Appendix D
Air Quality and
Greenhouse Gas Assessment

ALDERSLY RETIREMENT COMMUNITY AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San Rafael, California

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Executive Summary

An air quality, community risk, and GHG assessment was conducted for the Aldersly Retirement Community project in San Rafael, California. Based on provided project information, site plans, traffic data, and construction information, the results indicated that the project would not exceed BAAQMD thresholds for construction or operational criteria air pollutant emissions or operational GHG emissions. A community health risk analysis prepared for this project indicated that, without mitigation, the maximum increased cancer risk and total annual $PM_{2.5}$ concentration from construction activities would exceed BAAQMD thresholds at the maximally exposed individual. With the incorporation of construction *Mitigation Measures AQ-1 and AQ-2*, these impacts would be reduced below the BAAQMD thresholds.

Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the Aldersly Retirement Community project located at 364 Mission Avenue in San Rafael, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing land uses at the site, construction of new building and infrastructure, and operation of the project. Air pollutant and GHG emissions associated with the construction and operation of the project were predicted using appropriate computer models. In addition, the potential project health risk impact (includes construction and operation) and the impacts of existing toxic air contaminant (TAC) sources affecting the nearby and proposed sensitive receptors were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The project proposes phased improvements which include demolition and renovation of existing buildings, and construction of new buildings on the existing Aldersly Campus. The project would result in a new three-story Independent Living (IL) building along Mission Avenue, a new Independent Living building on the western portion of the site (West Campus IL), a new service building along Belle Avenue, three renovated/reconfigured buildings, and new outdoor spaces. The project would result in 14 additional independent living units, an increase from 55 units to 69 units. The number of Assisted Living/Memory Care beds (30 beds) and Skilled Nursing beds (20 beds) would remain unchanged. A 500-kilowatt (kW) emergency generator powered by a 670-horsepower (HP) engine would be located on the ground floor in the Mission Avenue IL building. The generator would be installed during the first phase of construction. The project would provide a total of 56 parking spaces.

Setting

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

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

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, reduce 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 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

TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., diesel particulate matter [DPM] near a freeway). Because chronic exposure 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. The most recent Office of Environmental Health Hazard Assessment (OEHHA) risk assessment guidelines were published in February of 2015.[2] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

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

Regulatory Agencies

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 nitrogen oxides, or NO_X, and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified diesel particulate matter 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 PM and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[3]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new 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 diesel 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

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

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

vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

CARB has adopted and implemented a number of 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, this measure 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.

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 and California Ambient Air Quality Standards. 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.

The BAAQMD *California Environmental Quality Act (CEQA) Air Quality Guidelines*[5] 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 CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include

[5] Bay Area Air Quality Management District, 2011. *CEQA Air Quality Guidelines*. May. (Updated May 2017)

assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

San Rafael General Plan 2020

The San Rafael General Plan 2020 includes policies to reduce exposure of the City's sensitive population to exposure of air pollution and toxic air contaminants. The following policies are applicable to the proposed project:

AW-1. *State and Federal Standards.* Continue to comply and strive to exceed state and federal standards for air quality for the benefit of the Bay Area.

AW-1a. *Cooperation with Other Agencies.* Cooperate with the Bay Area Air Quality Management District (BAAQMD) and other agencies in their efforts to ensure compliance with existing air quality regulations.

AW-2. *Land Use Compatibility.* To ensure excellent air quality, promote land use compatibility for new development by using buffering techniques such as landscaping, setbacks, and screening in areas where different land uses abut one another.

AW-2a. *Sensitive Receptors.* Through development review, ensure that siting of any new sensitive receptors provides for adequate buffers from existing sources of toxic air contaminants or odors. If development of a sensitive receptor (a facility or land use that includes members of the population sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses) is proposed within 500 feet of U.S. Highway 101 or I-580, an analysis of mobile source toxic air contaminant health risks should be performed. Development review should include an evaluation of the adequacy of the setback from the highway and, if necessary, identify design mitigation measures to reduce health risks to acceptable levels.

AW-2b. *Buffers.* Through development review, ensure that any proposed new sources of toxic air contaminants or odors provide adequate buffers to protect sensitive receptors and comply with existing health standards.

AW-3. *Air Quality Planning with Other Processes.* Integrate air quality considerations with the land use and transportation processes by mitigating air quality impacts through land use design measures, such as encouraging project design that will foster walking and biking.

AW-3a. *Air Pollution Reduction Measures.* Consider revisions to zoning regulations to require developers to implement strategies for air quality improvement described in the BAAQMD/ABAG's guide "Design Strategies for Encouraging Alternatives to Auto Use Through Local Development Review" or subsequent standards.

AW-3b. *Smart Growth and Livable Communities Programs.* Participate in and implement strategies of Metropolitan Transportation Commission's regional "Smart Growth Initiative" and "Transportation for Livable Communities Program."

AW-4. *Particulate Matter Pollution Reduction.* Promote the reduction of particulate matter pollution from roads, parking lots, construction sites, agricultural lands and other activities.

AW-4a. *Pollution Reduction.* Through development review, ensure that any proposed new sources of particulate matter use latest control technology (such as enclosures, paving unpaved areas, parking lot sweeping and landscaping) and provide adequate buffer setbacks to protect existing or future sensitive receptors.

Sensitive Receptors

There are groups of people more affected by air pollution than others. CARB has identified the following persons who are most likely to be affected by air pollution: children under 16, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, and elementary schools. For cancer risk assessments, infants and children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children.

The closest sensitive receptors to the project site are the residents in the adjacent single-family homes to the west and east of the site. There are additional single- and multi-family residences surrounding the site at further distances. There is a child daycare center (Canal Child Care Center) about 200 feet southeast of the project site at the southeast corner of Union Street and Million Avenue. Ages of the children at the daycare range from 3 through 6 years. There are also the children (13 years and older) at the San Rafael High School to the southeast of the site. This project would also introduce new sensitive receptors (senior residents).

Significance Thresholds

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 challenged through a series of court challenges and were mostly upheld. BAAQMD updated the *CEQA Air Quality Guidelines* in 2017 to include the latest significance thresholds that were used in this analysis are summarized in Table 1.

Table 1. Community Risk Significance and GHG 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 1,000-foot zone of influence)**	
Excess Cancer Risk	>10.0 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 $\mu g/m^3$	>0.8 $\mu g/m^3$	
Greenhouse Gas Emissions			
Land Use Projects – direct and indirect emissions	Compliance with a Qualified GHG Reduction Strategy OR 1,100 metric tons annually or 4.6 metric tons per capita (for 2020) *		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less. GHG = greenhouse gases.

*BAAQMD does not have a recommended post-2020 GHG threshold.

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*.[6] 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. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see below), 2) the project would be considered urban infill, and 3) the project would be located near transit with regional connections.

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 Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. 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. These thresholds are for O_3 precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ and apply to both construction period and operational period impacts.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 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 2017 (EMFAC2017) model was used to predict

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

emissions from construction traffic, which includes worker travel, vendor trucks, and haul trucks.[7] The CalEEMod model output along with construction inputs are included in *Attachment 2* and EMFAC2017 vehicle emissions modeling outputs are included in *Attachment 3*.

CalEEMod Inputs

Land Use Inputs

The proposed senior living facility project would be constructed in four phases. Separate CalEEMod runs were conducted for each phase as each phase would renovate and/or construct new buildings over several years. The land uses for each construction phase were entered into CalEEMod as described in Table 2.

Table 1. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Phase 1: Mission Ave IL & Fredericksborg, 2023-2024				
Congregate Care (Assisted Living)[1]	35	Dwelling Units	60.698	1.15
Parking Lot	10	Parking Spaces	4,942	
Enclosed Paring with Elevator	17	Parking Spaces	9,452	
Phase 2: Kronborg Service Building, 2025				
Medical Office Building[2]	2.66	1,000-sf	2,664	0.4
Phase 3: Christianborg Renovation, 2025				
Congregate Care (Assisted Living)	6	Dwelling Units	5,460	0.25
Phase 4: New West Campus IL, 2026-2027				
Congregate Care (Assisted Living)	15	Dwelling Units	21,850	0.4

Notes: Acreage estimated in Google Earth.
[1] Congregate care square footage includes building amenities and offices.
[2] Congregate Care land use only in dwelling units. Closes land use with square-footage units to "maintenance" in senior living facility is MOB.

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 construction information provided by the project applicant.

The CalEEMod construction equipment worksheet provided by the applicant included the schedule for each phase. Within each phase, the quantity of equipment to be used along with the average hours per day and total number of workdays was provided. Since different equipment would have different estimates of the working days per phase, the hours per day for each phase was computed

[7] See CARB's EMFAC2017 Web Database at https://www.arb.ca.gov/emfac/2017/

by dividing the total number of hours that the equipment would be used by the total number of days in that phase. The construction schedule assumed that the earliest possible start date would be January 2023 and the project would be built out over a period of approximately 4 years and 3 months, or 954 construction workdays. The first full year of operation was assumed to be 2028.

Construction Truck Traffic Emissions

The latest version of the CalEEMod model is based on the older version of the CARB EMFAC2014 motor vehicle emission factor model. This model has been superseded by the EMFAC2017 model; however, CalEEMod has not been updated to include EMFAC2017. Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were computed based on the estimate of demolition material to be exported, soil material imported and/or exported to the site, and the estimate of cement 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 were estimated from the provided demolition tonnage by assuming each truck could carry 10 tons per load. The number of concrete and asphalt total round haul trips were provided for the project and converted to total one-way trips, assuming two trips per round-trip delivery.

The construction traffic information was combined with EMFAC2017 motor vehicle emissions factors. EMFAC2017 provides aggregate emission rates in grams per mile for each vehicle type. The vehicle mix for this study was based on CalEEMod default assumptions, where worker trips are assumed to be 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 cement 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 (demolition material export and soil import/export). Since CalEEMod does not address cement or 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 emission rates from years 2023-2027 for Marin County were used. Table 3 provides the traffic inputs that were combined with the EMFAC2017 emission factors to compute vehicle emissions.

Table 3. Construction Traffic Data Used for EMFAC2017 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker Trips[1]	Total Vendor Trips[1]	Total Haul Trips[2]	
Vehicle mix[1]	67.6% LDA 7.4% LDT1 25.1% LDT2	50.3% MHDT 49.7% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo/Soil) 7.3 (Cement/Asphalt)	CalEEMod default distance with 5-min truck idle time.
Phase 1: 2023-2024				
Demolition	414	-	203	40,678-sf building demolition and 90 tons of pavement demolition. CalEEMod default worker trips.
Site Preparation	260	-	-	CalEEMod default worker trips.
Grading	110	-	1,000	7,500-cy export and 500-cy import. CalEEMod default worker trips.
Trenching	115	-	-	CalEEMod default worker trips.
Building Construction	8,463	1,638	500	250 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	2,226	-	-	CalEEMod default worker trips.
Paving	660	-	88	370-cy asphalt. CalEEMod default worker trips.
Phase 2: 2025				
Demolition	229	-	17	2,517-sf building demolition and 30 tons of pavement demolition. CalEEMod default worker trips.
Site Preparation	100	-	-	CalEEMod default worker trips.
Grading	100	-	75	500-cy export and 100-cy import. CalEEMod default worker trips.
Trenching	60	-	-	CalEEMod default worker trips.
Building Construction	129	-	80	40 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	-	-	-	CalEEMod default worker trips.
Paving	585	-	14	60-cy asphalt. CalEEMod default worker trips.
Phase 3: 2025				
Demolition	115	-	31	5,460-sf building demolition and 30 tons of pavement

				demolition. CalEEMod default worker trips.
Site Preparation	215	-	-	CalEEMod default worker trips.
Grading	100	-	44	250-cy export and 100-cy import. CalEEMod default worker trips.
Trenching	50	-	-	CalEEMod default worker trips.
Building Construction	440	110	80	40 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	110	-	-	CalEEMod default worker trips.
Paving	360	-	14	60-cy asphalt. CalEEMod default worker trips.
Phase 4: 2026-2027				
Demolition	440	-	23	4,124-sf building demolition and 20 tons of pavement demolition. CalEEMod default worker trips.
Site Preparation	260	-	-	CalEEMod default worker trips.
Grading	299	-	500	3,500-cy export and 500-cy import. CalEEMod default worker trips.
Trenching	115	-	-	CalEEMod default worker trips.
Building Construction	2,068	376	240	120 cement roundtrips. CalEEMod default worker and vendor trips.
Architectural Coating	418	-	-	CalEEMod default worker trips.
Paving	430	-	88	370-cy asphalt. CalEEMod default worker trips.
Notes: [1] Based on 2023-2027 EMFAC2017 light-duty vehicle fleet mix for Marin County. [2] Includes demolition and grading trips estimated by CalEEMod based on amount of material to be removed.				

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions by the number of active workdays during that year. Table 4 shows 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 construction period emissions would not exceed the BAAQMD significance thresholds.

Table 4. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions Per Year (Tons)				
2023 (Phase 1)	0.30	0.84	0.04	0.03
2024 (Phase 1)	0.27	0.45	0.02	0.02
2025 (Phases 2 and 3)	0.16	0.96	0.04	0.04
2026 (Phase 4)	0.22	0.79	0.03	0.03
2027 (Phase 4)	0.02	0.06	<0.01	<0.01
Annualized Daily Construction Emissions (pounds/day)				
2023 (260 construction workdays)	2.28	6.47	0.30	0.26
2024 (196 construction workdays)	2.74	4.62	0.21	0.17
2025 (174 construction workdays)	1.88	11.00	0.44	0.41
2026 (260 construction workdays)	1.70	6.07	0.26	0.23
2027 (64 construction workdays)	0.70	1.87	0.09	0.07
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 reduce 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.

Operational Period Emissions

Operational air emissions from the project would be generated primarily from autos driven by future employees, and residents. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to estimate emissions from operation of the proposed project assuming full build-out.

CalEEMod Inputs

Land Uses

After the construction and renovations on the existing Aldersly Campus are completed, the project's operation would still be as a congregate care land use, only expanded to include the new dwelling units and parking spaces. Therefore, separate CalEEMod inputs were used to calculate the operational emission of the net project expansion. The proposed operational project land uses were input into CalEEMod as follows:

- 14 dwelling units and 30,345-sf entered as "Congregate Care (Assisted Living)", and
- 26 spaces entered as "Parking Lot".

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 full year of operation would be 2028 if construction begins in 2023. Emissions associated with build-out later than 2028 would be lower.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate provided by the traffic consultant was entered into the model.[8] The weekday trip generation rates were adjusted using the traffic daily rates. The Saturday and Sunday trip rates were adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate with the project-specific daily weekday trip rate. The default trip lengths and trip types specified by CalEEMod were used.

EMFAC2017 Adjustment

The vehicle emission factors and fleet mix used in CalEEMod are based on EMission FACtors from 2014 (EMFAC2014), which is an older CARB emission inventory for on road and off road mobile sources. Since the release of CalEEMod Version 2016.3.2, new emission factors have been produced by CARB. EMFAC2017 became available for use in March 2018 and approved by the EPA in August 2019. It includes the latest data on California's car and truck fleets and travel

[8] Correspondence with Barry Bergman, W-Trans, September 24, 2020.

activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.[9,10] The SAFE vehicle Rule Part One revoked California's authority to set its own GHG emission standards and set zero emission vehicle mandates in California. As a result of this ruling, mobile criteria pollutant and GHG emissions would increase. Therefore, the CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2017, which were adjusted with the CARB EMFAC off-model adjustment factors. More details about the updates in emissions calculation methodologies and data are available in the EMFAC2017 Technical Support Document.[11]

Energy

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. Indirect emissions from electricity were computed in CalEEMod. The model has a default rate of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. However, PG&E published in 2019 emissions rates for 2010 through 2017, which showed the emission rate for delivered electricity had been reduced to 210 pounds CO_2 per megawatt of electricity delivered in the year 2017.[12]

In addition, Marin Clean Energy (MCE) now provides electricity to 86 percent of Marin County, with 60 percent renewable and 100 percent being carbon free electricity by 2022. The 2017 CO_2 intensity rate provided by MCE was 109 pounds of CO_2 per megawatt of electricity delivered.[13] The CO_2 intensity rate input into CalEEMod was adjusted to account for 86 percent of MCE's rate and 14 percent of PG&E's rate. This computed to 123 pounds of CO_2 per megawatt of electricity delivered. This rate was used in the model.

Project Generators

The project would include one emergency generator on the ground floor in the Mission Avenue IL building. The preliminary size of the generator would be approximately 500-kW and would be powered by an approximately 670-HP diesel engine. This generator would be tested periodically and power the buildings in the event of a power failure. For modeling purposes, it was assumed that the generator would be operated primarily for testing and maintenance purposes. CARB and BAAQMD requirements limit these engine operations to 50 hours each per year of non-emergency operation. During testing periods, the engine would typically be run for less than one hour. The engine would be required to meet CARB and EPA emission standards and consume commercially

[9] California Air Resource Board, 2019. *EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One*. November. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf
[10] California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_20 Emissions to Accounts for the SAFE Vehicles Rule Part One and the Final SAFE Rule*. June. Web: https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery
[11] See CARB 2018: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac
[12] PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf
[13] Correspondence with Rebecca Boyles, Marin Clean Energy, August 2, 2019.

available California low-sulfur diesel fuel. The generator emissions were modeled using CalEEMod.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be powered by natural gas per BAAQMD Regulation 6, Rule 3, which requires that new building construction not install a wood-burning device (effective as of November 1, 2016).[14]

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating 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}	$PM_{2.5}$
2028 Project Operational Emissions (*tons/year*)	0.19 tons	0.10 tons	0.03 tons	0.01 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2028 Project Operational Emissions (*lbs./day*)[1]	1.02 lbs.	0.53 lbs.	0.15 lbs.	0.06 lbs.
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

[14] Bay Area Air Quality Management District,

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 sources and emergency generator).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would include the installation of an emergency generator powered by a diesel engine, which would produce TAC and air pollutant emissions. The project would generate some traffic, consisting of light-duty vehicles. However, the number of net daily trips generated by the project are small (i.e. 272 daily trips)[15] and emissions from automobile traffic generated by the project would be spread out over a broad geographical area and not localized. Project traffic was not be considered a source of substantial TACs or $PM_{2.5}$.

Therefore, 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 that includes the project contribution, as well as the risk on the new sensitive receptors introduced by the project.

Community Risk Methodology for Construction and Operation

Community risk impacts were addressed by predicting increased 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,[16] 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.

[15] Correspondence with Barry Bergman, W-Trans, September 24, 2020

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

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 adjacent residences to the west and east, the residences surrounding the site, the daycare southeast of the project site, and high school farther to the southeast of the project site, as shown in Figure 1. Residential receptors are assumed to include all receptor groups (i.e. infants, children, and adults) with almost continuous exposure to project emissions. Community risks were also computed for children at the daycare (3 through 6 years of age) and at San Rafael High School (13 years and older).

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. These exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations. Construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents. The primary community risk impact issue associated with construction emissions are cancer risk and exposure to $PM_{2.5}$. Diesel exhaust 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 $PM_{2.5}$.[17] This assessment included dispersion modeling to predict the offsite and onsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated.

Construction Emissions

The CalEEMod model and EMFAC2017 calculations provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total PM_{10} exhaust emissions from all construction stages reported in Table 6. The on-road emissions are a result of haul truck travel during demolition and grading activities, 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. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod and EMFAC2017 for the overall construction period and are included as part of the Total $PM_{2.5}$ emissions reported in Table 6.

Table 6. Localized Project Construction Emissions of DPM and Fugitive $PM_{2.5}$

Description	DPM	$PM_{2.5}$
Phase 1 (2023-2024)	0.0486 tons (97 pounds)	0.0467 tons (93 pounds)
Phase 2 (2025)	0.0236 tons (47 pounds)	0.0136 tons (27 pounds)
Phase 3 (2025)	0.0128 tons (26 pounds)	0.0137 tons (27 pounds)
Phase 4 (2026-2027)	0.0321 tons (64 pounds)	0.0476 tons (95 pounds)

[17] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences, daycare, and high school) 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.[18]

To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.[19] The release height incorporates both the physical release height from the construction equipment (i.e., the height of the exhaust pipe) and plume rise after it leaves the exhaust pipe. Plume rise is due to both the high temperature of the exhaust and the high velocity of the exhaust gas. It should be noted that when modeling an area source, plume rise is not calculated by the AERMOD dispersion model as it would do for a point source (exhaust stack). Therefore, the release height from an area source used to represent emissions from sources with plume rise, such as construction equipment, should be based on the height the exhaust plume is expected to achieve, not just the height of the top of the exhaust pipe.

For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of 7 feet (2 meters) was used for the area source. 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 7-foot release height was used as the average release height across the construction site. Emissions from the construction equipment and on-road vehicle travel were distributed throughout the modeled area sources.

The modeling used a five-year data set (2009-2013) of hourly meteorological data from the Gnoss Field Airport in Novato that was prepared for use with the AERMOD model by CARB. Construction emissions were modeled as occurring daily between 7:00 a.m. to 4:00 p.m., when the majority of construction activity would occur according to the applicant. Annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2023-2027 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors.

Receptor elevations were based on USGS National Elevation Data (NED) with a 10-meter resolution. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing height on the first and second floors of nearby single- and multi-family residences and apartments.[20] Receptor heights of 3 feet (1 meter) were used for children at the daycare and

[18] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.
[19] California Air Resource Board, 2007. *Proposed Regulation for In-Use Off-Road Diesel Vehicles, Appendix D: Health Risk Methodology.* April. Web: https://ww3.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm
[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

5 feet (1.5 meter) at the San Rafael High School to represent the breathing height of the children at the daycare and high school, respectively.

