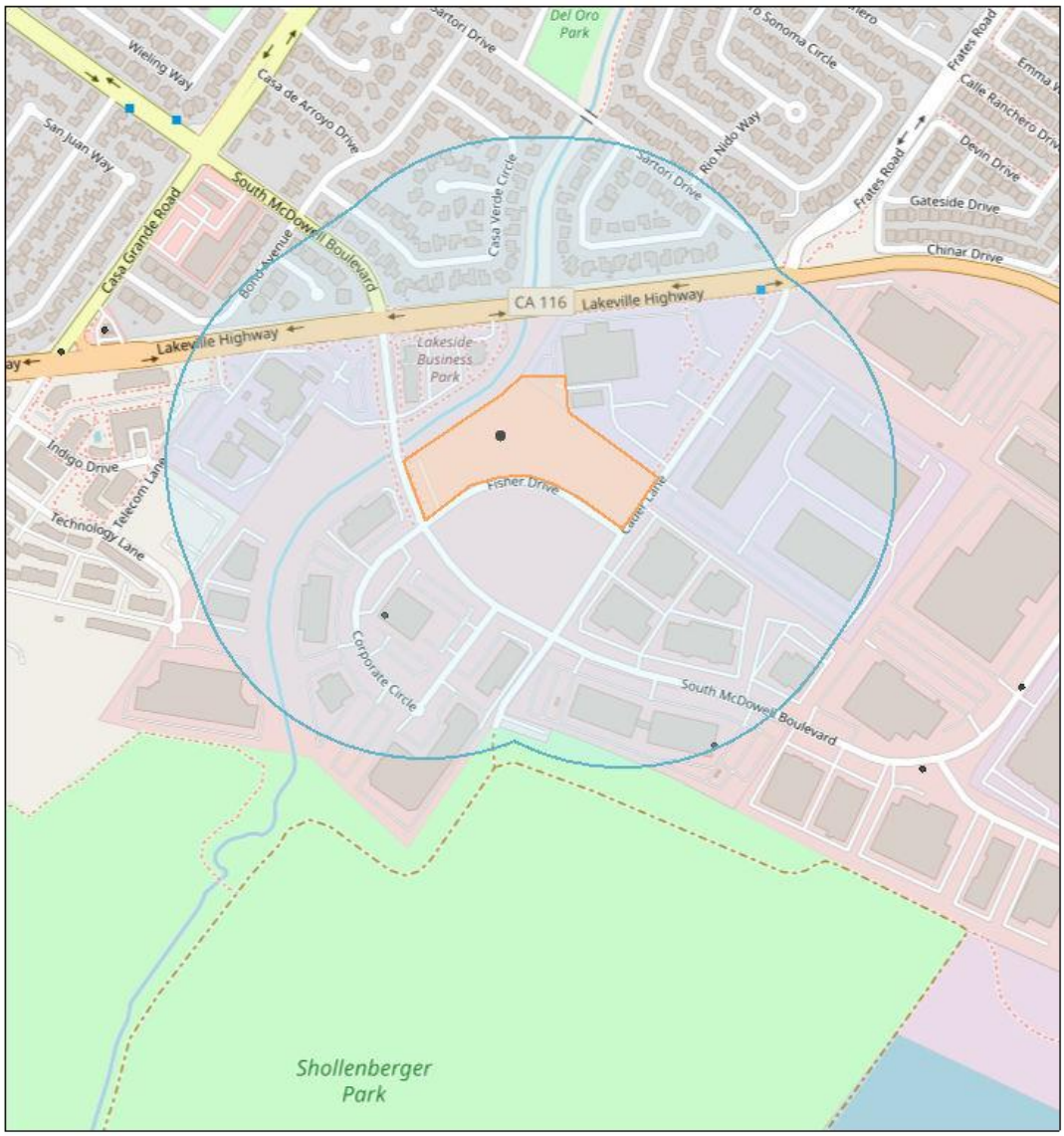
Attachment 5: Community Risk Modeling Information and Calculations

Screening Report

Area of Interest (AOI) Information

Area : 6,295,461.8 ft²

Jul 15 2022 14:34:18 Pacific Daylight Time



• Permitted Stationary Sources

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Map data © OpenStreetMap contributors, CC-BY-SA

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Stationary Sources	2	N/A	N/A