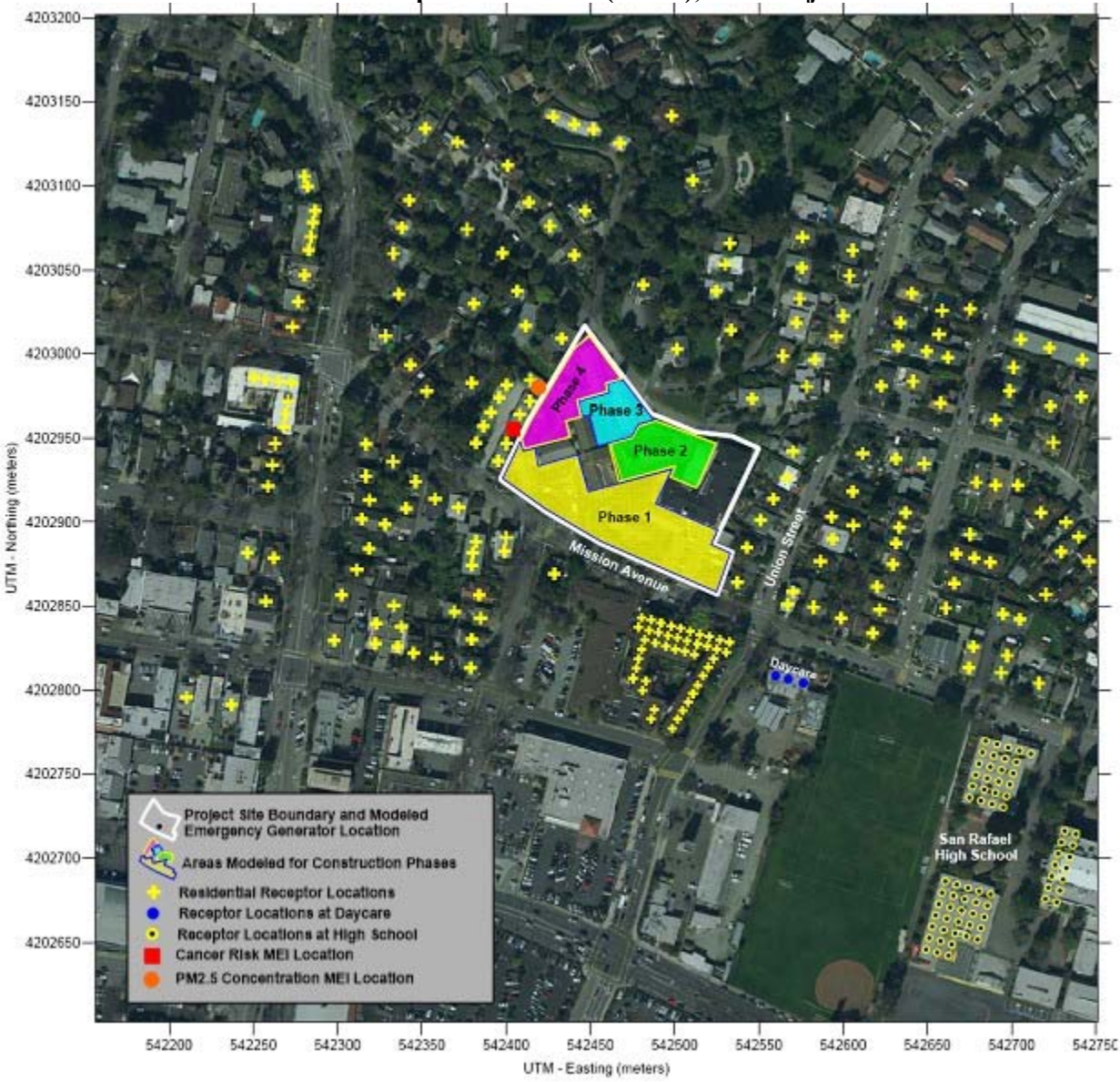
Summary of Construction Community Risk Impacts

The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant 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 concentrations. The maximum computed HI values was based on the ratio of the maximum DPM concentration modeled and the chronic inhalation reference exposure level of 5 $\mu g/m^3$.

The maximum modeled annual DPM and $PM_{2.5}$ concentrations, which include both the DPM and fugitive $PM_{2.5}$ concentrations, were identified at nearby sensitive receptors to find the MEI. Results of this assessment indicated that the maximum cancer risk and $PM_{2.5}$ concentration occur at different locations. The MEI for cancer risk was located on the first floor (5 feet above ground) of a residential unit adjacent to the southwestern project boundary. The MEI for $PM_{2.5}$ concentration was located on the first floor level (5 feet above ground) of a residence adjacent to the northwestern project boundary. The locations of the cancer risk and $PM_{2.5}$ concentration MEIs are shown in Figure 1. In addition, the maximum cancer risks, $PM_{2.5}$ concentrations, and HI at the Canal Child Care Center and San Rafael High School are all below the BAAQMD single-source thresholds. Table 7 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities. *Attachment 4* to this report includes the emission calculations used for the construction modeling and the cancer risk calculations.

Figure 1. Project Construction Site, Locations of Off-Site Sensitive Receptors and Maximum TAC Impact Locations (MEIs), and Project Generator Locations



Community Risks from Project Operation – Traffic and Generator

Operation of the project would have long-term emissions from mobile sources (i.e. traffic) and stationary sources (i.e. emergency generator). While these emissions would not be as intensive (at or near the site) as construction activity, they would contribute to long-term effects to sensitive receptors.

Project Traffic

BAAQMD considers roadways that have less than 10,000 average daily traffic (ADT) to be low-impact sources of TACs and do not need to be considered in the CEQA analysis.[21] This project would generate 272 net daily trips with a majority of the trips being from light-duty vehicles (i.e. passenger cars), which is less than 10,000 daily vehicles. Therefore, emissions from project traffic would be negligible and are not included in this analysis.

Project Operational Emergency Generator

The project would include a 500-kW emergency generator with an approximately 670 HP diesel engine. The generator would be part of the senior living facility but the location was unknown at the time of this study, so it was conservatively assumed to be located in the Mission Avenue IL building. Figure 2 shows the location of the modeled emergency generator.

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

Dispersion Modeling

To obtain an estimate of potential cancer risks and $PM_{2.5}$ impacts from operation of the emergency generators, the U.S. EPA AERMOD dispersion model was used to calculate the maximum annual DPM concentration at off-site sensitive receptor locations (nearby residences). The same receptors and breathing heights used in the construction dispersion modeling were used for the generator dispersion model. Additionally, the CARB Gnoss Field Airport meteorological data was used. Stack parameters (stack height, exhaust flow rate, and exhaust gas temperature) for modeling the generators were based on BAAQMD default parameters for emergency generators.[22] Annual

[21] BAAQMD, 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May. Web: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en

[22] The San Francisco Community Risk Reduction Plan: Technical Support Document, BAAQMD, San Francisco Dept. of Public Health, and San Francisco Planning Dept., December 2012

average DPM and $PM_{2.5}$ concentrations were modeled assuming that generator testing could occur at any time of the day.

To calculate the increased cancer risk from the generator at the MEIs, the cancer risks exposure duration was adjusted to account for the MEI being exposed to construction for the first two years (Phase 1) of the 30-year lifetime period. The exposure duration for the generator was adjusted for 28 years of exposure since it would not be operational for the first two years of construction. Table 7 lists the risks and hazards from the project generator. The emissions and health risk calculations for the proposed generators are included in *Attachment 4*.

Summary of Project-Related Community Risks at the Off-site Project MEI

For this project, the sensitive receptors identified in Figure 1 as the construction MEIs are also the project MEIs. At these locations, the MEIs would be exposed to five years of construction cancer risks and 28 years of operational (i.e. emergency backup generator) cancer risks. There is overlap between the project's cancer risk exposure from construction and operation because it is assumed that the project generator would be installed during Phase 1 of construction and operational during the Phases 2 through 4 of construction. The cancer risks from construction and operation of the project were summed together. The annual $PM_{2.5}$ concentration and HI values are based on an annual maximum risk for the entirety of the project, so they were not summed.

As shown in Table 7, the unmitigated project construction and operation community risks would exceed the BAAQMD single-source thresholds for increased cancer risk and $PM_{2.5}$ concentration. However, with *Mitigation Measure AQ-1 and AQ-2*, the increased cancer risk and $PM_{2.5}$ concentration from construction activities would be reduced and the total project increased cancer risk would below the BAAQMD single-source threshold. The maximum project annual HI value does not exceed the BAAQMD annual HI single-source thresholds.

Table 7. Construction and Operation Risk Impacts at the Off-Site Receptors

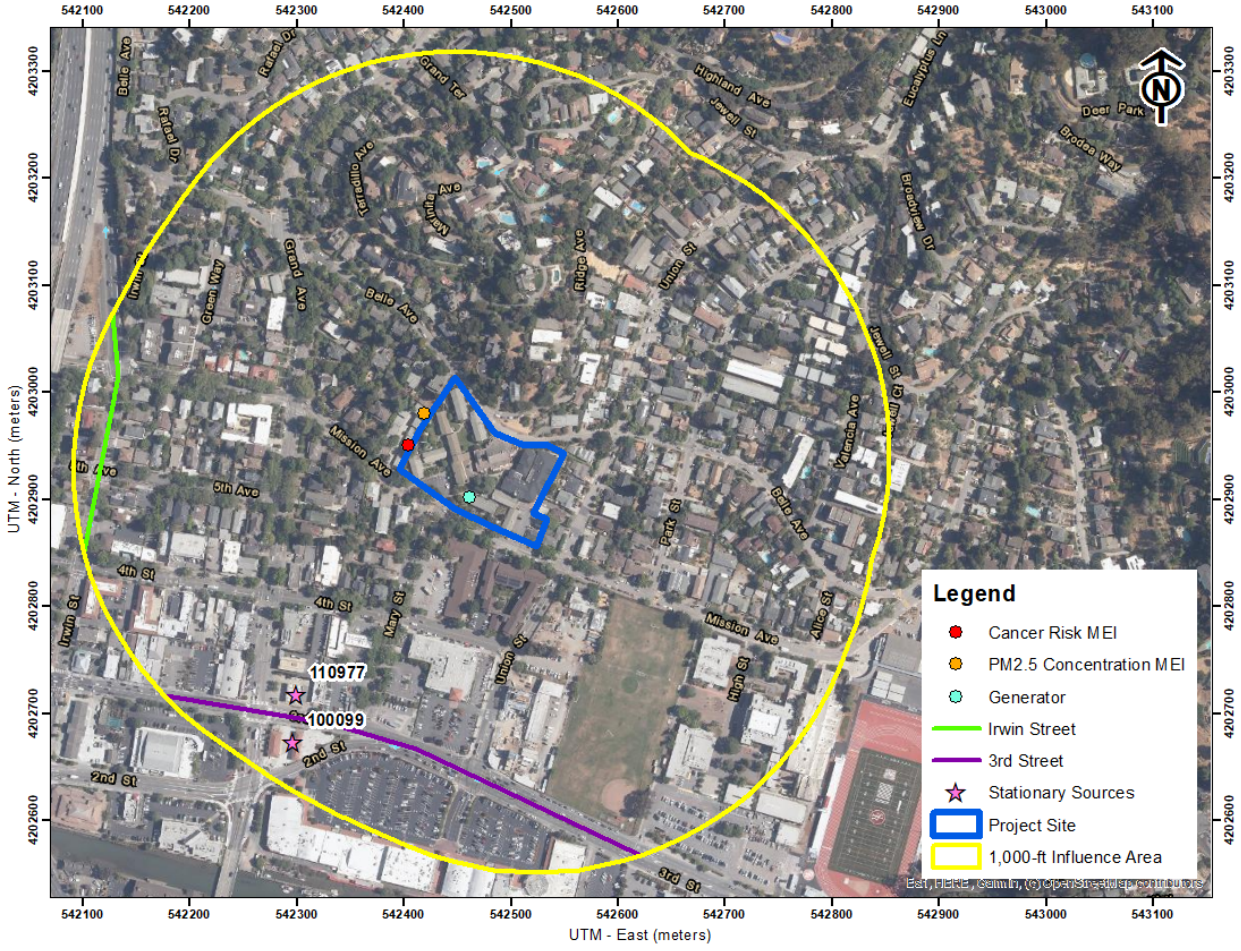
Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Construction (Years 0-5)	Unmitigated	**29.3 (infant)**	**1.12**	0.02
	Mitigated**	5.0 (infant)	0.11	<0.01
Project Generator – 500-kW, 670-hp (Years 3-30)		0.3	<0.01	<0.01
Total/Maximum Project Risks (Years 0-30)	Unmitigated	**29.6 (infant)**	**1.12**	0.02
	Mitigated**	5.3 (infant)	0.11	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated**	*No*	*No*	*No*
Canal Child Care Center Receptors				
Project Construction (Years 0-4)	Unmitigated	2.6 (child)	0.07	0.01
Project Generator – 500-kW, 670-hp (Years 2-4)	Unmitigated	<0.1 (child)	<0.01	<0.01
Total/Maximum Project Risks (Years 0-30)	Unmitigated	2.7 (child)	0.07	0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceeds Threshold?	Unmitigated	*No*	*No*	*No*
San Rafael High School Student Receptors				
Project Construction (Years 0-4)	Unmitigated	0.5 (child)	0.01	<0.01
Project Generator – 500-kW, 670-hp (Years 2-4)	Unmitigated	<0.1 (child)	<0.01	<0.01
Total/Maximum Project Risks (Years 0-30)	Unmitigated	0.6 (child)	0.01	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceeds Threshold?	Unmitigated	*No*	*No*	*No*

* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at different receptors, both at 5-foot receptor heights.
** Construction equipment with Tier 4 engines and CNG powered aerial lifts as Mitigation Measures.

Combined Impact of All TAC Sources on the Off-Site Construction MEIs

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 the project site (i.e. influence area). These sources include rail lines, freeways or highways, busy surface streets, and stationary sources identified by BAAQMD. A review of the project area indicates that traffic on Irwin Street and 3rd Street has an average daily traffic (ADT) of over 10,000 vehicles. All other roadways within the area are assumed to have an ADT that is less than 10,000 vehicles. Two stationary sources were identified within the 1,000-foot influence area using the BAAQMD's stationary source geographic information systems (GIS) map tool.[23] Figure 2 shows the sources affecting the project site and MEI. Community risk impacts from these sources upon the MEI are reported in Table 8. Details of the modeling and community risk calculations are included in *Attachment 5*.

Figure 2. Project Site, Project Generator, MEIs, and Nearby TAC Sources



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

Local Roadways – Irwin Street and 3rd Street

For local roadways, BAAQMD has provided the *Roadway Screening Analysis Calculator* to assess whether roadways with traffic volumes of over 10,000 vehicles per day may have a potentially significant effect on a proposed project. Note this is a screening model and more refined modeling could be conducted if potentially significant impacts are identified. Two adjustments were made to the cancer risk predictions made by this calculator: (1) adjustment for latest vehicle emissions rates predicted using EMFAC2014 and (2) adjustment of cancer risk to reflect OEHHA guidance (see *Attachment 1*).

The calculator uses EMFAC2011 emission rates for the year 2014. However, a new version of the emissions factor model, EMFAC2014 is available. This version predicts lower emission rates. An adjustment factor of 0.5 was developed by comparing emission rates of total organic gases (TOG) for running exhaust and running losses developed using EMFAC2011 for year 2014 and those from EMFAC2014 for 2018. The predicted cancer risk was then adjusted using a factor of 1.3744 to account for new OEHHA guidance. This factor was provided by BAAQMD for use with their CEQA screening tools that are used to predict cancer risk.[24]

The nearby roadway ADTs were provided by the project's traffic consultant from the City of San Rafael's traffic engineer.[25] The provided ADT on Irwin Street was 21,752 on 3rd Street was 22,240 vehicles.

The BAAQMD *Roadway Screening Analysis Calculator* for Marin County was used for this roadway. Irwin Street was identified as a north-south directional roadway, with the construction MEI located approximately 860 feet east of Irwin Street. 3rd Street was identified as an east-west directional roadway, with the construction MEI located approximately 850 feet north of 3rd Street. BAAQMD has found that the HI was found to be minimal for all surface streets[26] and is therefore not included. Estimated risk values for these roadways at the MEI are listed in Table 8.

BAAQMD Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website.[27] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. Two sources were identified using this tool with both sources being gas dispensing facilities. The BAAQMD GIS website provided screening risks and hazards for both sources, so a stationary source information request was not required to be submitted to BAAQMD.

The screening average daily emissions for all the sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Gasoline Dispensing Facility*. Note that no

[24] Correspondence with Alison Kirk, BAAQMD, November 23, 2015.
[25] Correspondence with Barry Bergman, W-Trans, September 24, 2020.
[26] BAAQMD, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2012, https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/risk-modeling-approach-may-2012.pdf?la=en
[27] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

age-sensitivity factors were included in the screening analysis, so risks would be similar or lower if adjustments were included. Community risk impacts from the stationary sources upon the MEIs are reported in Table 8.

Summary of Cumulative Risks at Off-site Construction MEIs

Table 8 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e. the MEIs). Without mitigation, the project's community risk from project construction activities would exceed the maximum increased cancer risk and maximum $PM_{2.5}$ concentration single-source thresholds. The maximum $PM_{2.5}$ concentration would also exceed its cumulative-source threshold. The combined annual Hazard risk values, which includes unmitigated and mitigated, would not exceed its respective single and cumulative thresholds. The incorporation of *Mitigation Measures AQ-1 and AQ-2* would reduce the project and cumulative risks to a level below the significance thresholds.

Table 8. Cumulative Community Risk Impacts from Combined TAC Sources at MEIs

Source		Cancer Risk* (per million)	Annual $PM_{2.5}$* ($\mu g/m^3$)	Hazard Index
Project Impacts				
Total/Maximum Project Risks (Years 0-30)	Unmitigated	**29.6 (infant)**	**1.12**	0.02
	Mitigated	5.3 (infant)	0.11	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	***Yes***	***Yes***	*No*
	Mitigated	*No*	*No*	*No*
Cumulative Sources				
Irwin Street, ADT 21,752, MEI 860 feet east		1.0	0.02	--
3rd Street, ADT 22,240, MEI 850 feet north		0.6	0.01	--
San Rafael Valero (Facility ID #100099, Gas Station), MEI 910 feet		0.6	--	<0.01
San Rafael Chevron (Facility ID #110977, Gas Station), MEI 760 feet		1.1	--	<0.01
Combined Sources		32.9 (infant)	**1.15**	<0.04
Unmitigated		8.6 (infant)	0.14	<0.03
Mitigated				
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Threshold?	Unmitigated	*No*	***Yes***	*No*
	Mitigated	*No*	*No*	*No*

* Maximum cancer risk and maximum $PM_{2.5}$ concentration occur at different receptors, both at 5-foot receptor heights.

Mitigation Measure AQ-2: **Selection of equipment during construction to minimize emissions.**

The project would need a fleet-wide average reduction in DPM exhaust emissions from the onsite, off-road construction equipment by 65-percent or greater in order to be below BAAQMD thresholds. One feasible way to achieve this reduction would include the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 4 engines. Where Tier 4 equipment is not available, exceptions could be made for equipment that includes CARB-certified Level 3 Diesel Particulate Filters or equivalent. Equipment that is electrically powered or uses non-diesel fuels would also meet this requirement.

- All aerial lifts shall be compressed natural gas (CNG) powered.

Alternatively, the applicant can develop a different plan demonstrating that the off-road equipment used onsite to construct the project would achieve a fleet-wide average 65-percent reduction in DPM exhaust emissions or greater.

Effectiveness of Mitigation Measure AQ-2

CalEEMod was used to compute emissions associated with his mitigation measure assuming that all equipment met U.S. EPA Tier 4 interim engines standards and CNG powered aerial lifts. The computed mitigated maximum increased residential cancer risk from construction, assuming infant exposure, would be 5.0 in one million or less and the $PM_{2.5}$ concentration would be 0.11 $\mu g/m^3$. The combined project mitigated cancer risk would then be 5.3 in one million and combined project mitigated $PM_{2.5}$ concentration would also be 0.11 $\mu g/m^3$. With the implementation of *Mitigation Measure AQ-1 and AQ-2*, risk levels would not exceed the BAAQMD significance thresholds.

Non-CEQA: On-site Community Risk Assessment for TAC Sources - New Project Residences

In addition to evaluating health impact from project construction, a health risk assessment was completed to assess the impact that existing TAC sources would have on the new proposed sensitive receptors (senior residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[28]

Local Roadways – Irwin Street and 3rd Street

The roadway analysis was conducted for the new project sensitive receptors in the same manner as described above for the project MEIs. The project receptors would be approximately 880 feet east of Irwin Street and approximately 690 feet north of 3rd Street. The health risk results are provided in Table 9.

Stationary Sources

The stationary source screening analysis for the new project sensitive receptors was conducted in the same manner as described above for the project MEIs. Table 9 shows the health risk assessment results from the stationary sources.

Cumulative Community Health Risk at Project Site

Community risk impacts from the combined sources upon the project site are reported in Table 9. The TAC sources are compared against the BAAQMD single-source threshold and then combined and compared against the BAAQMD cumulative-source threshold. As shown, the cancer risks, annual $PM_{2.5}$ concentrations, and HIs from the nearby sources does not exceed their single-source or cumulative-source thresholds. Note that no age-sensitivity factors were included in the screening analysis (adjustments for adult/senior only exposure), so risks would be similar or lower if adjustments were included.

[28] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land Trust v. City of Los Angeles* (2011) 201 Cal.App.4th 455, 473, which confirm that the impacts of the environment on a project are excluded from CEQA unless the project itself "exacerbates" such impacts.

Table 9. Impacts from Combined Sources to Project Site Receptors

Source	Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Irwin Street, ADT 21,752, Project Site 880 feet east	1.0	0.02	--
3rd Street, ADT 22,240, Project Site 690 feet north	0.8	0.02	--
San Rafael Valero (Facility ID #100099, Gas Station), Project Site 800 feet	0.7	--	<0.01
San Rafael Chevron (Facility ID #110977, Gas Station), Project Site 665 feet	1.3	--	0.01
BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	*No*	*No*	*No*
Cumulative Total	3.8	0.04	<0.02
BAAQMD Cumulative Source Threshold	***>100***	***>0.8***	***>10.0***
Exceed Threshold?	*No*	*No*	*No*

Impact AIR-4: Create objectionable odors affecting a substantial number of people?

The project would generate localized emissions of diesel exhaust during construction equipment operation and truck activity. These emissions may be noticeable from time to time by adjacent receptors. However, they would be localized and are not likely to adversely affect people off-site by resulting in confirmed odor complaints. The project would not include any sources of significant odors that would cause complaints from surrounding uses.

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.

Recent Regulatory Actions for California 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 (AB 32), California Global Warming Solutions Act (2006)

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.

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.

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

In April 2015, Governor Brown signed Executive Order which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed 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*. 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 is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. 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 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 obtain the statewide goals.

The new Scoping Plan establishes a strategy that will reduce GHG emissions in California to meet the 2030 target (note that the AB 32 Scoping Plan only addressed 2020 targets and a long-term goal). Key features of this plan are:

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

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons CO_2e per capita (statewide) by 2030 and no more than 2 metric tons CO_2e per capita by 2050. The statewide per capita targets account for all emissions sectors, statewide population forecasts, and the statewide reductions necessary to achieve the 2030 statewide target under SB 32 and the longer-term State emissions reduction goal of 80 percent below 1990 levels by 2050.

Executive Order B-55-18 – Carbon Neutrality

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

Senate Bill 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.

SB 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, 2017 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.[29] 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.[30]

[29] 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.
[30] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[31] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[32] In 2017, GHG emissions from statewide emitting activities were 424 MMT. The 2017 emissions have decreased by 14 percent since peak levels in 2004 and are 7 MMT below the 1990 emissions level and the State's 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.1 MT per person to 10.7 MT per person in 2017. The most recent Bay Area emission inventory was computed for the year 2011.[33] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

San Rafael Climate Change Action Plan 2030

The City of San Rafael has a Climate Change Action Plan, adopted in May 2019,[34] that established the goal and measures to reduce greenhouse gas emissions 19% below 1990 levels by 2020 (equivalent to 31% below 2005 levels), and 42% below 1990 levels by 2030, which is enough to surpass the City and State goals for those years. However, the Plan does not have a specific metric ton GHG threshold for project-level construction or operation. Therefore, the BAAQMD's CEQA Air Quality Guideline's thresholds are used.

BAAQMD Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines recommends the following thresholds can be used as a project-level GHG threshold: (1) compliance with a qualitied GHG reduction strategy or (2) a GHG threshold of 1,100 MT or (3) a 4.6 MT per service population (SP) per year. The Redwood City CAP is a qualified GHG reduction but since it only address GHG emission up till 2020 it does not account the more stringent 2030 and 2050 Statewide goals. Additionally, the quantitative thresholds were developed based on meeting the 2020 GHG targets set in the scoping plan that addressed AB 32. Development of the project would occur beyond 2020, so a threshold that addresses a future target is appropriate.

Although BAAQMD has not published a quantified threshold for 2030 yet, this assessment uses a "Substantial Progress" efficiency metric of 2.6 MT CO_2e/year/service population and a bright-line threshold of 660 MT CO_{2e}/year based on the GHG reduction goals of EO B-30-15. The service population metric of 2.8 is calculated for 2030 based the projected 2030 statewide population and

[31] United States Environmental Protection Agency, 2020. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2018*. April. Web: https://www.epa.gov/sites/production/files/2020-04/documents/us-ghg-inventory-2020-main-text.pdf.
[32] CARB. 2019. *2019 Edition, California Greenhouse Gas Emission Inventory: 2000 – 2017*. Web: https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2017/ghg_inventory_trends_00-17.pdf.
[33] BAAQMD. 2015. *Bay Area Emissions Inventory Summary Report: Greenhouse Gases Base Year 2011*. January. Web: http://www.baaqmd.gov/~/media/files/planning-and-research/emission-inventory/by2011_ghgsummary.pdf.
[34] City of San Rafael, *San Rafael Climate Change Action Plan 2030*, April 2019. Web: https://storage.googleapis.com/proudcity/sanrafaelca/uploads/2019/06/Att-D-CCAP-2030-Final-Draft-4-23-19.pdf.

employment levels.[35] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

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

GHG emissions associated with development of the proposed project would occur over the short-term from construction activities, consisting primarily of emissions from equipment exhaust and worker and vendor trips. There would also be long-term operational emissions associated with vehicular traffic within the project vicinity, energy and water usage, and solid waste disposal. Emissions for the proposed project are discussed below and were analyzed using the methodology recommended in the BAAQMD CEQA Air Quality Guidelines.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above within the operational period emissions. CalEEMod output is included in *Attachment 2*.

Service Population Emissions

The project service population efficiency rate is based on the number of future residents. For this project, the number of future residents was conservatively estimated by assuming one resident would live in each new senior dwelling unit. Since the project proposes 14 new dwelling units, the estimated service population is 14 seniors.

Construction Emissions

GHG emissions associated with construction were computed to be 714 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to estimate daily emissions associated with operation of the fully developed site under the proposed project. As shown in Table 10, the annual emissions resulting from operation of the new dwelling units of the proposed project are predicted to be 37 MT of CO_2e in 2028 and 36 MT of CO_2e in 2030. The

[35] Bay Area Air Quality Management District, 2016. *CLE International 12th Annual SuperConference CEQA Guidelines, Case Law and Policy Update.* December.

service population emission for the year 2028 and 2030 are predicted to be 2.7 and 2.6 MT/CO_{2e}/year/service population, respectively.

To be considered an exceedance, the project must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. The project would not exceed the annual emissions bright-line threshold of 660 MT CO_2e/year in 2030 or the per service population threshold of 2.8 MT of CO_2e/year/service population in 2030. Therefore, the project would not be in exceedance for GHG emissions.

Table 10. Annual Project GHG Emissions (CO_2e) in Metric Tons and Per Capita

Source Category	Proposed Project in 2023	Proposed Project in 2030
Area	1	1
Energy Consumption	10	10
Mobile	19	18
Solid Waste Generation	6	6
Water Usage	1	1
Total (MT CO_{2e}/year)	37	36
Significance Threshold		***660 MT CO_2e/year***
Service Population Emissions (MT CO_{2e}/year/service population)	2.7	1.2.64
Significance Threshold		***2.8 in 2030***
Exceeds both thresholds?	*No*	*No*

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

The proposed project would not conflict or otherwise interfere with the statewide GHG reduction measures identified in CARB's Scoping Plan nor would the project conflict with SB 100 goals. For example, proposed buildings 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.

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 criteria air pollutant and GHG emissions. The operational outputs for 2030 uses are also included in this attachment. Also included are any modeling assumptions.

Attachment 3 includes the EMFAC2017 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. AERMOD dispersion modeling files for these assessments, which are quite voluminous, are available upon request and would be provided in digital format.

Attachment 5 includes the cumulative community risk calculations, modeling results, and health risk calculations from sources affecting the construction MEI and on-site sensitive receptors.

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.[36] 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.[37] 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.[38] 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

[36] 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.
[37] CARB, 2015. *Risk Management Guidance for Stationary Sources of Air Toxics*. July 23.
[38] 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

* An 8-hour breathing rate (8HrBR) is used for worker and school child exposures.

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*

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

Air Quality/Noise Construction Information Data Request

Project Name: Aldersly - Phase 1 Mission Ave IL & Fredericksborg

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
35 Dwelling Units
1.15 total project acres disturbed
58901 s.f. residential
s.f. retail
1797 s.f. office/commercial
s.f. other, specify:
4942 s.f. parking garage
10 spaces
9452 s.f. parking lot
17 spaces

Construction Hours 7 am to 3:30 pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? __Y__

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____ 500?

Fuel Type: _____ DIESEL

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual HP Hours	Comments
	Demolition	**Start Date:**	**1/1/2023**	**Total phase:**	**23**			**Overall Import/Export Volumes**
		End Date:	**2/1/2023**					
2	Concrete/Industrial Saws	81	0.73	4	12	2.1	5676	**Demolition Volume**
2	Excavators	158	0.38	7	17	5.2	14290	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	4	17	3.0	6718	(*or* total tons to be hauled)
2	Tractors/Loaders/Backhoes	97	0.37	7	5	1.5	2512	**40,678** square feet *or*
								NA Hauling volume (tons)
								Any pavement demolished and hauled? **90 tons**
	Site Preparation	**Start Date:**	**2/1/2023**	**Total phase:**	**20**			
		End Date:	**2/28/2023**					
1	Graders	187	0.41	7	6	2.1	3220	
2	Rubber Tired Dozers	247	0.4	7	11	3.9	15215	
2	Tractors/Loaders/Backhoes	97	0.37	7	14	4.9	7034	
	Grading / Excavation	**Start Date:**	**3/1/2023**	**Total phase:**	**11**			
		End Date:	**3/15/2023**					**Soil Hauling Volume**
1	Excavators	158	0.38	7	7	4.5	2942	Export volume = **7500** cubic yards?
1	Graders	187	0.41	7	7	4.5	3757	Import volume = **500** cubic yards?
1	Rubber Tired Dozers	247	0.4	7	7	4.5	4841	
0	Concrete/Industrial Saws	81	0.73	0	0	0.0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	7	4.5	1759	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**3/15/2023**	**Total phase:**	**23**			
		End Date:	**4/15/2023**					
1	Tractor/Loader/Backhoe	97	0.37	7	23	7.0	5778	
1	Excavators	158	0.38	7	6	1.8	2522	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**4/15/2023**	**Total phase:**	**273**			**Cement Trucks? 250 Total Round-Trips**
		End Date:	**5/1/2024**					
1	Cranes	231	0.29	6	131	2.9	52654	Electric? (Y/N) _N__ Otherwise assumed diesel
1	Forklifts	89	0.2	3	273	3.0	14578	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	81	1.8	30210	Or temporary line power? (Y/N) _N__
1	Tractors/Loaders/Backhoes	97	0.37	6	137	3.0	29502	
1	Welders	46	0.45	6	81	1.8	10060	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**4/15/2023**	**Total phase:**	**381**			
		End Date:	**9/30/2024**					
2	Air Compressors	78	0.48	4	259	2.7	77576	
6	Aerial Lift	62	0.31	4	259	2.7	119472	
	Other Equipment?							
	Paving	**Start Date:**	**7/1/2024**	**Total phase:**	**66**			
		Start Date:	**9/30/2024**					
1	Cement and Mortar Mixers	9	0.56	7	21	2.2	741	
1	Pavers	130	0.42	7	3	0.3	1147	**Asphalt? ___370 cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	7	9	1.0	2994	
1	Rollers	80	0.38	7	43	4.6	9150	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Air Quality/Noise Construction Information Data Request

Project Name: Aldersly - Phase 2 Kronborg Service Building (does not include SNF renovation)

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size

0 Dwelling Units ____ total project acres disturbed

0 s.f. residential

0 s.f. retail

0 s.f. office/commercial

2,664 s.f. other, specify: Maintenance

0 s.f. parking garage 0 spaces

0 s.f. parking lot 0 spaces

Construction Hours 7 am to 3:30 pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? __N__

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____ DIESEL

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	**Start Date:**	**1/1/2025**	**Total phase:**	**23**			**Overall Import/Export Volumes**
		End Date:	**2/1/2025**					
2	Concrete/Industrial Saws	81	0.73	4	11	1.9	88	**Demolition Volume**
1	Excavators	158	0.38	7	11	3.3	77	Square footage of buildings to be demolished
1	Rubber-Tired Dozers	247	0.4	4	11	1.9	44	(*or* total tons to be hauled)
1	Tractors/Loaders/Backhoes	97	0.37	7	4	1.2	28	**2,517** square feet *or*
								NA Hauling volume (tons)
								Any pavement demolished and hauled? **30 tons**
	Site Preparation	**Start Date:**	**2/1/2025**	**Total phase:**	**20**			
		End Date:	**2/28/2025**					
1	Graders	187	0.41	7	6	2.1	42	
0	Rubber Tired Dozers	247	0.4	0	0	0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	14	4.9	98	
	Grading / Excavation	**Start Date:**	**3/1/2025**	**Total phase:**	**10**			
		End Date:	**3/15/2025**					**Soil Hauling Volume**
1	Excavators	158	0.38	7	8	5.6	56	Export volume = **500** cubic yards?
1	Graders	187	0.41	7	3	2.1	21	Import volume = **100**cubic yards?
1	Rubber Tired Dozers	247	0.4	7	9	6.3	63	
0	Concrete/Industrial Saws	81	0.73	0	0	0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	9	6.3	63	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**3/15/2025**	**Total phase:**	**12**			
		End Date:	**4/1/2025**					
1	Tractor/Loader/Backhoe	97	0.37	7	12	7	84	
1	Excavators	158	0.38	7	12	7	84	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**4/1/2025**	**Total phase:**	**129**			**Cement Trucks? 40 Total Round-Trips**
		End Date:	**9/26/2025**					
1	Cranes	231	0.29	6	60	2.8	360	Electric? (Y/N) _N__ Otherwise assumed diesel
1	Forklifts	89	0.2	3	129	3.0	387	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	45	2.1	270	Or temporary line power? (Y/N) _N__
1	Tractors/Loaders/Backhoes	97	0.37	6	62	2.9	372	
1	Welders	46	0.45	6	78	3.6	468	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**4/15/2025**	**Total phase:**	**144**			
		End Date:	**10/31/2025**					
2	Air Compressors	78	0.48	4	124	3.4	992	
6	Aerial Lift	62	0.31	4	92	2.6	2208	
	Other Equipment?							
	Paving	**Start Date:**	**9/1/2025**	**Total phase:**	**45**			
		Start Date:	**10/31/2025**					
1	Cement and Mortar Mixers	9	0.56	7	35	5.4	245	
1	Pavers	130	0.42	7	3	0.5	21	**Asphalt? ___60 cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	7	9	1.4	63	
1	Rollers	80	0.38	7	16	2.5	112	
1	Tractors/Loaders/Backhoes	97	0.37	7	20	3.1	140	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Air Quality/Noise Construction Information Data Request

Project Name: Aldersly - Phase 3 Christianborg Renovation

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
6 Dwelling Units
_____ total project acres disturbed
5,460 s.f. residential
0 s.f. retail
0 s.f. office/commercial
0 s.f. other, specify: Maintenance
0 s.f. parking garage 0 spaces
0 s.f. parking lot 0 spaces

Construction Hours 7 am to 3:30 pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? __N__
IF YES (if BOTH separate values) -->
Kilowatts/Horsepower: _____
Fuel Type: _____ DIESEL
Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	**Start Date:**	**1/1/2025**	**Total phase:**	**23**			**Overall Import/Export Volumes**
		End Date:	**2/1/2025**					
1	Concrete/Industrial Saws	81	0.73	7	5	1.5	35	**Demolition Volume**
1	Excavators	158	0.38	7	7	2.1	49	Square footage of buildings to be demolished
0	Rubber-Tired Dozers	247	0.4	0	0	0	0	(*or* total tons to be hauled)
0	Tractors/Loaders/Backhoes	97	0.37	0	0	0	0	**5,460** square feet *or*
								NA Hauling volume (tons)
								Any pavement demolished and hauled? **30 tons**
	Site Preparation	**Start Date:**	**1/1/2025**	**Total phase:**	**43**			
		End Date:	**2/28/2025**					
1	Graders	187	0.41	7	6	1.0	42	
0	Rubber Tired Dozers	247	0.4	0	0	0.0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	14	2.3	98	
	Grading / Excavation	**Start Date:**	**3/1/2025**	**Total phase:**	**10**			
		End Date:	**3/15/2025**					**Soil Hauling Volume**
1	Excavators	158	0.38	7	5	3.5	35	Export volume = **250** cubic yards?
1	Graders	187	0.41	7	1	0.7	7	Import volume = **100**cubic yards?
1	Rubber Tired Dozers	247	0.4	7	9	6.3	63	
0	Concrete/Industrial Saws	81	0.73	0	0	0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	9	6.3	63	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**3/1/2025**	**Total phase:**	**10**			
		End Date:	**3/15/2025**					
1	Tractor/Loader/Backhoe	97	0.37	7	2	1.4	14	
1	Excavators	158	0.38	7	3	2.1	21	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**4/1/2025**	**Total phase:**	**110**			**Cement Trucks? 40 Total Round-Trips**
		End Date:	**9/1/2025**					
0	Cranes	231	0.29	0	0	0	0	Electric? (Y/N) _N__ Otherwise assumed diesel
1	Forklifts	89	0.2	3	110	3	330	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	38	2.1	228	Or temporary line power? (Y/N) _N__
1	Tractors/Loaders/Backhoes	97	0.37	6	53	2.9	318	
1	Welders	46	0.45	6	67	3.7	402	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**4/1/2025**	**Total phase:**	**110**			
		End Date:	**9/1/2025**					
2	Air Compressors	78	0.48	4	105	3.8	840	
6	Aerial Lift	62	0.31	4	77	2.8	1848	
	Other Equipment?							
	Paving	**Start Date:**	**7/1/2025**	**Total phase:**	**45**			
		Start Date:	**9/1/2025**					
1	Cement and Mortar Mixers	9	0.56	7	36	5.6	252	
0	Pavers	130	0.42	0	0	0.0	0	**Asphalt? ___60 cubic yards or ____ round trips?**
0	Paving Equipment	132	0.36	0	0	0.0	0	
1	Rollers	80	0.38	7	8	1.2	56	
1	Tractors/Loaders/Backhoes	97	0.37	7	21	3.3	147	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Air Quality/Noise Construction Information Data Request

Project Name: Aldersly - Phase 4 New West Campus IL

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size

15 Dwelling Units _____ total project acres disturbed

21,850 s.f. residential

0 s.f. retail

0 s.f. office/commercial

0 s.f. other, specify:

0 s.f. parking garage 0 spaces

0 s.f. parking lot 0 spaces

Construction Hours 7 am to 3:30 pm

Pile Driving? Y/N? N

Project include OPERATIONAL GENERATOR OR FIRE PUMP on-site? Y/N? __N__

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____ DIESEL

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	Annual Hours	Comments
	Demolition	**Start Date:**	**1/1/2026**	**Total phase:**	**22**			**Overall Import/Export Volumes**
		End Date:	**2/1/2026**					
2	Concrete/Industrial Saws	81	0.73	4	11	2	88	**Demolition Volume**
2	Excavators	158	0.38	4	17	3.1	136	Square footage of buildings to be demolished
2	Rubber-Tired Dozers	247	0.4	4	17	3.1	136	(*or* total tons to be hauled)
2	Tractors/Loaders/Backhoes	97	0.37	4	4	0.7	32	**4,124** square feet *or*
								NA Hauling volume (tons)
								Any pavement demolished and hauled? **20 tons**
	Site Preparation	**Start Date:**	**2/1/2026**	**Total phase:**	**20**			
		End Date:	**2/28/2026**					
1	Graders	187	0.41	7	5	1.8	35	
2	Rubber Tired Dozers	247	0.4	7	11	3.9	154	
2	Tractors/Loaders/Backhoes	97	0.37	7	14	4.9	196	
	Grading / Excavation	**Start Date:**	**3/1/2026**	**Total phase:**	**23**			
		End Date:	**4/1/2026**					**Soil Hauling Volume**
2	Excavators	158	0.38	7	13	4.0	182	Export volume = **3500** cubic yards?
1	Graders	187	0.41	7	10	3.0	70	Import volume = **500** cubic yards?
1	Rubber Tired Dozers	247	0.4	7	10	3.0	70	
0	Concrete/Industrial Saws	81	0.73	0	0	0.0	0	
1	Tractors/Loaders/Backhoes	97	0.37	7	10	3.0	70	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**	**3/15/2026**	**Total phase:**	**23**			
		End Date:	**4/15/2026**					
1	Tractor/Loader/Backhoe	97	0.37	7	23	7	161	
1	Excavators	158	0.38	7	6	1.8	42	
	Other Equipment?							
	Building - Exterior	**Start Date:**	**4/15/2026**	**Total phase:**	**188**			**Cement Trucks? 120 Total Round-Trips**
		End Date:	**1/1/2027**					
1	Cranes	231	0.29	6	132	4.2	792	Electric? (Y/N) _N__ Otherwise assumed diesel
1	Forklifts	89	0.2	3	188	3.0	564	Liquid Propane (LPG)? (Y/N) _N__ Otherwise Assumed diesel
1	Generator Sets	84	0.74	6	81	2.6	486	Or temporary line power? (Y/N) _N__
1	Tractors/Loaders/Backhoes	97	0.37	6	23	0.7	138	
1	Welders	46	0.45	6	31	1.0	186	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**	**4/15/2023**	**Total phase:**	**209**			
		End Date:	**2/1/2027**					
2	Air Compressors	78	0.48	4	188	3.6	1504	
6	Aerial Lift	62	0.31	4	115	2.2	2760	
	Other Equipment?							
	Paving	**Start Date:**	**2/1/2027**	**Total phase:**	**43**			
		Start Date:	**3/31/2027**					
1	Cement and Mortar Mixers	9	0.56	7	26	4.2	182	
1	Pavers	130	0.42	7	3	0.5	21	**Asphalt? ___370 cubic yards or ____ round trips?**
1	Paving Equipment	132	0.36	7	9	1.5	63	
1	Rollers	80	0.38	7	17	2.8	119	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Casey Divine

From: Barry Bergman <bbergman@w-trans.com>
Sent: Thursday, October 8, 2020 4:01 PM
To: Casey Divine; Alice Lin
Cc: Peter Lin; Mimi McNamara; James Reyff; Clay Rumbaoa
Subject: RE: San Rafael Senior Living Community

Categories: Data

Attached is the trip generation estimate based on the number of existing and proposed independent living units in the site plan. My understanding is that the number of assisted living and health center units will remain the same. I split out the units by type since, as you can they have different rates.

I do want to verify that the number of units here are accurate. In an email from a couple of weeks back, Gilbert indicated that the final number would be 65.

Please let me know if you have any questions.