Permitted Stationary Sources

#	FacID	FacName	Address	City	Street
1	19465	RNM Properties	1650 Corporate Cir	Petaluma	CA
2	23958	Ygrene Energy Fund	2100 So McDowell Ave	Petaluma	CA

#	Zip	County	Latitude	Longitude	Details
1	94,954.00	Sonoma	38.23	-122.60	Generator
2	94,954.00	Sonoma	38.23	-122.60	Generator

#	NAICS	Sector	Sub_Sector	Industry	ChronicHI
1	522,291.00	Finance and Insurance	Credit Intermediation and Related Activities	Consumer Lending	0.0651763
2	624,229.00	Health Care and Social Assistance	Social Assistance	Other Community Housing Services	0.0000297

#	PM2_5	Cancer Risk {expression/expr0}	Chronic Hazard Index {expression/expr1}	PM2.5 {expression/expr2}	Count
1	0.1636064	125.438	0.065	0.164	1
2	0.0000760	0.004	0	0	1

NOTE: A larger buffer than 1000 feet may be warranted depending on proximity to significant sources.

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD

This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

Click here for guidance on coducting risk & hazard screening, including roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Click here for District's Recommended Methods for Screening and Modeling Local Risks and Hazards document.

Table A: Requester Contact Information

Date of Request	**7/15/2022**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	Labcon Fisher II
Address	1649 Fisher D
City	Petaluma
County	Sonoma
Type (residential, commercial, mixed use, industrial, etc.)	Industrial
Project Size (# of units or building square feet)	175-ksf
Comments:	

For Air District assistance, the following steps must be completed:

1. Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.

2. Download and install the free program Google Earth, **http://www.google.com/earth/download/ge/,** and then download the county specific Google Earth stationary source application files from the District's website, **http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.** The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.

3. Find the project site in Google Earth by inputting the site's address in the Google Earth search box.

4. Identify stationary sources within at least a 1000ft radius of project site. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm the source's address location. Please report any mapping errors to the District.

5. List the stationary source information in Table B in the section only.

6. Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.

7. Email this completed form to District staff. District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.

Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.

Submit forms, maps, and questions to Matthew Hanson at 415-749-8733, or mhanson@baaqmd.gov

Table B: Google Earth data

Construction MEI

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments	Adjustment Multiplier to MEI	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
0	19465	RNM Properties	1650 Corporate Cir	125.44	0.07	0.16		Generator		2020 Dataset	0.04	5.02	0.003	0.01
0	23958	Ygrene Energy Fund	2100 So McDowell Ave	0.004	--	--		Generator		2020 Dataset	0.04	0.00	#VALUE!	#VALUE!

Footnotes:

1. Maximally exposed individual
2. These Cancer Risk, Hazard Index, and PM2.5 columns represent the values in the Google Earth Plant Information Table.
3. Each plant may have multiple permits and sources.
4. Permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc.
5. Fuel codes: 98 = diesel, 189 = Natural Gas.
6. If a Health Risk Screening Assessment (HRSA) was completed for the source, the application number will be listed here.
7. The date that the HRSA was completed.
8. Engineer who completed the HRSA. For District purposes only.
9. All HRSA completed before 1/5/2010 need to be multiplied by an age sensitivity factor of 1.7.
10. The HRSA "Chronic Health" number represents the Hazard Index.
11. Further information about common sources:
    a. Sources that only include diesel internal combustion engines can be adjusted using the BAAQMD's Diesel Multiplier worksheet.
    b. The risk from natural gas boilers used for space heating when <25 MM BTU/hr would have an estimated cancer risk of one in a million or less, and a chronic hazard index of 0.003
    c. BAAQMD Reg 11 Rule 16 required that all co-residential (sharing a wall, floor, ceiling or is in the same building as a residential unit) dry cleaners cease use of perc on July 1, 2010. Therefore, there is no cancer risk, hazard or PM2.5 concentrations from co-residential dry cleaning businesses in the BAAQMD.
    d. Non co-residential dry cleaners must phase out use of perc by Jan. 1, 2023. Therefore, the risk from these dry cleaners does not need to be factored in over a 70-year period, but instead should
    e. Gas stations can be adjusted using BAAQMD's Gas Station Distance Mulitplier worksheet.
    f. Unless otherwise noted, exempt sources are considered insignificant. See BAAQMD Reg 2 Rule 1 for a list of exempt sources.
    g. This spray booth is considered to be insignificant.