Table 1 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Existing											
Congregate Care	55 du	2.02	111	0.07	4	2	2	0.18	10	5	5
Assisted Living	30 beds	2.60	78	0.19	6	4	2	0.26	8	3	5
Nursing Home	18 beds	3.06	55	0.17	3	2	1	0.22	4	1	3
Subtotal			**244**		**13**	**8**	**5**		**22**	**9**	**13**
Proposed											
Congregate Care	69 du	2.02	139	0.07	5	3	2	0.18	12	7	5
Assisted Living	30 beds	2.60	78	0.19	6	4	2	0.26	8	3	5
Nursing Home	18 beds	3.06	55	0.17	3	2	1	0.22	4	1	3
Subtotal			**272**		**14**	**9**	**5**		**24**	**11**	**13**
Net Change			**28**		**1**	**1**	**0**		**2**	**2**	**0**

Note: du = dwelling unit

Barry Bergman
AICP Senior Planner
Pronouns: he/him/his

Aldersly Retirement, San Rafael Constuction Phase 1

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	10.00	Space	0.00	4,942.00	0
Parking Lot	17.00	Space	0.00	9,452.00	0
Congregate Care (Assisted Living)	35.00	Dwelling Unit	1.15	60,698.00	100

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - Provided land uses from construction sheet, google earth esimated acreage

Construction Phase - Provided construction schedule from worksheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Trips and VMT - 0 mile trips EMFAC2017, pavement demp = 90 tons, building = 250 cement truck roundtrips, paving = 370cy asphalt

Demolition - existing building demo = 40,678

Grading - grading = 500cy import, 7,500cy export

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	CNG
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	10.00	381.00
tblConstructionPhase	NumDays	200.00	273.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	4.00	11.00
tblConstructionPhase	NumDays	10.00	66.00
tblConstructionPhase	NumDays	2.00	20.00
tblGrading	MaterialExported	0.00	7,500.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	4,000.00	4,942.00
tblLandUse	LandUseSquareFeet	6,800.00	9,452.00
tblLandUse	LandUseSquareFeet	35,000.00	60,698.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	0.15	0.00
tblLandUse	LotAcreage	2.19	1.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

tblOffRoadEquipment	UsageHours	6.00	2.70
tblOffRoadEquipment	UsageHours	6.00	2.20
tblOffRoadEquipment	UsageHours	8.00	2.10
tblOffRoadEquipment	UsageHours	6.00	2.90
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	6.00	4.50
tblOffRoadEquipment	UsageHours	8.00	2.10
tblOffRoadEquipment	UsageHours	6.00	0.30
tblOffRoadEquipment	UsageHours	8.00	1.00
tblOffRoadEquipment	UsageHours	7.00	4.60
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	6.00	4.50
tblOffRoadEquipment	UsageHours	7.00	3.90
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	7.00	4.50
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	8.00	1.80
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblTripsAndVMT	HaulingTripNumber	185.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,000.00	0.00
tblTripsAndVMT	VendorTripNumber	6.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	31.00	0.00
tblTripsAndVMT	WorkerTripNumber	6.00	0.00

tblTripsAndVMT	WorkerTripNumber	10.00	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
Year	tons/yr										MT/yr					
2023	0.2880	0.7510	0.8638	1.5300e-003	0.1009	0.0324	0.1333	0.0459	0.0307	0.0766	0.0000	132.6500	132.6500	0.0323	0.0000	133.4571
2024	0.2627	0.3858	0.5653	9.3000e-004	0.0000	0.0151	0.0151	0.0000	0.0144	0.0144	0.0000	80.8516	80.8516	0.0181	0.0000	81.3028
Maximum	**0.2880**	**0.7510**	**0.8638**	**1.5300e-003**	**0.1009**	**0.0324**	**0.1333**	**0.0459**	**0.0307**	**0.0766**	**0.0000**	**132.6500**	**132.6500**	**0.0323**	**0.0000**	**133.4571**

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	0.2372	0.5422	0.9688	1.5300e-003	0.0454	4.4700e-003	0.0499	0.0103	4.3300e-003	0.0147	0.0000	132.6499	132.6499	0.0323	0.0000	133.4569
2024	0.2393	0.3271	0.5951	9.3000e-004	0.0000	3.1000e-003	3.1000e-003	0.0000	2.9600e-003	2.9600e-003	0.0000	80.8515	80.8515	0.0181	0.0000	81.3027
Maximum	**0.2393**	**0.5422**	**0.9688**	**1.5300e-003**	**0.0454**	**4.4700e-003**	**0.0499**	**0.0103**	**4.3300e-003**	**0.0147**	**0.0000**	**132.6499**	**132.6499**	**0.0323**	**0.0000**	**133.4569**

	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	**13.47**	**23.53**	**-9.43**	**0.00**	**55.00**	**84.06**	**64.31**	**77.49**	**83.84**	**80.63**	**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	1-1-2023	3-31-2023	0.2545	0.1457
2	4-1-2023	6-30-2023	0.2397	0.1947
3	7-1-2023	9-30-2023	0.2744	0.2213
4	10-1-2023	12-31-2023	0.2744	0.2213
5	1-1-2024	3-31-2024	0.2603	0.2185
6	4-1-2024	6-30-2024	0.1884	0.1686
7	7-1-2024	9-30-2024	0.1975	0.1775
		Highest	0.2744	0.2213

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	1/1/2023	2/1/2023	5	23	
2	Site Preparation	Site Preparation	2/1/2023	2/28/2023	5	20	
3	Grading	Grading	3/1/2023	3/15/2023	5	11	
4	Trenching	Trenching	3/15/2023	4/15/2023	5	23	
5	Building Construction	Building Construction	4/15/2023	5/1/2024	5	273	
6	Architectural Coating	Architectural Coating	4/15/2023	9/30/2024	5	381	
7	Paving	Paving	7/1/2024	9/30/2024	5	66	

Acres of Grading (Site Preparation Phase): 2.63

Acres of Grading (Grading Phase): 3.09

Acres of Paving: 0

Residential Indoor: 122,913; Residential Outdoor: 40,971; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor

Demolition	Concrete/Industrial Saws	2	2.10	81	0.73
Demolition	Excavators	2	5.20	158	0.38
Demolition	Rubber Tired Dozers	1	3.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	1.50	97	0.37
Site Preparation	Graders	1	2.10	187	0.41
Site Preparation	Rubber Tired Dozers	2	3.90	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	4.90	97	0.37
Grading	Excavators	1	4.50	158	0.38
Grading	Graders	1	4.50	187	0.41
Grading	Rubber Tired Dozers	1	4.50	247	0.40
Grading	Tractors/Loaders/Backhoes	1	4.50	97	0.37
Trenching	Excavators	1	1.80	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	2.90	231	0.29
Building Construction	Forklifts	1	3.00	89	0.20
Building Construction	Generator Sets	1	1.80	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Building Construction	Welders	1	1.80	46	0.45
Architectural Coating	Aerial Lifts	6	2.70	63	0.31
Architectural Coating	Air Compressors	2	2.70	78	0.48
Paving	Cement and Mortar Mixers	1	2.20	9	0.56
Paving	Pavers	1	0.30	130	0.42
Paving	Paving Equipment	1	1.00	132	0.36
Paving	Rollers	1	4.60	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

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	7	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	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

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					0.0200	0.0000	0.0200	3.0300e-003	0.0000	3.0300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4400e-003	0.0761	0.0938	1.7000e-004		3.6200e-003	3.6200e-003		3.3900e-003	3.3900e-003	0.0000	14.4440	14.4440	3.7800e-003	0.0000	14.5385
Total	**8.4400e-003**	**0.0761**	**0.0938**	**1.7000e-004**	**0.0200**	**3.6200e-003**	**0.0236**	**3.0300e-003**	**3.3900e-003**	**6.4200e-003**	**0.0000**	**14.4440**	**14.4440**	**3.7800e-003**	**0.0000**	**14.5385**

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					9.0100e-003	0.0000	9.0100e-003	6.8000e-004	0.0000	6.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5400e-003	0.0631	0.1115	1.7000e-004		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	14.4440	14.4440	3.7800e-003	0.0000	14.5385
Total	**2.5400e-003**	**0.0631**	**0.1115**	**1.7000e-004**	**9.0100e-003**	**2.6000e-004**	**9.2700e-003**	**6.8000e-004**	**2.6000e-004**	**9.4000e-004**	**0.0000**	**14.4440**	**14.4440**	**3.7800e-003**	**0.0000**	**14.5385**

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					0.0601	0.0000	0.0601	0.0324	0.0000	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.5400e-003	0.1005	0.0621	1.4000e-004		4.4500e-003	4.4500e-003		4.1000e-003	4.1000e-003	0.0000	12.1924	12.1924	3.9400e-003	0.0000	12.2910
Total	**9.5400e-003**	**0.1005**	**0.0621**	**1.4000e-004**	**0.0601**	**4.4500e-003**	**0.0646**	**0.0324**	**4.1000e-003**	**0.0365**	**0.0000**	**12.1924**	**12.1924**	**3.9400e-003**	**0.0000**	**12.2910**

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					0.0271	0.0000	0.0271	7.3000e-003	0.0000	7.3000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5000e-003	0.0431	0.0821	1.4000e-004		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	12.1924	12.1924	3.9400e-003	0.0000	12.2910
Total	**2.5000e-003**	**0.0431**	**0.0821**	**1.4000e-004**	**0.0271**	**2.3000e-004**	**0.0273**	**7.3000e-003**	**2.3000e-004**	**7.5300e-003**	**0.0000**	**12.1924**	**12.1924**	**3.9400e-003**	**0.0000**	**12.2910**

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**

3.4 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					0.0207	0.0000	0.0207	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3600e-003	0.0460	0.0318	7.0000e-005		1.9300e-003	1.9300e-003		1.7700e-003	1.7700e-003	0.0000	6.3697	6.3697	2.0600e-003	0.0000	6.4212
Total	**4.3600e-003**	**0.0460**	**0.0318**	**7.0000e-005**	**0.0207**	**1.9300e-003**	**0.0227**	**0.0105**	**1.7700e-003**	**0.0123**	**0.0000**	**6.3697**	**6.3697**	**2.0600e-003**	**0.0000**	**6.4212**

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					9.3200e-003	0.0000	9.3200e-003	2.3600e-003	0.0000	2.3600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	1.1800e-003	0.0236	0.0443	7.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.3697	6.3697	2.0600e-003	0.0000	6.4212
Total	**1.1800e-003**	**0.0236**	**0.0443**	**7.0000e-005**	**9.3200e-003**	**1.2000e-004**	**9.4400e-003**	**2.3600e-003**	**1.2000e-004**	**2.4800e-003**	**0.0000**	**6.3697**	**6.3697**	**2.0600e-003**	**0.0000**	**6.4212**

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**

3.5 Trenching - 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	2.0100e-003	0.0195	0.0309	4.0000e-005		9.6000e-004	9.6000e-004		8.8000e-004	8.8000e-004	0.0000	3.9269	3.9269	1.2700e-003	0.0000	3.9586
Total	**2.0100e-003**	**0.0195**	**0.0309**	**4.0000e-005**		**9.6000e-004**	**9.6000e-004**		**8.8000e-004**	**8.8000e-004**	**0.0000**	**3.9269**	**3.9269**	**1.2700e-003**	**0.0000**	**3.9586**

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					
Off-Road	8.7000e-004	0.0195	0.0337	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.9269	3.9269	1.2700e-003	0.0000	3.9586
Total	**8.7000e-004**	**0.0195**	**0.0337**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.9269**	**3.9269**	**1.2700e-003**	**0.0000**	**3.9586**

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**

3.6 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	0.0323	0.3006	0.2899	5.4000e-004		0.0139	0.0139		0.0130	0.0130	0.0000	46.8277	46.8277	0.0110	0.0000	47.1032
Total	**0.0323**	**0.3006**	**0.2899**	**5.4000e-004**		**0.0139**	**0.0139**		**0.0130**	**0.0130**	**0.0000**	**46.8277**	**46.8277**	**0.0110**	**0.0000**	**47.1032**

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					
Off-Road	0.0102	0.2048	0.3401	5.4000e-004		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	46.8276	46.8276	0.0110	0.0000	47.1031
Total	**0.0102**	**0.2048**	**0.3401**	**5.4000e-004**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**46.8276**	**46.8276**	**0.0110**	**0.0000**	**47.1031**

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**

3.6 Building Construction - 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	0.0144	0.1332	0.1367	2.6000e-004		5.8300e-003	5.8300e-003		5.4900e-003	5.4900e-003	0.0000	22.2775	22.2775	5.2100e-003	0.0000	22.4077
Total	**0.0144**	**0.1332**	**0.1367**	**2.6000e-004**		**5.8300e-003**	**5.8300e-003**		**5.4900e-003**	**5.4900e-003**	**0.0000**	**22.2775**	**22.2775**	**5.2100e-003**	**0.0000**	**22.4077**

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					
Off-Road	4.8500e-003	0.0974	0.1618	2.6000e-004		8.3000e-004	8.3000e-004		8.3000e-004	8.3000e-004	0.0000	22.2774	22.2774	5.2100e-003	0.0000	22.4077
Total	**4.8500e-003**	**0.0974**	**0.1618**	**2.6000e-004**		**8.3000e-004**	**8.3000e-004**		**8.3000e-004**	**8.3000e-004**	**0.0000**	**22.2774**	**22.2774**	**5.2100e-003**	**0.0000**	**22.4077**

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**

3.7 Architectural Coating - 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					
Archit. Coating	0.2089					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0224	0.2084	0.3553	5.6000e-004		7.6200e-003	7.6200e-003		7.4800e-003	7.4800e-003	0.0000	48.8894	48.8894	0.0102	0.0000	49.1446

Total	**0.2314**	**0.2084**	**0.3553**	**5.6000e-004**		**7.6200e-003**	**7.6200e-003**		**7.4800e-003**	**7.4800e-003**	**0.0000**	**48.8894**	**48.8894**	**0.0102**	**0.0000**	**49.1446**

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					
Archit. Coating	0.2089					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0110	0.1881	0.3571	5.6000e-004		2.0600e-003	2.0600e-003		1.9200e-003	1.9200e-003	0.0000	48.8893	48.8893	0.0102	0.0000	49.1445
Total	**0.2200**	**0.1881**	**0.3571**	**5.6000e-004**		**2.0600e-003**	**2.0600e-003**		**1.9200e-003**	**1.9200e-003**	**0.0000**	**48.8893**	**48.8893**	**0.0102**	**0.0000**	**49.1445**

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**

3.7 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	0.2214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2119	0.3765	6.0000e-004		7.1800e-003	7.1800e-003		7.0400e-003	7.0400e-003	0.0000	51.7963	51.7963	0.0107	0.0000	52.0647
Total	**0.2442**	**0.2119**	**0.3765**	**6.0000e-004**		**7.1800e-003**	**7.1800e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**51.7963**	**51.7963**	**0.0107**	**0.0000**	**52.0647**

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					
Archit. Coating	0.2214					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.1979	0.3785	6.0000e-004		2.1600e-003	2.1600e-003		2.0200e-003	2.0200e-003	0.0000	51.7962	51.7962	0.0107	0.0000	52.0646
Total	**0.2330**	**0.1979**	**0.3785**	**6.0000e-004**		**2.1600e-003**	**2.1600e-003**		**2.0200e-003**	**2.0200e-003**	**0.0000**	**51.7962**	**51.7962**	**0.0107**	**0.0000**	**52.0646**

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**

3.8 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	4.2000e-003	0.0406	0.0521	8.0000e-005		2.0600e-003	2.0600e-003		1.9000e-003	1.9000e-003	0.0000	6.7778	6.7778	2.1000e-003	0.0000	6.8304
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.2000e-003**	**0.0406**	**0.0521**	**8.0000e-005**		**2.0600e-003**	**2.0600e-003**		**1.9000e-003**	**1.9000e-003**	**0.0000**	**6.7778**	**6.7778**	**2.1000e-003**	**0.0000**	**6.8304**

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					
Off-Road	1.4000e-003	0.0318	0.0548	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.7778	6.7778	2.1000e-003	0.0000	6.8304
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4000e-003**	**0.0318**	**0.0548**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.7778**	**6.7778**	**2.1000e-003**	**0.0000**	**6.8304**

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**

Aldersly Retirement, San Rafael Constuction Phase 2

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	2.66	1000sqft	0.40	2,664.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - Provided land uses from construction sheet, google earth esimated acreage

Construction Phase - Provided construction schedule from worksheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Trips and VMT - 0 mile trips EMFAC2017, pavement demo = 30 tons, building = 40 cement truck roundtrips, paving = 60cy asphalt

Demolition - existing building demo = 2,517sf

Grading - grading = 100cy import, 500cy export

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	CNG
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	144.00
tblConstructionPhase	NumDays	100.00	129.00
tblConstructionPhase	NumDays	10.00	23.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	1.00	20.00
tblGrading	MaterialExported	0.00	500.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	2,660.00	2,664.00
tblLandUse	LotAcreage	0.06	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	6.40
tblOffRoadEquipment	UsageHours	6.00	5.40
tblOffRoadEquipment	UsageHours	8.00	1.90
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	2.80

tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	2.10
tblOffRoadEquipment	UsageHours	7.00	0.50
tblOffRoadEquipment	UsageHours	7.00	2.50
tblOffRoadEquipment	UsageHours	1.00	1.90
tblOffRoadEquipment	UsageHours	1.00	6.30
tblOffRoadEquipment	UsageHours	8.00	2.90
tblOffRoadEquipment	UsageHours	6.00	1.20
tblOffRoadEquipment	UsageHours	6.00	6.30
tblOffRoadEquipment	UsageHours	7.00	3.10
tblOffRoadEquipment	UsageHours	8.00	4.90
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblTripsAndVMT	HaulingTripNumber	11.00	0.00
tblTripsAndVMT	HaulingTripNumber	75.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	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
Year	tons/yr										MT/yr					

2025	0.0836	0.5951	0.8391	1.4400e-003	0.0271	0.0235	0.0506	0.0135	0.0225	0.0360	0.0000	123.7781	123.7781	0.0245	0.0000	124.3912
Maximum	**0.0836**	**0.5951**	**0.8391**	**1.4400e-003**	**0.0271**	**0.0235**	**0.0506**	**0.0135**	**0.0225**	**0.0360**	**0.0000**	**123.7781**	**123.7781**	**0.0245**	**0.0000**	**124.3912**

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					
2025	0.0403	0.5239	0.9085	1.4400e-003	0.0122	4.2500e-003	0.0164	3.0300e-003	4.1500e-003	7.1800e-003	0.0000	123.7779	123.7779	0.0245	0.0000	124.3910
Maximum	**0.0403**	**0.5239**	**0.9085**	**1.4400e-003**	**0.0122**	**4.2500e-003**	**0.0164**	**3.0300e-003**	**4.1500e-003**	**7.1800e-003**	**0.0000**	**123.7779**	**123.7779**	**0.0245**	**0.0000**	**124.3910**

	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	**51.80**	**11.97**	**-8.27**	**0.00**	**55.01**	**81.91**	**67.50**	**77.47**	**81.57**	**80.04**	**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	**1-1-2025**	**3-31-2025**	0.1242	0.0937
2	**4-1-2025**	**6-30-2025**	0.2266	0.1914
3	**7-1-2025**	**9-30-2025**	0.2621	0.2216
		Highest	0.2621	0.2216

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	1/1/2025	2/1/2025	5	23	
2	Site Preparation	Site Preparation	2/1/2025	2/28/2025	5	20	
3	Grading	Grading	3/1/2025	3/15/2025	5	10	
4	Trenching	Trenching	3/15/2025	4/1/2025	5	12	
5	Building Construction	Building Construction	4/1/2025	9/26/2025	5	129	
6	Architectural Coating	Architectural Coating	4/15/2025	10/31/2025	5	144	
7	Paving	Paving	9/1/2025	10/31/2025	5	45	

Acres of Grading (Site Preparation Phase): 2.63

Acres of Grading (Grading Phase): 1.31

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 3,996; Non-Residential Outdoor: 1,332; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	1.90	81	0.73
Demolition	Excavators	1	3.30	158	0.38
Demolition	Rubber Tired Dozers	1	1.90	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	1.20	97	0.37
Site Preparation	Graders	1	2.10	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	4.90	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Excavators	1	5.60	158	0.38
Grading	Graders	1	2.10	187	0.41
Grading	Rubber Tired Dozers	1	6.30	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.30	97	0.37
Trenching	Excavators	1	7.00	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	2.80	231	0.29
Building Construction	Forklifts	1	3.00	89	0.20

Building Construction	Generator Sets	1	2.10	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	2.90	97	0.37
Building Construction	Welders	1	3.60	46	0.45
Architectural Coating	Aerial Lifts	6	2.60	63	0.31
Architectural Coating	Air Compressors	2	6.40	78	0.48
Paving	Cement and Mortar Mixers	1	5.40	9	0.56
Paving	Pavers	1	0.50	130	0.42
Paving	Paving Equipment	1	1.40	132	0.36
Paving	Rollers	1	2.50	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.10	97	0.37

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	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2025

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					1.2400e-003	0.0000	1.2400e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4000e-003	0.0386	0.0474	9.0000e-005		1.6800e-003	1.6800e-003		1.5800e-003	1.5800e-003	0.0000	7.6118	7.6118	1.6400e-003	0.0000	7.6529
Total	**4.4000e-003**	**0.0386**	**0.0474**	**9.0000e-005**	**1.2400e-003**	**1.6800e-003**	**2.9200e-003**	**1.9000e-004**	**1.5800e-003**	**1.7700e-003**	**0.0000**	**7.6118**	**7.6118**	**1.6400e-003**	**0.0000**	**7.6529**

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					5.6000e-004	0.0000	5.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4300e-003	0.0315	0.0561	9.0000e-005		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004	0.0000	7.6118	7.6118	1.6400e-003	0.0000	7.6528
Total	**1.4300e-003**	**0.0315**	**0.0561**	**9.0000e-005**	**5.6000e-004**	**1.3000e-004**	**6.9000e-004**	**4.0000e-005**	**1.3000e-004**	**1.7000e-004**	**0.0000**	**7.6118**	**7.6118**	**1.6400e-003**	**0.0000**	**7.6528**

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 - 2025

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					1.3900e-003	0.0000	1.3900e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0173	0.0178	4.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	3.2030	3.2030	1.0400e-003	0.0000	3.2289

Total	**1.6300e-003**	**0.0173**	**0.0178**	**4.0000e-005**	**1.3900e-003**	**6.2000e-004**	**2.0100e-003**	**1.5000e-004**	**5.7000e-004**	**7.2000e-004**	**0.0000**	**3.2030**	**3.2030**	**1.0400e-003**	**0.0000**	**3.2289**

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					6.3000e-004	0.0000	6.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-004	0.0129	0.0236	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.2030	3.2030	1.0400e-003	0.0000	3.2289
Total	**7.1000e-004**	**0.0129**	**0.0236**	**4.0000e-005**	**6.3000e-004**	**6.0000e-005**	**6.9000e-004**	**3.0000e-005**	**6.0000e-005**	**9.0000e-005**	**0.0000**	**3.2030**	**3.2030**	**1.0400e-003**	**0.0000**	**3.2289**

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**

3.4 Grading - 2025

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					0.0244	0.0000	0.0244	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0402	0.0341	7.0000e-005		1.7100e-003	1.7100e-003		1.5700e-003	1.5700e-003	0.0000	6.3839	6.3839	2.0600e-003	0.0000	6.4355
Total	**4.0700e-003**	**0.0402**	**0.0341**	**7.0000e-005**	**0.0244**	**1.7100e-003**	**0.0262**	**0.0131**	**1.5700e-003**	**0.0147**	**0.0000**	**6.3839**	**6.3839**	**2.0600e-003**	**0.0000**	**6.4355**

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					0.0110	0.0000	0.0110	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1900e-003	0.0244	0.0454	7.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.3839	6.3839	2.0600e-003	0.0000	6.4355
Total	**1.1900e-003**	**0.0244**	**0.0454**	**7.0000e-005**	**0.0110**	**1.2000e-004**	**0.0111**	**2.9500e-003**	**1.2000e-004**	**3.0700e-003**	**0.0000**	**6.3839**	**6.3839**	**2.0600e-003**	**0.0000**	**6.4355**

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**

3.5 Trenching - 2025

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	1.5700e-003	0.0134	0.0288	4.0000e-005		6.0000e-004	6.0000e-004		5.5000e-004	5.5000e-004	0.0000	3.8216	3.8216	1.2400e-003	0.0000	3.8525
Total	**1.5700e-003**	**0.0134**	**0.0288**	**4.0000e-005**		**6.0000e-004**	**6.0000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**3.8216**	**3.8216**	**1.2400e-003**	**0.0000**	**3.8525**

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					
Off-Road	7.0000e-004	0.0191	0.0329	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.8216	3.8216	1.2400e-003	0.0000	3.8525
Total	**7.0000e-004**	**0.0191**	**0.0329**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.8216**	**3.8216**	**1.2400e-003**	**0.0000**	**3.8525**

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**

3.6 Building Construction - 2025

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	0.0231	0.2020	0.2287	4.3000e-004		8.1700e-003	8.1700e-003		7.7400e-003	7.7400e-003	0.0000	36.1325	36.1325	7.7000e-003	0.0000	36.3249
Total	**0.0231**	**0.2020**	**0.2287**	**4.3000e-004**		**8.1700e-003**	**8.1700e-003**		**7.7400e-003**	**7.7400e-003**	**0.0000**	**36.1325**	**36.1325**	**7.7000e-003**	**0.0000**	**36.3249**

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					
Off-Road	7.9100e-003	0.1703	0.2643	4.3000e-004		1.9000e-003	1.9000e-003		1.9000e-003	1.9000e-003	0.0000	36.1324	36.1324	7.7000e-003	0.0000	36.3249
Total	**7.9100e-003**	**0.1703**	**0.2643**	**4.3000e-004**		**1.9000e-003**	**1.9000e-003**		**1.9000e-003**	**1.9000e-003**	**0.0000**	**36.1324**	**36.1324**	**7.7000e-003**	**0.0000**	**36.3249**

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**

3.7 Architectural Coating - 2025

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	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0310	0.2490	0.4311	6.9000e-004		9.1600e-003	9.1600e-003		9.0600e-003	9.0600e-003	0.0000	59.9307	59.9307	8.8400e-003	0.0000	60.1516
Total	**0.0449**	**0.2490**	**0.4311**	**6.9000e-004**		**9.1600e-003**	**9.1600e-003**		**9.0600e-003**	**9.0600e-003**	**0.0000**	**59.9307**	**59.9307**	**8.8400e-003**	**0.0000**	**60.1516**

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					
Archit. Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0132	0.2359	0.4346	6.9000e-004		1.8600e-003	1.8600e-003		1.7600e-003	1.7600e-003	0.0000	59.9306	59.9306	8.8400e-003	0.0000	60.1516
Total	**0.0270**	**0.2359**	**0.4346**	**6.9000e-004**		**1.8600e-003**	**1.8600e-003**		**1.7600e-003**	**1.7600e-003**	**0.0000**	**59.9306**	**59.9306**	**8.8400e-003**	**0.0000**	**60.1516**

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**

3.8 Paving - 2025

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	3.8300e-003	0.0346	0.0512	8.0000e-005		1.5500e-003	1.5500e-003		1.4400e-003	1.4400e-003	0.0000	6.6947	6.6947	2.0100e-003	0.0000	6.7450
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8300e-003**	**0.0346**	**0.0512**	**8.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.4400e-003**	**1.4400e-003**	**0.0000**	**6.6947**	**6.6947**	**2.0100e-003**	**0.0000**	**6.7450**

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					
Off-Road	1.3000e-003	0.0299	0.0516	8.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	6.6947	6.6947	2.0100e-003	0.0000	6.7450
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.3000e-003**	**0.0299**	**0.0516**	**8.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**6.6947**	**6.6947**	**2.0100e-003**	**0.0000**	**6.7450**

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**

Aldersly Retirement, San Rafael Constuction Phase 3

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	6.00	Dwelling Unit	0.25	5,460.00	17

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - Provided land uses from construction sheet, google earth esimated acreage

Construction Phase - Provided construction schedule from worksheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Trips and VMT - 0 mile trips EMFAC2017, pavement demo = 30 tons, building = 40 cement truck roundtrips, paving = 60cy asphalt

Demolition - existing building demo = 5,460sf

Grading - grading = 100cy import, 250cy export

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	CNG
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	110.00
tblConstructionPhase	NumDays	100.00	110.00
tblConstructionPhase	NumDays	10.00	23.00
tblConstructionPhase	NumDays	2.00	10.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	1.00	43.00
tblGrading	MaterialExported	0.00	250.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	6,000.00	5,460.00
tblLandUse	LotAcreage	0.38	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	3.80
tblOffRoadEquipment	UsageHours	6.00	5.60
tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	4.00	0.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	1.00

tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	7.00	1.20
tblOffRoadEquipment	UsageHours	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	6.30
tblOffRoadEquipment	UsageHours	8.00	2.90
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	6.00	6.30
tblOffRoadEquipment	UsageHours	7.00	3.30
tblOffRoadEquipment	UsageHours	8.00	2.30
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblTripsAndVMT	HaulingTripNumber	25.00	0.00
tblTripsAndVMT	HaulingTripNumber	44.00	0.00
tblTripsAndVMT	VendorTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblTripsAndVMT	WorkerTripNumber	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	8.00	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
Year	tons/yr										MT/yr					

2025	0.0775	0.3396	0.5169	8.4000e-004	0.0281	0.0127	0.0407	0.0136	0.0122	0.0258	0.0000	71.9506	71.9506	0.0146	0.0000	72.3150
Maximum	**0.0775**	**0.3396**	**0.5169**	**8.4000e-004**	**0.0281**	**0.0127**	**0.0407**	**0.0136**	**0.0122**	**0.0258**	**0.0000**	**71.9506**	**71.9506**	**0.0146**	**0.0000**	**72.3150**

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					
2025	0.0543	0.3162	0.5378	8.4000e-004	0.0126	3.0500e-003	0.0157	3.0700e-003	2.9700e-003	6.0300e-003	0.0000	71.9505	71.9505	0.0146	0.0000	72.3149
Maximum	**0.0543**	**0.3162**	**0.5378**	**8.4000e-004**	**0.0126**	**3.0500e-003**	**0.0157**	**3.0700e-003**	**2.9700e-003**	**6.0300e-003**	**0.0000**	**71.9505**	**71.9505**	**0.0146**	**0.0000**	**72.3149**

	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	**29.92**	**6.90**	**-4.05**	**0.00**	**54.99**	**75.91**	**61.49**	**77.46**	**75.60**	**76.62**	**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	**1-1-2025**	**3-31-2025**	0.0737	0.0526
2	**4-1-2025**	**6-30-2025**	0.1892	0.1785
3	**7-1-2025**	**9-30-2025**	0.1567	0.1409
		Highest	0.1892	0.1785

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	1/1/2025	2/1/2025	5	23	
2	Site Preparation	Site Preparation	1/1/2025	2/28/2025	5	43	
3	Grading	Grading	3/1/2025	3/15/2025	5	10	
4	Trenching	Trenching	3/1/2025	3/15/2025	5	10	
5	Building Construction	Building Construction	4/1/2025	9/1/2025	5	110	
6	Architectural Coating	Architectural Coating	4/1/2025	9/1/2025	5	110	
7	Paving	Paving	7/1/2025	9/1/2025	5	45	

Acres of Grading (Site Preparation Phase): 2.69

Acres of Grading (Grading Phase): 0.44

Acres of Paving: 0

Residential Indoor: 11,057; Residential Outdoor: 3,686; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	1.50	81	0.73
Demolition	Excavators	1	2.10	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Site Preparation	Graders	1	1.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	2.30	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73
Grading	Excavators	1	3.50	158	0.38
Grading	Graders	1	0.70	187	0.41
Grading	Rubber Tired Dozers	1	6.30	247	0.40
Grading	Tractors/Loaders/Backhoes	1	6.30	97	0.37
Trenching	Excavators	1	2.10	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	1.40	97	0.37
Building Construction	Cranes	0	0.00	231	0.29
Building Construction	Forklifts	1	3.00	89	0.20

Building Construction	Generator Sets	1	2.10	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	2.90	97	0.37
Building Construction	Welders	1	3.70	46	0.45
Architectural Coating	Aerial Lifts	6	2.80	63	0.31
Architectural Coating	Air Compressors	2	3.80	78	0.48
Paving	Cement and Mortar Mixers	1	5.60	9	0.56
Paving	Pavers	0	0.00	130	0.42
Paving	Rollers	1	1.20	80	0.38
Paving	Tractors/Loaders/Backhoes	1	3.30	97	0.37

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	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	3	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2025

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					2.6900e-003	0.0000	2.6900e-003	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	8.5800e-003	0.0177	3.0000e-005		3.8000e-004	3.8000e-004		3.7000e-004	3.7000e-004	0.0000	2.5295	2.5295	4.9000e-004	0.0000	2.5419
Total	**1.1400e-003**	**8.5800e-003**	**0.0177**	**3.0000e-005**	**2.6900e-003**	**3.8000e-004**	**3.0700e-003**	**4.1000e-004**	**3.7000e-004**	**7.8000e-004**	**0.0000**	**2.5295**	**2.5295**	**4.9000e-004**	**0.0000**	**2.5419**

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					1.2100e-003	0.0000	1.2100e-003	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.4000e-004	0.0117	0.0202	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5295	2.5295	4.9000e-004	0.0000	2.5419
Total	**4.4000e-004**	**0.0117**	**0.0202**	**3.0000e-005**	**1.2100e-003**	**4.0000e-005**	**1.2500e-003**	**9.0000e-005**	**4.0000e-005**	**1.3000e-004**	**0.0000**	**2.5295**	**2.5295**	**4.9000e-004**	**0.0000**	**2.5419**

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 - 2025

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					1.4300e-003	0.0000	1.4300e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6500e-003	0.0175	0.0181	4.0000e-005		6.3000e-004	6.3000e-004		5.8000e-004	5.8000e-004	0.0000	3.2547	3.2547	1.0500e-003	0.0000	3.2811
Total	**1.6500e-003**	**0.0175**	**0.0181**	**4.0000e-005**	**1.4300e-003**	**6.3000e-004**	**2.0600e-003**	**1.5000e-004**	**5.8000e-004**	**7.3000e-004**	**0.0000**	**3.2547**	**3.2547**	**1.0500e-003**	**0.0000**	**3.2811**

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					6.4000e-004	0.0000	6.4000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.2000e-004	0.0131	0.0239	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.2547	3.2547	1.0500e-003	0.0000	3.2810
Total	**7.2000e-004**	**0.0131**	**0.0239**	**4.0000e-005**	**6.4000e-004**	**6.0000e-005**	**7.0000e-004**	**3.0000e-005**	**6.0000e-005**	**9.0000e-005**	**0.0000**	**3.2547**	**3.2547**	**1.0500e-003**	**0.0000**	**3.2810**

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**

3.4 Grading - 2025

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					0.0240	0.0000	0.0240	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5700e-003	0.0356	0.0284	6.0000e-005		1.5400e-003	1.5400e-003		1.4100e-003	1.4100e-003	0.0000	5.2799	5.2799	1.7100e-003	0.0000	5.3226
Total	**3.5700e-003**	**0.0356**	**0.0284**	**6.0000e-005**	**0.0240**	**1.5400e-003**	**0.0255**	**0.0131**	**1.4100e-003**	**0.0145**	**0.0000**	**5.2799**	**5.2799**	**1.7100e-003**	**0.0000**	**5.3226**

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					0.0108	0.0000	0.0108	2.9400e-003	0.0000	2.9400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0100e-003	0.0199	0.0372	6.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	5.2799	5.2799	1.7100e-003	0.0000	5.3226
Total	**1.0100e-003**	**0.0199**	**0.0372**	**6.0000e-005**	**0.0108**	**1.0000e-004**	**0.0109**	**2.9400e-003**	**1.0000e-004**	**3.0400e-003**	**0.0000**	**5.2799**	**5.2799**	**1.7100e-003**	**0.0000**	**5.3226**

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**

3.5 Trenching - 2025

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	3.3000e-004	2.7700e-003	6.2300e-003	1.0000e-005		1.3000e-004	1.3000e-004		1.2000e-004	1.2000e-004	0.0000	0.8355	0.8355	2.7000e-004	0.0000	0.8423
Total	**3.3000e-004**	**2.7700e-003**	**6.2300e-003**	**1.0000e-005**		**1.3000e-004**	**1.3000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**0.8355**	**0.8355**	**2.7000e-004**	**0.0000**	**0.8423**

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					
Off-Road	1.4000e-004	4.1700e-003	7.1900e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.8355	0.8355	2.7000e-004	0.0000	0.8423
Total	**1.4000e-004**	**4.1700e-003**	**7.1900e-003**	**1.0000e-005**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.8355**	**0.8355**	**2.7000e-004**	**0.0000**	**0.8423**

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**

3.6 Building Construction - 2025

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	0.0139	0.1122	0.1627	2.5000e-004		4.4000e-003	4.4000e-003		4.2400e-003	4.2400e-003	0.0000	21.1811	21.1811	3.4200e-003	0.0000	21.2666

Total	**0.0139**	**0.1122**	**0.1627**	**2.5000e-004**		**4.4000e-003**	**4.4000e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**21.1811**	**21.1811**	**3.4200e-003**	**0.0000**	**21.2666**

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					
Off-Road	4.9600e-003	0.1170	0.1673	2.5000e-004		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000	21.1811	21.1811	3.4200e-003	0.0000	21.2665
Total	**4.9600e-003**	**0.1170**	**0.1673**	**2.5000e-004**		**1.4700e-003**	**1.4700e-003**		**1.4700e-003**	**1.4700e-003**	**0.0000**	**21.1811**	**21.1811**	**3.4200e-003**	**0.0000**	**21.2665**

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**

3.7 Architectural Coating - 2025

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	0.0384					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0158	0.1399	0.2521	4.0000e-004		4.6200e-003	4.6200e-003		4.5300e-003	4.5300e-003	0.0000	34.8270	34.8270	6.4800e-003	0.0000	34.9890
Total	**0.0543**	**0.1399**	**0.2521**	**4.0000e-004**		**4.6200e-003**	**4.6200e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**34.8270**	**34.8270**	**6.4800e-003**	**0.0000**	**34.9890**

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					
Archit. Coating	0.0384					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7300e-003	0.1339	0.2537	4.0000e-004		1.3000e-003	1.3000e-003		1.2200e-003	1.2200e-003	0.0000	34.8269	34.8269	6.4800e-003	0.0000	34.9889
Total	**0.0462**	**0.1339**	**0.2537**	**4.0000e-004**		**1.3000e-003**	**1.3000e-003**		**1.2200e-003**	**1.2200e-003**	**0.0000**	**34.8269**	**34.8269**	**6.4800e-003**	**0.0000**	**34.9889**

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**

3.8 Paving - 2025

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	2.6100e-003	0.0231	0.0318	5.0000e-005		9.7000e-004	9.7000e-004		9.1000e-004	9.1000e-004	0.0000	4.0429	4.0429	1.1500e-003	0.0000	4.0716
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6100e-003**	**0.0231**	**0.0318**	**5.0000e-005**		**9.7000e-004**	**9.7000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**4.0429**	**4.0429**	**1.1500e-003**	**0.0000**	**4.0716**

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					
Off-Road	8.5000e-004	0.0164	0.0284	5.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	4.0429	4.0429	1.1500e-003	0.0000	4.0716
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.5000e-004**	**0.0164**	**0.0284**	**5.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**4.0429**	**4.0429**	**1.1500e-003**	**0.0000**	**4.0716**

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**

Aldersly Retirement, San Rafael Constuction Phase 4

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	15.00	Dwelling Unit	0.40	21,850.00	43

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - Provided land uses from construction sheet, google earth esimated acreage

Construction Phase - Provided construction schedule from worksheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Off-road Equipment - Provided const equip & hours from sheet

Trips and VMT - 0 mile trips EMFAC2017, pavement demo = 20 tons, building = 120 cement truck roundtrips, paving = 370cy asphalt

Demolition - existing building demo = 4,124sf

Grading - grading = 500cy import, 3,500cy export

Construction Off-road Equipment Mitigation - BMPs, Tier 4 interim mitigation

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	FuelType	Diesel	CNG
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	7.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	NumDays	5.00	209.00
tblConstructionPhase	NumDays	100.00	188.00
tblConstructionPhase	NumDays	10.00	22.00
tblConstructionPhase	NumDays	2.00	23.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	1.00	20.00
tblGrading	MaterialExported	0.00	3,500.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	15,000.00	21,850.00
tblLandUse	LotAcreage	0.94	0.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	1.00	3.10
tblOffRoadEquipment	UsageHours	6.00	0.70

tblOffRoadEquipment	UsageHours	8.00	1.80
tblOffRoadEquipment	UsageHours	8.00	4.90
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	1.00	3.00
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	4.00	4.20
tblOffRoadEquipment	UsageHours	6.00	3.00
tblOffRoadEquipment	UsageHours	8.00	0.70
tblOffRoadEquipment	UsageHours	6.00	3.60
tblOffRoadEquipment	UsageHours	6.00	4.20
tblOffRoadEquipment	UsageHours	7.00	0.50
tblOffRoadEquipment	UsageHours	7.00	2.80
tblOffRoadEquipment	UsageHours	7.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblTripsAndVMT	HaulingTripNumber	19.00	0.00
tblTripsAndVMT	HaulingTripNumber	500.00	0.00
tblTripsAndVMT	VendorTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblTripsAndVMT	WorkerTripNumber	11.00	0.00
tblTripsAndVMT	WorkerTripNumber	2.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	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
Year	tons/yr										MT/yr					
2026	0.2180	0.7431	0.8806	1.6600e-003	0.0904	0.0298	0.1202	0.0473	0.0282	0.0755	0.0000	144.4190	144.4190	0.0328	0.0000	145.2379
2027	0.0217	0.0483	0.0767	1.2000e-004	0.0000	1.9600e-003	1.9600e-003	0.0000	1.8800e-003	1.8800e-003	0.0000	10.5701	10.5701	2.3700e-003	0.0000	10.6294
Maximum	**0.2180**	**0.7431**	**0.8806**	**1.6600e-003**	**0.0904**	**0.0298**	**0.1202**	**0.0473**	**0.0282**	**0.0755**	**0.0000**	**144.4190**	**144.4190**	**0.0328**	**0.0000**	**145.2379**

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					
2026	0.1675	0.5640	1.0274	1.6600e-003	0.0407	3.9900e-003	0.0447	0.0106	3.8800e-003	0.0145	0.0000	144.4188	144.4188	0.0328	0.0000	145.2377
2027	0.0183	0.0432	0.0781	1.2000e-004	0.0000	2.9000e-004	2.9000e-004	0.0000	2.8000e-004	2.8000e-004	0.0000	10.5701	10.5701	2.3700e-003	0.0000	10.6293
Maximum	**0.1675**	**0.5640**	**1.0274**	**1.6600e-003**	**0.0407**	**3.9900e-003**	**0.0447**	**0.0106**	**3.8800e-003**	**0.0145**	**0.0000**	**144.4188**	**144.4188**	**0.0328**	**0.0000**	**145.2377**

	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	**22.51**	**23.28**	**-15.48**	**0.00**	**55.00**	**86.53**	**63.20**	**77.49**	**86.17**	**80.87**	**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	1-1-2026	3-31-2026	0.2688	0.1632
2	4-1-2026	6-30-2026	0.2121	0.1755
3	7-1-2026	9-30-2026	0.2406	0.1964
4	10-1-2026	12-31-2026	0.2406	0.1964

5	**1-1-2027**	**3-31-2027**	0.0708	0.0624
		Highest	0.2688	0.1964

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	1/1/2026	2/1/2026	5	22	
2	Site Preparation	Site Preparation	2/1/2026	2/28/2026	5	20	
3	Grading	Grading	3/1/2026	4/1/2026	5	23	
4	Trenching	Trenching	3/15/2026	4/15/2026	5	23	
5	Building Construction	Building Construction	4/15/2026	1/1/2027	5	188	
6	Architectural Coating	Architectural Coating	4/15/2026	2/1/2027	5	209	
7	Paving	Paving	2/1/2027	3/31/2027	5	43	

Acres of Grading (Site Preparation Phase): 2.25

Acres of Grading (Grading Phase): 4.31

Acres of Paving: 0

Residential Indoor: 44,246; Residential Outdoor: 14,749; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	2.00	81	0.73
Demolition	Excavators	2	3.10	158	0.38
Demolition	Rubber Tired Dozers	2	3.10	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	0.70	97	0.37
Site Preparation	Graders	1	1.80	187	0.41
Site Preparation	Rubber Tired Dozers	2	3.90	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	2	4.90	97	0.37
Grading	Concrete/Industrial Saws	0	0.00	81	0.73

Grading	Excavators	2	4.00	158	0.38
Grading	Graders	1	3.00	187	0.41
Grading	Rubber Tired Dozers	1	3.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	3.00	97	0.37
Trenching	Excavators	1	1.80	158	0.38
Trenching	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	4.20	231	0.29
Building Construction	Forklifts	1	3.00	89	0.20
Building Construction	Generator Sets	1	2.60	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	0.70	97	0.37
Building Construction	Welders	1	1.00	46	0.45
Architectural Coating	Aerial Lifts	6	2.20	63	0.31
Architectural Coating	Air Compressors	2	3.60	78	0.48
Paving	Cement and Mortar Mixers	1	4.20	9	0.56
Paving	Pavers	1	0.50	130	0.42
Paving	Paving Equipment	1	1.50	132	0.36
Paving	Rollers	1	2.80	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37

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	8	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	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Alternative Fuel for Construction Equipment

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2026

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					2.0300e-003	0.0000	2.0300e-003	3.1000e-004	0.0000	3.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.8300e-003	0.0820	0.0777	1.6000e-004		3.6000e-003	3.6000e-003		3.3500e-003	3.3500e-003	0.0000	13.7496	13.7496	3.6200e-003	0.0000	13.8401
Total	**8.8300e-003**	**0.0820**	**0.0777**	**1.6000e-004**	**2.0300e-003**	**3.6000e-003**	**5.6300e-003**	**3.1000e-004**	**3.3500e-003**	**3.6600e-003**	**0.0000**	**13.7496**	**13.7496**	**3.6200e-003**	**0.0000**	**13.8401**

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					9.1000e-004	0.0000	9.1000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5000e-003	0.0535	0.0978	1.6000e-004		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	13.7496	13.7496	3.6200e-003	0.0000	13.8401
Total	**2.5000e-003**	**0.0535**	**0.0978**	**1.6000e-004**	**9.1000e-004**	**2.5000e-004**	**1.1600e-003**	**7.0000e-005**	**2.5000e-004**	**3.2000e-004**	**0.0000**	**13.7496**	**13.7496**	**3.6200e-003**	**0.0000**	**13.8401**

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 - 2026

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					0.0599	0.0000	0.0599	0.0324	0.0000	0.0324	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.6400e-003	0.0888	0.0601	1.4000e-004		3.7400e-003	3.7400e-003		3.4400e-003	3.4400e-003	0.0000	11.9781	11.9781	3.8700e-003	0.0000	12.0749
Total	**8.6400e-003**	**0.0888**	**0.0601**	**1.4000e-004**	**0.0599**	**3.7400e-003**	**0.0637**	**0.0324**	**3.4400e-003**	**0.0358**	**0.0000**	**11.9781**	**11.9781**	**3.8700e-003**	**0.0000**	**12.0749**

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					0.0270	0.0000	0.0270	7.2900e-003	0.0000	7.2900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4600e-003	0.0424	0.0808	1.4000e-004		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	11.9781	11.9781	3.8700e-003	0.0000	12.0749
Total	**2.4600e-003**	**0.0424**	**0.0808**	**1.4000e-004**	**0.0270**	**2.2000e-004**	**0.0272**	**7.2900e-003**	**2.2000e-004**	**7.5100e-003**	**0.0000**	**11.9781**	**11.9781**	**3.8700e-003**	**0.0000**	**12.0749**

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**

3.4 Grading - 2026

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					0.0285	0.0000	0.0285	0.0146	0.0000	0.0146	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6300e-003	0.0633	0.0669	1.4000e-004		2.6500e-003	2.6500e-003		2.4400e-003	2.4400e-003	0.0000	12.1416	12.1416	3.9300e-003	0.0000	12.2398
Total	**6.6300e-003**	**0.0633**	**0.0669**	**1.4000e-004**	**0.0285**	**2.6500e-003**	**0.0311**	**0.0146**	**2.4400e-003**	**0.0170**	**0.0000**	**12.1416**	**12.1416**	**3.9300e-003**	**0.0000**	**12.2398**

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					0.0128	0.0000	0.0128	3.2800e-003	0.0000	3.2800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.1000e-003	0.0492	0.0899	1.4000e-004		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004	0.0000	12.1416	12.1416	3.9300e-003	0.0000	12.2397
Total	**2.1000e-003**	**0.0492**	**0.0899**	**1.4000e-004**	**0.0128**	**2.3000e-004**	**0.0131**	**3.2800e-003**	**2.3000e-004**	**3.5100e-003**	**0.0000**	**12.1416**	**12.1416**	**3.9300e-003**	**0.0000**	**12.2397**

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**

3.5 Trenching - 2026

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	1.7600e-003	0.0166	0.0309	4.0000e-005		7.0000e-004	7.0000e-004		6.4000e-004	6.4000e-004	0.0000	3.9318	3.9318	1.2700e-003	0.0000	3.9636
Total	**1.7600e-003**	**0.0166**	**0.0309**	**4.0000e-005**		**7.0000e-004**	**7.0000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**3.9318**	**3.9318**	**1.2700e-003**	**0.0000**	**3.9636**

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					
Off-Road	8.7000e-004	0.0195	0.0337	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.9318	3.9318	1.2700e-003	0.0000	3.9636
Total	**8.7000e-004**	**0.0195**	**0.0337**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.9318**	**3.9318**	**1.2700e-003**	**0.0000**	**3.9636**

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**

3.6 Building Construction - 2026

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	0.0302	0.2836	0.2737	5.9000e-004		0.0120	0.0120		0.0113	0.0113	0.0000	51.2108	51.2108	0.0111	0.0000	51.4893
Total	**0.0302**	**0.2836**	**0.2737**	**5.9000e-004**		**0.0120**	**0.0120**		**0.0113**	**0.0113**	**0.0000**	**51.2108**	**51.2108**	**0.0111**	**0.0000**	**51.4893**

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					
Off-Road	0.0106	0.2002	0.3514	5.9000e-004		1.4100e-003	1.4100e-003		1.4100e-003	1.4100e-003	0.0000	51.2108	51.2108	0.0111	0.0000	51.4893
Total	**0.0106**	**0.2002**	**0.3514**	**5.9000e-004**		**1.4100e-003**	**1.4100e-003**		**1.4100e-003**	**1.4100e-003**	**0.0000**	**51.2108**	**51.2108**	**0.0111**	**0.0000**	**51.4893**

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**

3.6 Building Construction - 2027

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	1.6000e-004	1.5200e-003	1.4600e-003	0.0000		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	0.2739	0.2739	6.0000e-005	0.0000	0.2753

Total	**1.6000e-004**	**1.5200e-003**	**1.4600e-003**	**0.0000**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.2739**	**0.2739**	**6.0000e-005**	**0.0000**	**0.2753**

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					
Off-Road	6.0000e-005	1.0700e-003	1.8800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	0.2739	0.2739	6.0000e-005	0.0000	0.2753
Total	**6.0000e-005**	**1.0700e-003**	**1.8800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.2739**	**0.2739**	**6.0000e-005**	**0.0000**	**0.2753**

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**

3.7 Architectural Coating - 2026

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	0.1376					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0244	0.2088	0.3713	5.9000e-004		7.1500e-003	7.1500e-003		7.0400e-003	7.0400e-003	0.0000	51.4071	51.4071	8.9200e-003	0.0000	51.6302
Total	**0.1620**	**0.2088**	**0.3713**	**5.9000e-004**		**7.1500e-003**	**7.1500e-003**		**7.0400e-003**	**7.0400e-003**	**0.0000**	**51.4071**	**51.4071**	**8.9200e-003**	**0.0000**	**51.6302**

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					
Archit. Coating	0.1376					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0114	0.1992	0.3739	5.9000e-004		1.8200e-003	1.8200e-003		1.7100e-003	1.7100e-003	0.0000	51.4071	51.4071	8.9200e-003	0.0000	51.6302
Total	**0.1490**	**0.1992**	**0.3739**	**5.9000e-004**		**1.8200e-003**	**1.8200e-003**		**1.7100e-003**	**1.7100e-003**	**0.0000**	**51.4071**	**51.4071**	**8.9200e-003**	**0.0000**	**51.6302**

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**

3.7 Architectural Coating - 2027

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	0.0162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8700e-003	0.0246	0.0437	7.0000e-005		8.4000e-004	8.4000e-004		8.3000e-004	8.3000e-004	0.0000	6.0479	6.0479	1.0500e-003	0.0000	6.0741
Total	**0.0191**	**0.0246**	**0.0437**	**7.0000e-005**		**8.4000e-004**	**8.4000e-004**		**8.3000e-004**	**8.3000e-004**	**0.0000**	**6.0479**	**6.0479**	**1.0500e-003**	**0.0000**	**6.0741**

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					
Archit. Coating	0.0162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3400e-003	0.0234	0.0440	7.0000e-005		2.1000e-004	2.1000e-004		2.0000e-004	2.0000e-004	0.0000	6.0479	6.0479	1.0500e-003	0.0000	6.0741
Total	**0.0175**	**0.0234**	**0.0440**	**7.0000e-005**		**2.1000e-004**	**2.1000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**6.0479**	**6.0479**	**1.0500e-003**	**0.0000**	**6.0741**

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**

3.8 Paving - 2027

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	2.5200e-003	0.0222	0.0315	5.0000e-005		1.0600e-003	1.0600e-003		9.9000e-004	9.9000e-004	0.0000	4.2484	4.2484	1.2600e-003	0.0000	4.2799
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.5200e-003**	**0.0222**	**0.0315**	**5.0000e-005**		**1.0600e-003**	**1.0600e-003**		**9.9000e-004**	**9.9000e-004**	**0.0000**	**4.2484**	**4.2484**	**1.2600e-003**	**0.0000**	**4.2799**

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					
Off-Road	7.2000e-004	0.0187	0.0322	5.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	4.2484	4.2484	1.2600e-003	0.0000	4.2799
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**7.2000e-004**	**0.0187**	**0.0322**	**5.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**4.2484**	**4.2484**	**1.2600e-003**	**0.0000**	**4.2799**

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**

Aldersly Retirement, San Rafael Operation

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	26.00	Space	0.23	10,400.00	0
Congregate Care (Assisted Living)	14.00	Dwelling Unit	0.88	30,345.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2028
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - New land uses at site, sf based on project plans

Construction Phase - Operational run, no construction

Off-road Equipment - Op run no const

Grading -

Vehicle Trips - congragate care trip gen, 2.02, 1.62, 1.80

Vehicle Emission Factors - EMFAC2017 Emissions Factors Marin County

Vehicle Emission Factors -

Woodstoves - all gas no wood

Water And Wastewater - WWTP 100% aerobic

Stationary Sources - Emergency Generators and Fire Pumps - 1 emergency generator 500-kw, 670-hp, 50 hours/year

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	1.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	2.10	4.48
tblFireplaces	NumberWood	2.38	0.00
tblFleetMix	HHD	0.01	0.01
tblFleetMix	HHD	0.01	0.01
tblFleetMix	LDA	0.60	0.55
tblFleetMix	LDA	0.60	0.55
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.20	0.19
tblFleetMix	LDT2	0.20	0.19
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD2	5.2370e-003	6.2872e-003
tblFleetMix	LHD2	5.2370e-003	6.2872e-003
tblFleetMix	MCY	5.5590e-003	0.03
tblFleetMix	MCY	5.5590e-003	0.03
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	6.8200e-004	8.2225e-004
tblFleetMix	MH	6.8200e-004	8.2225e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.0480e-003	1.1308e-003
tblFleetMix	OBUS	2.0480e-003	1.1308e-003

tblFleetMix	SBUS	7.4000e-004	8.0273e-004
tblFleetMix	SBUS	7.4000e-004	8.0273e-004
tblFleetMix	UBUS	2.4560e-003	7.4792e-004
tblFleetMix	UBUS	2.4560e-003	7.4792e-004
tblGrading	AcresOfGrading	0.00	0.50
tblLandUse	LandUseSquareFeet	14,000.00	30,345.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	670.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblVehicleEF	HHD	0.21	0.03
tblVehicleEF	HHD	0.09	0.09
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.34	5.99
tblVehicleEF	HHD	1.32	0.62
tblVehicleEF	HHD	5.62	0.02
tblVehicleEF	HHD	3,455.52	943.52
tblVehicleEF	HHD	1,548.76	1,353.92
tblVehicleEF	HHD	17.06	0.23
tblVehicleEF	HHD	12.18	5.32
tblVehicleEF	HHD	1.82	2.74

tblVehicleEF	HHD	18.59	2.47
tblVehicleEF	HHD	8.4810e-003	3.0790e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	6.2840e-003	0.02
tblVehicleEF	HHD	1.8400e-004	2.0000e-006
tblVehicleEF	HHD	8.1150e-003	2.9450e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7470e-003	8.8530e-003
tblVehicleEF	HHD	6.0110e-003	0.02
tblVehicleEF	HHD	1.6900e-004	1.0000e-006
tblVehicleEF	HHD	1.2800e-004	6.0000e-006
tblVehicleEF	HHD	6.9750e-003	2.8700e-004
tblVehicleEF	HHD	0.34	0.40
tblVehicleEF	HHD	8.8000e-005	4.0000e-006
tblVehicleEF	HHD	0.09	0.03
tblVehicleEF	HHD	8.8900e-004	1.5130e-003
tblVehicleEF	HHD	0.11	5.0000e-006
tblVehicleEF	HHD	0.03	8.6500e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.6200e-004	2.0000e-006
tblVehicleEF	HHD	1.2800e-004	6.0000e-006
tblVehicleEF	HHD	6.9750e-003	2.8700e-004
tblVehicleEF	HHD	0.40	0.47
tblVehicleEF	HHD	8.8000e-005	4.0000e-006
tblVehicleEF	HHD	0.19	0.12
tblVehicleEF	HHD	8.8900e-004	1.5130e-003
tblVehicleEF	HHD	0.12	5.0000e-006
tblVehicleEF	LDA	2.3450e-003	1.2600e-003
tblVehicleEF	LDA	3.0240e-003	0.03

tblVehicleEF	LDA	0.35	0.42
tblVehicleEF	LDA	0.80	1.87
tblVehicleEF	LDA	199.30	223.57
tblVehicleEF	LDA	45.54	46.86
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.04	0.14
tblVehicleEF	LDA	1.4160e-003	1.1230e-003
tblVehicleEF	LDA	2.0790e-003	1.4570e-003
tblVehicleEF	LDA	1.3030e-003	1.0350e-003
tblVehicleEF	LDA	1.9120e-003	1.3400e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.9020e-003	4.6780e-003
tblVehicleEF	LDA	0.04	0.19
tblVehicleEF	LDA	0.04	0.15
tblVehicleEF	LDA	1.9940e-003	1.2300e-004
tblVehicleEF	LDA	4.6800e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	8.5760e-003	6.7840e-003
tblVehicleEF	LDA	0.04	0.19
tblVehicleEF	LDA	0.04	0.16
tblVehicleEF	LDT1	4.2430e-003	2.0770e-003
tblVehicleEF	LDT1	6.8670e-003	0.05
tblVehicleEF	LDT1	0.57	0.57
tblVehicleEF	LDT1	1.56	2.06
tblVehicleEF	LDT1	253.30	274.04
tblVehicleEF	LDT1	59.01	58.33

tblVehicleEF	LDT1	0.06	0.04
tblVehicleEF	LDT1	0.08	0.18
tblVehicleEF	LDT1	1.6840e-003	1.2810e-003
tblVehicleEF	LDT1	2.4970e-003	1.7450e-003
tblVehicleEF	LDT1	1.5490e-003	1.1780e-003
tblVehicleEF	LDT1	2.2960e-003	1.6040e-003
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.16	0.13
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.01	8.4130e-003
tblVehicleEF	LDT1	0.12	0.50
tblVehicleEF	LDT1	0.09	0.21
tblVehicleEF	LDT1	2.5380e-003	2.8210e-003
tblVehicleEF	LDT1	6.1700e-004	0.00
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.16	0.13
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.02	0.01
tblVehicleEF	LDT1	0.12	0.50
tblVehicleEF	LDT1	0.10	0.23
tblVehicleEF	LDT2	3.3270e-003	1.9180e-003
tblVehicleEF	LDT2	4.1190e-003	0.05
tblVehicleEF	LDT2	0.48	0.54
tblVehicleEF	LDT2	1.06	2.48
tblVehicleEF	LDT2	285.54	286.78
tblVehicleEF	LDT2	65.45	61.13
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.06	0.20
tblVehicleEF	LDT2	1.5170e-003	1.2000e-003
tblVehicleEF	LDT2	2.2260e-003	1.5140e-003

tblVehicleEF	LDT2	1.3950e-003	1.1050e-003
tblVehicleEF	LDT2	2.0470e-003	1.3920e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.08	0.11
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	8.2610e-003	7.3600e-003
tblVehicleEF	LDT2	0.06	0.40
tblVehicleEF	LDT2	0.06	0.22
tblVehicleEF	LDT2	2.8580e-003	0.01
tblVehicleEF	LDT2	6.7200e-004	1.2100e-004
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.08	0.11
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.40
tblVehicleEF	LDT2	0.06	0.24
tblVehicleEF	LHD1	4.1830e-003	4.3060e-003
tblVehicleEF	LHD1	0.01	6.7830e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.14	0.18
tblVehicleEF	LHD1	0.82	0.64
tblVehicleEF	LHD1	2.01	0.96
tblVehicleEF	LHD1	9.08	8.63
tblVehicleEF	LHD1	652.70	724.14
tblVehicleEF	LHD1	27.14	10.30
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.89	0.54
tblVehicleEF	LHD1	0.76	0.25
tblVehicleEF	LHD1	9.0000e-004	9.4100e-004
tblVehicleEF	LHD1	0.01	9.9270e-003

tblVehicleEF	LHD1	0.01	9.4020e-003
tblVehicleEF	LHD1	7.7700e-004	2.3000e-004
tblVehicleEF	LHD1	8.6100e-004	9.0000e-004
tblVehicleEF	LHD1	2.5970e-003	2.4820e-003
tblVehicleEF	LHD1	0.01	8.9490e-003
tblVehicleEF	LHD1	7.1400e-004	2.1200e-004
tblVehicleEF	LHD1	1.9160e-003	1.4870e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.1310e-003	8.7700e-004
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.19	0.05
tblVehicleEF	LHD1	9.0000e-005	8.4000e-005
tblVehicleEF	LHD1	6.3810e-003	7.0590e-003
tblVehicleEF	LHD1	3.0900e-004	1.0200e-004
tblVehicleEF	LHD1	1.9160e-003	1.4870e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.1310e-003	8.7700e-004
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.20	0.06
tblVehicleEF	LHD2	2.7110e-003	2.7620e-003
tblVehicleEF	LHD2	5.6110e-003	5.6820e-003
tblVehicleEF	LHD2	3.9150e-003	6.0340e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.47	0.52
tblVehicleEF	LHD2	0.93	0.53
tblVehicleEF	LHD2	13.74	13.31

tblVehicleEF	LHD2	682.33	707.78
tblVehicleEF	LHD2	22.23	6.99
tblVehicleEF	LHD2	0.08	0.08
tblVehicleEF	LHD2	0.31	0.48
tblVehicleEF	LHD2	0.31	0.15
tblVehicleEF	LHD2	1.1040e-003	1.4580e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.1100e-004
tblVehicleEF	LHD2	1.0560e-003	1.3950e-003
tblVehicleEF	LHD2	2.7050e-003	2.7010e-003
tblVehicleEF	LHD2	9.7960e-003	0.01
tblVehicleEF	LHD2	3.4100e-004	1.0200e-004
tblVehicleEF	LHD2	4.7900e-004	6.6400e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1600e-004	4.2300e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.17
tblVehicleEF	LHD2	0.05	0.03
tblVehicleEF	LHD2	1.3400e-004	1.2700e-004
tblVehicleEF	LHD2	6.6300e-003	6.8310e-003
tblVehicleEF	LHD2	2.3800e-004	6.9000e-005
tblVehicleEF	LHD2	4.7900e-004	6.6400e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1600e-004	4.2300e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.04	0.17
tblVehicleEF	LHD2	0.06	0.03

tblVehicleEF	MCY	0.48	0.34
tblVehicleEF	MCY	0.16	0.26
tblVehicleEF	MCY	19.40	19.61
tblVehicleEF	MCY	10.40	9.25
tblVehicleEF	MCY	178.23	217.42
tblVehicleEF	MCY	44.07	60.70
tblVehicleEF	MCY	1.17	1.18
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.2280e-003	2.1970e-003
tblVehicleEF	MCY	3.5470e-003	3.0320e-003
tblVehicleEF	MCY	2.0800e-003	2.0510e-003
tblVehicleEF	MCY	3.3280e-003	2.8460e-003
tblVehicleEF	MCY	0.75	1.54
tblVehicleEF	MCY	0.66	0.69
tblVehicleEF	MCY	0.44	0.92
tblVehicleEF	MCY	2.26	2.27
tblVehicleEF	MCY	0.55	1.82
tblVehicleEF	MCY	2.20	1.96
tblVehicleEF	MCY	2.1660e-003	2.1520e-003
tblVehicleEF	MCY	6.7500e-004	6.0100e-004
tblVehicleEF	MCY	0.75	1.54
tblVehicleEF	MCY	0.66	0.69
tblVehicleEF	MCY	0.44	0.92
tblVehicleEF	MCY	2.82	2.83
tblVehicleEF	MCY	0.55	1.82
tblVehicleEF	MCY	2.39	2.13
tblVehicleEF	MDV	5.0440e-003	2.0460e-003
tblVehicleEF	MDV	8.5920e-003	0.05
tblVehicleEF	MDV	0.62	0.54
tblVehicleEF	MDV	1.74	2.52

tblVehicleEF	MDV	383.88	345.50
tblVehicleEF	MDV	87.48	71.47
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.13	0.21
tblVehicleEF	MDV	1.5510e-003	1.2390e-003
tblVehicleEF	MDV	2.2240e-003	1.4980e-003
tblVehicleEF	MDV	1.4280e-003	1.1440e-003
tblVehicleEF	MDV	2.0450e-003	1.3770e-003
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.14	0.11
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.01	8.1820e-003
tblVehicleEF	MDV	0.10	0.38
tblVehicleEF	MDV	0.12	0.24
tblVehicleEF	MDV	3.8370e-003	3.2340e-003
tblVehicleEF	MDV	9.0400e-004	6.7000e-004
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.14	0.11
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.10	0.38
tblVehicleEF	MDV	0.13	0.26
tblVehicleEF	MH	0.01	6.1700e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.88	0.46
tblVehicleEF	MH	4.15	1.68
tblVehicleEF	MH	1,187.18	1,379.72
tblVehicleEF	MH	55.84	15.50
tblVehicleEF	MH	1.00	1.22
tblVehicleEF	MH	0.65	0.22

tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	9.2700e-004	2.1400e-004
tblVehicleEF	MH	3.2350e-003	3.3150e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.5200e-004	1.9700e-004
tblVehicleEF	MH	0.44	0.35
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.01	0.71
tblVehicleEF	MH	0.24	0.08
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3000e-004	1.5300e-004
tblVehicleEF	MH	0.44	0.35
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.18	0.14
tblVehicleEF	MH	0.07	0.06
tblVehicleEF	MH	0.01	0.71
tblVehicleEF	MH	0.26	0.08
tblVehicleEF	MHD	0.02	5.1530e-003
tblVehicleEF	MHD	3.4970e-003	1.7070e-003
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.40	0.54
tblVehicleEF	MHD	0.29	0.22
tblVehicleEF	MHD	4.79	1.34
tblVehicleEF	MHD	119.66	93.34
tblVehicleEF	MHD	1,176.56	1,075.79
tblVehicleEF	MHD	66.16	12.26
tblVehicleEF	MHD	0.33	0.55

tblVehicleEF	MHD	1.04	1.39
tblVehicleEF	MHD	8.99	1.54
tblVehicleEF	MHD	9.5000e-005	3.3300e-004
tblVehicleEF	MHD	3.1250e-003	6.7690e-003
tblVehicleEF	MHD	8.7100e-004	1.4600e-004
tblVehicleEF	MHD	9.1000e-005	3.1800e-004
tblVehicleEF	MHD	2.9810e-003	6.4660e-003
tblVehicleEF	MHD	8.0100e-004	1.3500e-004
tblVehicleEF	MHD	6.9400e-004	4.0000e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	4.5600e-004	2.5900e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.03	0.13
tblVehicleEF	MHD	0.29	0.06
tblVehicleEF	MHD	1.1550e-003	8.8600e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.4500e-004	1.2100e-004
tblVehicleEF	MHD	6.9400e-004	4.0000e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	4.5600e-004	2.5900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.13
tblVehicleEF	MHD	0.32	0.07
tblVehicleEF	OBUS	0.01	8.9460e-003
tblVehicleEF	OBUS	5.6780e-003	4.5460e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.55
tblVehicleEF	OBUS	0.39	0.48

tblVehicleEF	OBUS	4.93	2.40
tblVehicleEF	OBUS	83.61	70.36
tblVehicleEF	OBUS	1,271.89	1,377.85
tblVehicleEF	OBUS	67.73	19.83
tblVehicleEF	OBUS	0.17	0.28
tblVehicleEF	OBUS	0.80	0.99
tblVehicleEF	OBUS	2.29	0.70
tblVehicleEF	OBUS	1.6000e-005	9.3000e-005
tblVehicleEF	OBUS	2.6330e-003	6.2070e-003
tblVehicleEF	OBUS	9.1300e-004	2.0300e-004
tblVehicleEF	OBUS	1.5000e-005	8.9000e-005
tblVehicleEF	OBUS	2.4940e-003	5.9150e-003
tblVehicleEF	OBUS	8.3900e-004	1.8700e-004
tblVehicleEF	OBUS	1.2350e-003	1.3740e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	6.0600e-004	6.9200e-004
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.06	0.30
tblVehicleEF	OBUS	0.31	0.12
tblVehicleEF	OBUS	8.1000e-004	6.7100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.6400e-004	1.9600e-004
tblVehicleEF	OBUS	1.2350e-003	1.3740e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	6.0600e-004	6.9200e-004
tblVehicleEF	OBUS	0.05	0.04
tblVehicleEF	OBUS	0.06	0.30
tblVehicleEF	OBUS	0.34	0.13

tblVehicleEF	SBUS	0.82	0.06
tblVehicleEF	SBUS	7.6670e-003	6.1710e-003
tblVehicleEF	SBUS	0.06	5.5330e-003
tblVehicleEF	SBUS	7.02	2.54
tblVehicleEF	SBUS	0.49	0.52
tblVehicleEF	SBUS	6.03	0.80
tblVehicleEF	SBUS	1,135.87	335.19
tblVehicleEF	SBUS	1,073.71	982.10
tblVehicleEF	SBUS	47.40	4.46
tblVehicleEF	SBUS	6.48	3.44
tblVehicleEF	SBUS	2.45	4.55
tblVehicleEF	SBUS	13.08	0.92
tblVehicleEF	SBUS	4.1270e-003	3.3080e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	9.2200e-004	7.0000e-005
tblVehicleEF	SBUS	3.9480e-003	3.1650e-003
tblVehicleEF	SBUS	2.6870e-003	2.6830e-003
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	8.4700e-004	6.4000e-005
tblVehicleEF	SBUS	1.9910e-003	4.7600e-004
tblVehicleEF	SBUS	0.02	5.4750e-003
tblVehicleEF	SBUS	0.83	0.28
tblVehicleEF	SBUS	9.9500e-004	2.4000e-004
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.30	0.03
tblVehicleEF	SBUS	0.01	3.1930e-003
tblVehicleEF	SBUS	0.01	9.3910e-003
tblVehicleEF	SBUS	5.7800e-004	4.4000e-005

tblVehicleEF	SBUS	1.9910e-003	4.7600e-004
tblVehicleEF	SBUS	0.02	5.4750e-003
tblVehicleEF	SBUS	1.20	0.41
tblVehicleEF	SBUS	9.9500e-004	2.4000e-004
tblVehicleEF	SBUS	0.09	0.10
tblVehicleEF	SBUS	0.01	0.03
tblVehicleEF	SBUS	0.33	0.03
tblVehicleEF	UBUS	0.26	0.83
tblVehicleEF	UBUS	0.04	0.03
tblVehicleEF	UBUS	4.16	6.40
tblVehicleEF	UBUS	5.71	2.43
tblVehicleEF	UBUS	2,087.64	1,708.36
tblVehicleEF	UBUS	89.00	23.63
tblVehicleEF	UBUS	9.34	0.46
tblVehicleEF	UBUS	15.49	0.24
tblVehicleEF	UBUS	0.63	0.11
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.19	3.5750e-003
tblVehicleEF	UBUS	8.6500e-004	2.8000e-004
tblVehicleEF	UBUS	0.27	0.05
tblVehicleEF	UBUS	3.0000e-003	5.0890e-003
tblVehicleEF	UBUS	0.18	3.3740e-003
tblVehicleEF	UBUS	7.9600e-004	2.5800e-004
tblVehicleEF	UBUS	1.7990e-003	6.5800e-004
tblVehicleEF	UBUS	0.03	8.8690e-003
tblVehicleEF	UBUS	1.1690e-003	3.9500e-004
tblVehicleEF	UBUS	0.48	0.02
tblVehicleEF	UBUS	8.1550e-003	0.05
tblVehicleEF	UBUS	0.50	0.13
tblVehicleEF	UBUS	0.02	0.01

tblVehicleEF	UBUS	9.9400e-004	2.3400e-004
tblVehicleEF	UBUS	1.7990e-003	6.5800e-004
tblVehicleEF	UBUS	0.03	8.8690e-003
tblVehicleEF	UBUS	1.1690e-003	3.9500e-004
tblVehicleEF	UBUS	0.78	0.86
tblVehicleEF	UBUS	8.1550e-003	0.05
tblVehicleEF	UBUS	0.54	0.15
tblVehicleTrips	ST_TR	2.20	1.62
tblVehicleTrips	SU_TR	2.44	1.80
tblVehicleTrips	WD_TR	2.74	2.02
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	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

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	0.1440	1.6800e-003	0.1043	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Energy	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	10.0233	10.0233	9.5000e-004	2.9000e-004	10.1336

Mobile	0.0136	0.0119	0.0949	2.2000e-004	0.0230	1.4000e-004	0.0231	6.1300e-003	1.3000e-004	6.2700e-003	0.0000	18.9707	18.9707	1.2400e-003	0.0000	19.0017
Stationary	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Waste						0.0000	0.0000		0.0000	0.0000	2.5942	0.0000	2.5942	0.1533	0.0000	6.4271
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.3877	0.7104	1.2000e-003	7.2000e-004	0.9552
Total	**0.1857**	**0.0960**	**0.2717**	**4.0000e-004**	**0.0230**	**5.2600e-003**	**0.0282**	**6.1300e-003**	**5.2500e-003**	**0.0114**	**2.9169**	**42.8679**	**45.7848**	**0.1587**	**1.0200e-003**	**50.0560**

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	0.1440	1.6800e-003	0.1043	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Energy	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	10.0233	10.0233	9.5000e-004	2.9000e-004	10.1336
Mobile	0.0136	0.0119	0.0949	2.2000e-004	0.0230	1.4000e-004	0.0231	6.1300e-003	1.3000e-004	6.2700e-003	0.0000	18.9707	18.9707	1.2400e-003	0.0000	19.0017
Stationary	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Waste						0.0000	0.0000		0.0000	0.0000	2.5942	0.0000	2.5942	0.1533	0.0000	6.4271
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.3877	0.7104	1.2000e-003	7.2000e-004	0.9552
Total	**0.1857**	**0.0960**	**0.2717**	**4.0000e-004**	**0.0230**	**5.2600e-003**	**0.0282**	**6.1300e-003**	**5.2500e-003**	**0.0114**	**2.9169**	**42.8679**	**45.7848**	**0.1587**	**1.0200e-003**	**50.0560**

	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**

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	0.0136	0.0119	0.0949	2.2000e-004	0.0230	1.4000e-004	0.0231	6.1300e-003	1.3000e-004	6.2700e-003	0.0000	18.9707	18.9707	1.2400e-003	0.0000	19.0017
Unmitigated	0.0136	0.0119	0.0949	2.2000e-004	0.0230	1.4000e-004	0.0231	6.1300e-003	1.3000e-004	6.2700e-003	0.0000	18.9707	18.9707	1.2400e-003	0.0000	19.0017

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	28.28	22.68	25.20	62,452	62,452
Parking Lot	0.00	0.00	0.00		
Total	28.28	22.68	25.20	62,452	62,452

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
Congregate Care (Assisted Living)	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.546979	0.059425	0.192177	0.116557	0.025074	0.006287	0.010738	0.011176	0.001131	0.000748	0.028084	0.000803	0.000822
Parking Lot	0.546979	0.059425	0.192177	0.116557	0.025074	0.006287	0.010738	0.011176	0.001131	0.000748	0.028084	0.000803	0.000822

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	3.5008	3.5008	8.3000e-004	1.7000e-004	3.5723
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.5008	3.5008	8.3000e-004	1.7000e-004	3.5723
NaturalGas Mitigated	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
NaturalGas Unmitigated	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612

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					
Congregate Care (Assisted Living)	122226	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
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
Total		**6.6000e-004**	**5.6300e-003**	**2.4000e-003**	**4.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**6.5225**	**6.5225**	**1.3000e-004**	**1.2000e-004**	**6.5612**

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
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	122226	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
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
Total		**6.6000e-004**	**5.6300e-003**	**2.4000e-003**	**4.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**6.5225**	**6.5225**	**1.3000e-004**	**1.2000e-004**	**6.5612**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	59107.9	3.2977	7.8000e-004	1.6000e-004	3.3651
Parking Lot	3640	0.2031	5.0000e-005	1.0000e-005	0.2072
Total		**3.5008**	**8.3000e-004**	**1.7000e-004**	**3.5723**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	59107.9	3.2977	7.8000e-004	1.6000e-004	3.3651
Parking Lot	3640	0.2031	5.0000e-005	1.0000e-005	0.2072
Total		**3.5008**	**8.3000e-004**	**1.7000e-004**	**3.5723**

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	0.1440	1.6800e-003	0.1043	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Unmitigated	0.1440	1.6800e-003	0.1043	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370

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	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.1192					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.0000e-005	4.8000e-004	2.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5593	0.5593	1.0000e-005	1.0000e-005	0.5626
Landscaping	3.1400e-003	1.2000e-003	0.1041	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1703	0.1703	1.6000e-004	0.0000	0.1744
Total	**0.1440**	**1.6800e-003**	**0.1043**	**1.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.7296**	**0.7296**	**1.7000e-004**	**1.0000e-005**	**0.7370**

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	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1192					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.0000e-005	4.8000e-004	2.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5593	0.5593	1.0000e-005	1.0000e-005	0.5626
Landscaping	3.1400e-003	1.2000e-003	0.1041	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1703	0.1703	1.6000e-004	0.0000	0.1744
Total	**0.1440**	**1.6800e-003**	**0.1043**	**1.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.7296**	**0.7296**	**1.7000e-004**	**1.0000e-005**	**0.7370**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.7104	1.2000e-003	7.2000e-004	0.9552
Unmitigated	0.7104	1.2000e-003	7.2000e-004	0.9552

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.912156 / 0.575055	0.7104	1.2000e-003	7.2000e-004	0.9552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.7104**	**1.2000e-003**	**7.2000e-004**	**0.9552**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.912156 / 0.575055	0.7104	1.2000e-003	7.2000e-004	0.9552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.7104**	**1.2000e-003**	**7.2000e-004**	**0.9552**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5942	0.1533	0.0000	6.4271
Unmitigated	2.5942	0.1533	0.0000	6.4271

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	12.78	2.5942	0.1533	0.0000	6.4271
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5942**	**0.1533**	**0.0000**	**6.4271**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	12.78	2.5942	0.1533	0.0000	6.4271
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5942**	**0.1533**	**0.0000**	**6.4271**

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
Emergency Generator	1	0	50	670	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					

Emergency Generator - Diesel (600 - 750 HP)	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Total	**0.0275**	**0.0768**	**0.0701**	**1.3000e-004**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**12.7567**	**12.7567**	**1.7900e-003**	**0.0000**	**12.8014**

11.0 Vegetation

Aldersly Retirement, San Rafael Operation 2030

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	26.00	Space	0.23	10,400.00	0
Congregate Care (Assisted Living)	14.00	Dwelling Unit	0.88	30,345.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	123	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - MCE 2017 Rate = 109, PG&E 2017 rate = 210, (109*0.86)+(210*0.14) = 123

Land Use - New land uses at site, sf based on project plans

Construction Phase - Operational run, no construction

Off-road Equipment - Op run no const

Grading -

Vehicle Trips - congragate care trip gen, 2.02, 1.62, 1.80

Vehicle Emission Factors - EMFAC2017 Emissions Factors Marin County

Vehicle Emission Factors -

Woodstoves - all gas no wood

Water And Wastewater - WWTP 100% aerobic

Stationary Sources - Emergency Generators and Fire Pumps - 1 emergency generator 500-kw, 670-hp, 50 hours/year

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	1.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	2.10	4.48
tblFireplaces	NumberWood	2.38	0.00
tblFleetMix	HHD	0.01	0.01
tblFleetMix	HHD	0.01	0.01
tblFleetMix	LDA	0.61	0.55
tblFleetMix	LDA	0.61	0.55
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.20	0.19
tblFleetMix	LDT2	0.20	0.19
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	5.2640e-003	6.3811e-003
tblFleetMix	LHD2	5.2640e-003	6.3811e-003
tblFleetMix	MCY	5.5130e-003	0.03
tblFleetMix	MCY	5.5130e-003	0.03
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MH	6.7300e-004	8.2165e-004
tblFleetMix	MH	6.7300e-004	8.2165e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	2.0580e-003	1.1227e-003
tblFleetMix	OBUS	2.0580e-003	1.1227e-003

tblFleetMix	SBUS	7.5500e-004	8.1380e-004
tblFleetMix	SBUS	7.5500e-004	8.1380e-004
tblFleetMix	UBUS	2.2880e-003	7.4412e-004
tblFleetMix	UBUS	2.2880e-003	7.4412e-004
tblGrading	AcresOfGrading	0.00	0.50
tblLandUse	LandUseSquareFeet	14,000.00	30,345.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	123
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	670.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblVehicleEF	HHD	0.19	0.03
tblVehicleEF	HHD	0.09	0.09
tblVehicleEF	HHD	0.06	1.0000e-006
tblVehicleEF	HHD	1.28	5.99
tblVehicleEF	HHD	1.32	0.60
tblVehicleEF	HHD	5.60	0.02
tblVehicleEF	HHD	3,390.24	902.77
tblVehicleEF	HHD	1,532.40	1,280.13
tblVehicleEF	HHD	16.95	0.20
tblVehicleEF	HHD	11.48	5.20
tblVehicleEF	HHD	1.69	2.61

tblVehicleEF	HHD	18.57	2.50
tblVehicleEF	HHD	5.7650e-003	2.5680e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.8880e-003	0.02
tblVehicleEF	HHD	1.8800e-004	2.0000e-006
tblVehicleEF	HHD	5.5150e-003	2.4570e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.7510e-003	8.8560e-003
tblVehicleEF	HHD	5.6330e-003	0.02
tblVehicleEF	HHD	1.7300e-004	1.0000e-006
tblVehicleEF	HHD	1.2300e-004	6.0000e-006
tblVehicleEF	HHD	6.5160e-003	2.7700e-004
tblVehicleEF	HHD	0.32	0.40
tblVehicleEF	HHD	8.6000e-005	4.0000e-006
tblVehicleEF	HHD	0.08	0.03
tblVehicleEF	HHD	8.4000e-004	1.4630e-003
tblVehicleEF	HHD	0.10	5.0000e-006
tblVehicleEF	HHD	0.03	8.2840e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	2.6000e-004	2.0000e-006
tblVehicleEF	HHD	1.2300e-004	6.0000e-006
tblVehicleEF	HHD	6.5160e-003	2.7700e-004
tblVehicleEF	HHD	0.38	0.46
tblVehicleEF	HHD	8.6000e-005	4.0000e-006
tblVehicleEF	HHD	0.18	0.12
tblVehicleEF	HHD	8.4000e-004	1.4630e-003
tblVehicleEF	HHD	0.11	5.0000e-006
tblVehicleEF	LDA	2.0150e-003	1.0620e-003
tblVehicleEF	LDA	2.4220e-003	0.03

tblVehicleEF	LDA	0.32	0.40
tblVehicleEF	LDA	0.69	1.76
tblVehicleEF	LDA	188.24	216.84
tblVehicleEF	LDA	42.70	45.31
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.2060e-003	9.7000e-004
tblVehicleEF	LDA	1.8610e-003	1.2920e-003
tblVehicleEF	LDA	1.1100e-003	8.9300e-004
tblVehicleEF	LDA	1.7110e-003	1.1880e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.0570e-003	3.8200e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.8830e-003	1.1500e-004
tblVehicleEF	LDA	4.3800e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	7.3530e-003	5.5430e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.04	0.14
tblVehicleEF	LDT1	3.4500e-003	1.6350e-003
tblVehicleEF	LDT1	5.3100e-003	0.04
tblVehicleEF	LDT1	0.48	0.50
tblVehicleEF	LDT1	1.27	1.94
tblVehicleEF	LDT1	239.93	265.78
tblVehicleEF	LDT1	55.58	56.39

tblVehicleEF	LDT1	0.05	0.03
tblVehicleEF	LDT1	0.06	0.17
tblVehicleEF	LDT1	1.4450e-003	1.1100e-003
tblVehicleEF	LDT1	2.2370e-003	1.5310e-003
tblVehicleEF	LDT1	1.3290e-003	1.0210e-003
tblVehicleEF	LDT1	2.0570e-003	1.4080e-003
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	8.5490e-003	6.3800e-003
tblVehicleEF	LDT1	0.10	0.43
tblVehicleEF	LDT1	0.07	0.18
tblVehicleEF	LDT1	2.4030e-003	2.7630e-003
tblVehicleEF	LDT1	5.7700e-004	0.00
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.01	9.3080e-003
tblVehicleEF	LDT1	0.10	0.43
tblVehicleEF	LDT1	0.08	0.19
tblVehicleEF	LDT2	2.9140e-003	1.6330e-003
tblVehicleEF	LDT2	3.4120e-003	0.04
tblVehicleEF	LDT2	0.44	0.50
tblVehicleEF	LDT2	0.94	2.37
tblVehicleEF	LDT2	271.33	274.95
tblVehicleEF	LDT2	61.80	58.54
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.05	0.18
tblVehicleEF	LDT2	1.3310e-003	1.0750e-003
tblVehicleEF	LDT2	2.0380e-003	1.3750e-003

tblVehicleEF	LDT2	1.2240e-003	9.9100e-004
tblVehicleEF	LDT2	1.8740e-003	1.2650e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	7.2400e-003	6.1350e-003
tblVehicleEF	LDT2	0.06	0.37
tblVehicleEF	LDT2	0.05	0.19
tblVehicleEF	LDT2	2.7150e-003	0.01
tblVehicleEF	LDT2	6.3300e-004	1.1700e-004
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	8.9040e-003
tblVehicleEF	LDT2	0.06	0.37
tblVehicleEF	LDT2	0.05	0.21
tblVehicleEF	LHD1	3.9010e-003	4.1040e-003
tblVehicleEF	LHD1	9.8130e-003	5.7980e-003
tblVehicleEF	LHD1	0.01	9.4380e-003
tblVehicleEF	LHD1	0.13	0.17
tblVehicleEF	LHD1	0.70	0.54
tblVehicleEF	LHD1	1.75	0.90
tblVehicleEF	LHD1	9.04	8.42
tblVehicleEF	LHD1	642.36	702.31
tblVehicleEF	LHD1	26.02	9.91
tblVehicleEF	LHD1	0.07	0.05
tblVehicleEF	LHD1	0.72	0.42
tblVehicleEF	LHD1	0.68	0.23
tblVehicleEF	LHD1	8.5500e-004	9.5000e-004
tblVehicleEF	LHD1	0.01	9.9460e-003

tblVehicleEF	LHD1	0.01	8.3880e-003
tblVehicleEF	LHD1	6.9900e-004	2.1700e-004
tblVehicleEF	LHD1	8.1800e-004	9.0900e-004
tblVehicleEF	LHD1	2.6120e-003	2.4860e-003
tblVehicleEF	LHD1	0.01	7.9800e-003
tblVehicleEF	LHD1	6.4300e-004	1.9900e-004
tblVehicleEF	LHD1	1.7130e-003	1.3380e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.0320e-003	8.1000e-004
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.31	0.53
tblVehicleEF	LHD1	0.16	0.05
tblVehicleEF	LHD1	9.0000e-005	8.2000e-005
tblVehicleEF	LHD1	6.2740e-003	6.8450e-003
tblVehicleEF	LHD1	2.9200e-004	9.8000e-005
tblVehicleEF	LHD1	1.7130e-003	1.3380e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.0320e-003	8.1000e-004
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.31	0.53
tblVehicleEF	LHD1	0.17	0.05
tblVehicleEF	LHD2	2.5500e-003	2.6050e-003
tblVehicleEF	LHD2	5.3040e-003	5.3800e-003
tblVehicleEF	LHD2	3.2900e-003	5.2060e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.46	0.50
tblVehicleEF	LHD2	0.89	0.50
tblVehicleEF	LHD2	13.64	13.04

tblVehicleEF	LHD2	676.45	686.56
tblVehicleEF	LHD2	21.82	6.64
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.22	0.39
tblVehicleEF	LHD2	0.27	0.14
tblVehicleEF	LHD2	1.0530e-003	1.4770e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.4570e-003	0.01
tblVehicleEF	LHD2	3.7000e-004	1.0600e-004
tblVehicleEF	LHD2	1.0070e-003	1.4130e-003
tblVehicleEF	LHD2	2.7080e-003	2.7070e-003
tblVehicleEF	LHD2	9.0240e-003	0.01
tblVehicleEF	LHD2	3.4000e-004	9.8000e-005
tblVehicleEF	LHD2	4.4100e-004	5.8900e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	2.9700e-004	3.8800e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	1.3300e-004	1.2500e-004
tblVehicleEF	LHD2	6.5720e-003	6.6240e-003
tblVehicleEF	LHD2	2.3300e-004	6.6000e-005
tblVehicleEF	LHD2	4.4100e-004	5.8900e-004
tblVehicleEF	LHD2	0.02	0.03
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	2.9700e-004	3.8800e-004
tblVehicleEF	LHD2	0.11	0.11
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.05	0.03

tblVehicleEF	MCY	0.48	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	19.06	19.24
tblVehicleEF	MCY	10.45	9.31
tblVehicleEF	MCY	178.62	217.21
tblVehicleEF	MCY	43.41	60.17
tblVehicleEF	MCY	1.17	1.17
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.2460e-003	2.2210e-003
tblVehicleEF	MCY	3.3740e-003	2.9170e-003
tblVehicleEF	MCY	2.0960e-003	2.0720e-003
tblVehicleEF	MCY	3.1600e-003	2.7320e-003
tblVehicleEF	MCY	0.74	1.53
tblVehicleEF	MCY	0.63	0.66
tblVehicleEF	MCY	0.43	0.91
tblVehicleEF	MCY	2.24	2.25
tblVehicleEF	MCY	0.50	1.63
tblVehicleEF	MCY	2.17	1.94
tblVehicleEF	MCY	2.1640e-003	2.1490e-003
tblVehicleEF	MCY	6.6900e-004	5.9500e-004
tblVehicleEF	MCY	0.74	1.53
tblVehicleEF	MCY	0.63	0.66
tblVehicleEF	MCY	0.43	0.91
tblVehicleEF	MCY	2.80	2.81
tblVehicleEF	MCY	0.50	1.63
tblVehicleEF	MCY	2.36	2.11
tblVehicleEF	MDV	4.3350e-003	1.7060e-003
tblVehicleEF	MDV	7.1620e-003	0.04
tblVehicleEF	MDV	0.56	0.50
tblVehicleEF	MDV	1.52	2.37

tblVehicleEF	MDV	364.83	331.60
tblVehicleEF	MDV	82.85	68.43
tblVehicleEF	MDV	0.06	0.03
tblVehicleEF	MDV	0.11	0.18
tblVehicleEF	MDV	1.3730e-003	1.0950e-003
tblVehicleEF	MDV	2.0630e-003	1.3530e-003
tblVehicleEF	MDV	1.2650e-003	1.0100e-003
tblVehicleEF	MDV	1.8970e-003	1.2440e-003
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.01	6.6540e-003
tblVehicleEF	MDV	0.09	0.36
tblVehicleEF	MDV	0.10	0.20
tblVehicleEF	MDV	3.6470e-003	3.0610e-003
tblVehicleEF	MDV	8.5400e-004	6.3300e-004
tblVehicleEF	MDV	0.05	0.05
tblVehicleEF	MDV	0.13	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.02	9.6130e-003
tblVehicleEF	MDV	0.09	0.36
tblVehicleEF	MDV	0.11	0.22
tblVehicleEF	MH	7.7730e-003	5.1140e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.42	0.32
tblVehicleEF	MH	3.61	1.59
tblVehicleEF	MH	1,181.48	1,340.95
tblVehicleEF	MH	55.62	14.88
tblVehicleEF	MH	0.88	1.14
tblVehicleEF	MH	0.61	0.22

tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	8.5300e-004	2.0500e-004
tblVehicleEF	MH	3.2320e-003	3.3160e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	7.8400e-004	1.8800e-004
tblVehicleEF	MH	0.36	0.29
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.16	0.12
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	9.1240e-003	0.52
tblVehicleEF	MH	0.21	0.07
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.1900e-004	1.4700e-004
tblVehicleEF	MH	0.36	0.29
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.16	0.12
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	9.1240e-003	0.52
tblVehicleEF	MH	0.23	0.08
tblVehicleEF	MHD	0.02	5.1880e-003
tblVehicleEF	MHD	3.0630e-003	1.4320e-003
tblVehicleEF	MHD	0.03	0.01
tblVehicleEF	MHD	0.40	0.55
tblVehicleEF	MHD	0.26	0.18
tblVehicleEF	MHD	4.29	1.24
tblVehicleEF	MHD	119.84	91.23
tblVehicleEF	MHD	1,171.46	1,045.93
tblVehicleEF	MHD	65.42	11.83
tblVehicleEF	MHD	0.32	0.52

tblVehicleEF	MHD	1.01	1.37
tblVehicleEF	MHD	8.99	1.54
tblVehicleEF	MHD	7.5000e-005	2.6600e-004
tblVehicleEF	MHD	3.0430e-003	6.6940e-003
tblVehicleEF	MHD	8.6600e-004	1.4600e-004
tblVehicleEF	MHD	7.2000e-005	2.5500e-004
tblVehicleEF	MHD	2.9020e-003	6.3940e-003
tblVehicleEF	MHD	7.9600e-004	1.3400e-004
tblVehicleEF	MHD	6.5200e-004	3.7100e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	4.4100e-004	2.4700e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.27	0.06
tblVehicleEF	MHD	1.1570e-003	8.6600e-004
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.2900e-004	1.1700e-004
tblVehicleEF	MHD	6.5200e-004	3.7100e-004
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	4.4100e-004	2.4700e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.29	0.06
tblVehicleEF	OBUS	0.01	8.8240e-003
tblVehicleEF	OBUS	4.9730e-003	3.7480e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.56
tblVehicleEF	OBUS	0.34	0.40

tblVehicleEF	OBUS	4.67	2.28
tblVehicleEF	OBUS	86.30	72.05
tblVehicleEF	OBUS	1,266.16	1,322.84
tblVehicleEF	OBUS	67.15	18.99
tblVehicleEF	OBUS	0.18	0.29
tblVehicleEF	OBUS	0.76	1.02
tblVehicleEF	OBUS	2.31	0.73
tblVehicleEF	OBUS	1.6000e-005	9.9000e-005
tblVehicleEF	OBUS	2.6160e-003	6.4490e-003
tblVehicleEF	OBUS	9.4400e-004	2.0600e-004
tblVehicleEF	OBUS	1.6000e-005	9.4000e-005
tblVehicleEF	OBUS	2.4770e-003	6.1460e-003
tblVehicleEF	OBUS	8.6800e-004	1.8900e-004
tblVehicleEF	OBUS	1.2330e-003	1.3950e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	6.0900e-004	7.0700e-004
tblVehicleEF	OBUS	0.04	0.02
tblVehicleEF	OBUS	0.06	0.30
tblVehicleEF	OBUS	0.29	0.11
tblVehicleEF	OBUS	8.3500e-004	6.8700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5300e-004	1.8800e-004
tblVehicleEF	OBUS	1.2330e-003	1.3950e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	6.0900e-004	7.0700e-004
tblVehicleEF	OBUS	0.05	0.03
tblVehicleEF	OBUS	0.06	0.30
tblVehicleEF	OBUS	0.32	0.12

tblVehicleEF	SBUS	0.82	0.07
tblVehicleEF	SBUS	5.6820e-003	5.4620e-003
tblVehicleEF	SBUS	0.05	6.1350e-003
tblVehicleEF	SBUS	7.29	2.84
tblVehicleEF	SBUS	0.38	0.47
tblVehicleEF	SBUS	5.73	0.88
tblVehicleEF	SBUS	1,106.25	329.06
tblVehicleEF	SBUS	1,059.21	945.39
tblVehicleEF	SBUS	49.57	4.89
tblVehicleEF	SBUS	5.18	3.05
tblVehicleEF	SBUS	1.91	3.70
tblVehicleEF	SBUS	12.65	1.09
tblVehicleEF	SBUS	2.6220e-003	2.6460e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	9.5620e-003	0.02
tblVehicleEF	SBUS	9.7900e-004	7.8000e-005
tblVehicleEF	SBUS	2.5090e-003	2.5320e-003
tblVehicleEF	SBUS	2.6720e-003	2.6600e-003
tblVehicleEF	SBUS	9.1310e-003	0.02
tblVehicleEF	SBUS	9.0000e-004	7.2000e-005
tblVehicleEF	SBUS	2.1580e-003	5.9400e-004
tblVehicleEF	SBUS	0.02	6.7130e-003
tblVehicleEF	SBUS	0.87	0.31
tblVehicleEF	SBUS	1.0980e-003	3.0300e-004
tblVehicleEF	SBUS	0.07	0.07
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.29	0.03
tblVehicleEF	SBUS	0.01	3.1380e-003
tblVehicleEF	SBUS	0.01	9.0510e-003
tblVehicleEF	SBUS	5.9400e-004	4.8000e-005

tblVehicleEF	SBUS	2.1580e-003	5.9400e-004
tblVehicleEF	SBUS	0.02	6.7130e-003
tblVehicleEF	SBUS	1.25	0.45
tblVehicleEF	SBUS	1.0980e-003	3.0300e-004
tblVehicleEF	SBUS	0.08	0.08
tblVehicleEF	SBUS	0.01	0.04
tblVehicleEF	SBUS	0.32	0.04
tblVehicleEF	UBUS	0.25	0.83
tblVehicleEF	UBUS	0.04	0.03
tblVehicleEF	UBUS	3.97	6.40
tblVehicleEF	UBUS	6.04	2.39
tblVehicleEF	UBUS	2,058.31	1,671.51
tblVehicleEF	UBUS	96.26	22.73
tblVehicleEF	UBUS	8.43	0.46
tblVehicleEF	UBUS	15.02	0.23
tblVehicleEF	UBUS	0.61	0.11
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.17	3.5750e-003
tblVehicleEF	UBUS	9.7700e-004	2.8000e-004
tblVehicleEF	UBUS	0.26	0.05
tblVehicleEF	UBUS	3.0000e-003	5.0890e-003
tblVehicleEF	UBUS	0.17	3.3750e-003
tblVehicleEF	UBUS	8.9800e-004	2.5800e-004
tblVehicleEF	UBUS	1.9760e-003	6.4600e-004
tblVehicleEF	UBUS	0.03	8.4650e-003
tblVehicleEF	UBUS	1.2990e-003	3.9000e-004
tblVehicleEF	UBUS	0.43	0.02
tblVehicleEF	UBUS	9.2280e-003	0.04
tblVehicleEF	UBUS	0.53	0.13
tblVehicleEF	UBUS	0.02	0.01

tblVehicleEF	UBUS	1.0730e-003	2.2500e-004
tblVehicleEF	UBUS	1.9760e-003	6.4600e-004
tblVehicleEF	UBUS	0.03	8.4650e-003
tblVehicleEF	UBUS	1.2990e-003	3.9000e-004
tblVehicleEF	UBUS	0.72	0.86
tblVehicleEF	UBUS	9.2280e-003	0.04
tblVehicleEF	UBUS	0.58	0.14
tblVehicleTrips	ST_TR	2.20	1.62
tblVehicleTrips	SU_TR	2.44	1.80
tblVehicleTrips	WD_TR	2.74	2.02
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	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

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	0.1439	1.6800e-003	0.1041	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Energy	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	10.0233	10.0233	9.5000e-004	2.9000e-004	10.1336

Mobile	0.0128	0.0111	0.0904	2.1000e-004	0.0230	1.3000e-004	0.0231	6.1400e-003	1.2000e-004	6.2600e-003	0.0000	18.3405	18.3405	1.1700e-003	0.0000	18.3697
Stationary	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Waste						0.0000	0.0000		0.0000	0.0000	2.5942	0.0000	2.5942	0.1533	0.0000	6.4271
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.3877	0.7104	1.2000e-003	7.2000e-004	0.9552
Total	**0.1848**	**0.0953**	**0.2670**	**3.9000e-004**	**0.0230**	**5.2500e-003**	**0.0282**	**6.1400e-003**	**5.2400e-003**	**0.0114**	**2.9169**	**42.2377**	**45.1546**	**0.1586**	**1.0200e-003**	**49.4240**

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	0.1439	1.6800e-003	0.1041	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Energy	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	10.0233	10.0233	9.5000e-004	2.9000e-004	10.1336
Mobile	0.0128	0.0111	0.0904	2.1000e-004	0.0230	1.3000e-004	0.0231	6.1400e-003	1.2000e-004	6.2600e-003	0.0000	18.3405	18.3405	1.1700e-003	0.0000	18.3697
Stationary	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Waste						0.0000	0.0000		0.0000	0.0000	2.5942	0.0000	2.5942	0.1533	0.0000	6.4271
Water						0.0000	0.0000		0.0000	0.0000	0.3227	0.3877	0.7104	1.2000e-003	7.2000e-004	0.9552
Total	**0.1848**	**0.0953**	**0.2670**	**3.9000e-004**	**0.0230**	**5.2500e-003**	**0.0282**	**6.1400e-003**	**5.2400e-003**	**0.0114**	**2.9169**	**42.2377**	**45.1546**	**0.1586**	**1.0200e-003**	**49.4240**

	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**

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	0.0128	0.0111	0.0904	2.1000e-004	0.0230	1.3000e-004	0.0231	6.1400e-003	1.2000e-004	6.2600e-003	0.0000	18.3405	18.3405	1.1700e-003	0.0000	18.3697
Unmitigated	0.0128	0.0111	0.0904	2.1000e-004	0.0230	1.3000e-004	0.0231	6.1400e-003	1.2000e-004	6.2600e-003	0.0000	18.3405	18.3405	1.1700e-003	0.0000	18.3697

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	28.28	22.68	25.20	62,452	62,452
Parking Lot	0.00	0.00	0.00		
Total	28.28	22.68	25.20	62,452	62,452

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
Congregate Care (Assisted Living)	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.548735	0.059639	0.189953	0.116598	0.024933	0.006381	0.010873	0.011469	0.001123	0.000744	0.027916	0.000814	0.000822
Parking Lot	0.548735	0.059639	0.189953	0.116598	0.024933	0.006381	0.010873	0.011469	0.001123	0.000744	0.027916	0.000814	0.000822

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	3.5008	3.5008	8.3000e-004	1.7000e-004	3.5723
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3.5008	3.5008	8.3000e-004	1.7000e-004	3.5723
NaturalGas Mitigated	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
NaturalGas Unmitigated	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612

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					
Congregate Care (Assisted Living)	122226	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
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
Total		**6.6000e-004**	**5.6300e-003**	**2.4000e-003**	**4.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**6.5225**	**6.5225**	**1.3000e-004**	**1.2000e-004**	**6.5612**

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
Land Use	kBTU/yr	tons/yr										MT/yr					
Congregate Care (Assisted Living)	122226	6.6000e-004	5.6300e-003	2.4000e-003	4.0000e-005		4.6000e-004	4.6000e-004		4.6000e-004	4.6000e-004	0.0000	6.5225	6.5225	1.3000e-004	1.2000e-004	6.5612
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
Total		**6.6000e-004**	**5.6300e-003**	**2.4000e-003**	**4.0000e-005**		**4.6000e-004**	**4.6000e-004**		**4.6000e-004**	**4.6000e-004**	**0.0000**	**6.5225**	**6.5225**	**1.3000e-004**	**1.2000e-004**	**6.5612**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	59107.9	3.2977	7.8000e-004	1.6000e-004	3.3651
Parking Lot	3640	0.2031	5.0000e-005	1.0000e-005	0.2072
Total		**3.5008**	**8.3000e-004**	**1.7000e-004**	**3.5723**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	59107.9	3.2977	7.8000e-004	1.6000e-004	3.3651
Parking Lot	3640	0.2031	5.0000e-005	1.0000e-005	0.2072
Total		**3.5008**	**8.3000e-004**	**1.7000e-004**	**3.5723**

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	0.1439	1.6800e-003	0.1041	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370
Unmitigated	0.1439	1.6800e-003	0.1041	1.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	0.7296	0.7296	1.7000e-004	1.0000e-005	0.7370

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	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.1192					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.0000e-005	4.8000e-004	2.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5593	0.5593	1.0000e-005	1.0000e-005	0.5626
Landscaping	3.1200e-003	1.2000e-003	0.1039	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1703	0.1703	1.6000e-004	0.0000	0.1743
Total	**0.1439**	**1.6800e-003**	**0.1041**	**1.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.7296**	**0.7296**	**1.7000e-004**	**1.0000e-005**	**0.7369**

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	0.0216					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1192					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.0000e-005	4.8000e-004	2.1000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5593	0.5593	1.0000e-005	1.0000e-005	0.5626
Landscaping	3.1200e-003	1.2000e-003	0.1039	1.0000e-005		5.8000e-004	5.8000e-004		5.8000e-004	5.8000e-004	0.0000	0.1703	0.1703	1.6000e-004	0.0000	0.1743
Total	**0.1439**	**1.6800e-003**	**0.1041**	**1.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**0.7296**	**0.7296**	**1.7000e-004**	**1.0000e-005**	**0.7369**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	0.7104	1.2000e-003	7.2000e-004	0.9552
Unmitigated	0.7104	1.2000e-003	7.2000e-004	0.9552

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.912156 / 0.575055	0.7104	1.2000e-003	7.2000e-004	0.9552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.7104**	**1.2000e-003**	**7.2000e-004**	**0.9552**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.912156 / 0.575055	0.7104	1.2000e-003	7.2000e-004	0.9552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.7104**	**1.2000e-003**	**7.2000e-004**	**0.9552**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.5942	0.1533	0.0000	6.4271
Unmitigated	2.5942	0.1533	0.0000	6.4271

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	12.78	2.5942	0.1533	0.0000	6.4271
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5942**	**0.1533**	**0.0000**	**6.4271**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	12.78	2.5942	0.1533	0.0000	6.4271
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**2.5942**	**0.1533**	**0.0000**	**6.4271**

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
Emergency Generator	1	0	50	670	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					

Emergency Generator - Diesel (600 - 750 HP)	0.0275	0.0768	0.0701	1.3000e-004		4.0400e-003	4.0400e-003		4.0400e-003	4.0400e-003	0.0000	12.7567	12.7567	1.7900e-003	0.0000	12.8014
Total	**0.0275**	**0.0768**	**0.0701**	**1.3000e-004**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**12.7567**	**12.7567**	**1.7900e-003**	**0.0000**	**12.8014**

11.0 Vegetation

Attachment 3: EMFAC2017 Calculations

Phase I 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	18	0	414	0	203	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4471.2	0	4060
Site Preparation	13	0	260	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2808	0	0
Grading	10	0	110	0	1000	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1188	0	20000
Trenching	5	0	115	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1242	0	0
Building Construction	31	6	8463	1638	500	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	91400.4	11957.4	3650
Architectural Coating	6	0	2226	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	24040.8	0	0
Paving	10	0	660	0	88	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	7128	0	642.4

Number of Days Per Year					
2023	1/1/23	12/31/23	365	**260**	
2024	1/1/24	9/30/24	274	**196**	
			639	**456**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/1/2023	2/1/2023	5	23
Site Preparation	2/1/2023	2/28/2023	5	20
Grading	3/1/2023	3/15/2023	5	11
Trenching	3/15/2023	4/15/2023	5	23
Building Construction	4/15/2023	5/1/2024	5	273
Architectural Coating	4/15/2023	9/30/2024	5	371
Paving	7/1/2024	9/30/2024	5	66

Phase 2 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	13	0	299	0	17	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3229.2	0	340
Site Preparation	5	0	100	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1080	0	0
Grading	10	0	100	0	75	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1080	0	1500
Trenching	5	0	60	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	648	0	0
Building Construction	1	0	129	0	80	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	1393.2	0	584
Architectural Coating	0	0	0	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	0	0	0
Paving	13	0	585	0	14	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	6318	0	102.2

Number of Days Per Year					
2025	1/1/25	10/31/25	304	**218**	
			304	**218**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/1/2025	2/1/2025	5	23
Site Preparation	2/1/2025	2/28/2025	5	20
Grading	3/1/2025	3/15/2025	5	10
Trenching	3/15/2025	4/1/2025	5	12
Building Construction	4/1/2025	9/26/2025	5	129
Architectural Coating	4/15/2025	10/31/2025	5	144
Paving	9/1/2025	10/31/2025	5	45

Phase 3 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	5	0	115	0	31	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1242	0	620
Site Preparation	5	0	215	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2322	0	0
Grading	10	0	100	0	44	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1080	0	880
Trenching	5	0	50	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	540	0	0
Building Construction	4	1	440	110	80	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	4752	803	584
Architectural Coating	1	0	110	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1188	0	0
Paving	8	0	360	0	14	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	3888	0	102.2

Number of Days Per Year					
2025	1/1/25	9/1/25	244	**174**	
			244	**174**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/1/2025	2/1/2025	5	23
Site Preparation	1/1/2025	2/28/2025	5	43
Grading	3/1/2025	3/15/2025	5	10
Trenching	3/1/2025	3/15/2025	5	10
Building Construction	4/1/2025	9/1/2025	5	110
Architectural Coating	4/1/2025	9/1/2025	5	110
Paving	7/1/2025	9/1/2025	5	45

Phase 4 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	20	0	440	0	23	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4752	0	460
Site Preparation	13	0	260	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	2808	0	0
Grading	13	0	299	0	500	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3229.2	0	10000
Trenching	5	0	115	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1242	0	0
Building Construction	11	2	2068	376	240	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	22334.4	2744.8	1752
Architectural Coating	2	0	418	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	4514.4	0	0
Paving	10	0	430	0	88	10.8	7.3	7.3	LD_Mix	HDT_Mix	HHDT	4644	0	642.4

Number of Days Per Year					
2026	1/1/26	12/31/26	365	**261**	
2027	1/1/27	3/31/27	90	**64**	
			455	**325**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	1/1/2026	2/1/2026	5	22
Site Preparation	2/1/2026	2/28/2026	5	20
Grading	3/1/2026	4/1/2026	5	23
Trenching	3/15/2026	4/15/2026	5	23
Building Construction	4/15/2026	1/1/2027	5	188
Architectural Coating	4/15/2026	2/1/2027	5	209
Paving	2/1/2027	3/31/2027	5	43

Phase 1 Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Tons						*Metric Tons*
Criteria Pollutants											
2023	0.0085	0.0899	0.0968	0.0006	0.0325	0.0070	0.0395	0.0049	0.0031	0.0080	56.1835
2024	0.0060	0.0665	0.0692	0.0004	0.0244	0.0053	0.0297	0.0037	0.0023	0.0060	41.3240
Toxic Air Contaminants (1 Mile Trip Length)											
2023	0.0070	0.0220	0.0357	0.0001	0.0030	0.0007	0.0036	0.0004	0.0003	0.0007	6.6971
2024	0.0050	0.0163	0.0260	0.0001	0.0022	0.0005	0.0027	0.0003	0.0002	0.0006	4.9312

Phase 2 Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Tons						*Metric Tons*
Criteria Pollutants											
2025	0.0013	0.0105	0.0143	0.0001	0.0054	0.0010	0.0064	0.0008	0.0005	0.0013	7.4885
Toxic Air Contaminants (1 Mile Trip Length)											
2025	0.0011	0.0025	0.0053	0.0000	0.0005	0.0001	0.0006	0.0001	0.0000	0.0001	0.8558

Phase 3 Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Tons						*Metric Tons*
Criteria Pollutants											
2025	0.0014	0.0119	0.0159	0.0001	0.0059	0.0012	0.0071	0.0009	0.0005	0.0014	8.4090
Toxic Air Contaminants (1 Mile Trip Length)											
2025	0.0012	0.0032	0.0060	0.0000	0.0006	0.0001	0.0007	0.0001	0.0001	0.0001	1.0541

Phase 4 Summary of Construction Traffic Emissions (EMFAC2017)

Pollutants YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2
					Tons						*Metric Tons*
Criteria Pollutants											
2026	0.0034	0.0471	0.0414	0.0003	0.0156	0.0035	0.0191	0.0024	0.0015	0.0039	27.2908
2027	0.0008	0.0114	0.0099	0.0001	0.0039	0.0009	0.0047	0.0006	0.0004	0.0010	6.5769
Toxic Air Contaminants (1 Mile Trip Length)											
2026	0.0028	0.0112	0.0160	0.0000	0.0014	0.0003	0.0017	0.0002	0.0001	0.0003	3.1789
2027	0.0007	0.0027	0.0039	0.0000	0.0003	0.0001	0.0004	0.0001	0.0000	0.0001	0.7671

CalEEMod EMFAC2017 Emission Factors Input — Year 2028

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004306	0.002762	0.005153	0.027636579	0.008946	0	0	0.061801	0
A	CH4_RUNEX	0.00126	0.002077	0.001918	0.002046	0.006783	0.005682	0.001707	0.091025502	0.004546	0.833058	0.336717	0.006171	0.00617
A	CH4_STREX	0.034565	0.045552	0.049406	0.051059	0.010838	0.006034	0.012243	8.94285E-07	0.022546	0.03195	0.255491	0.005533	0.019453
A	CO_IDLEX	0	0	0	0	0.17508	0.13483	0.544105	5.989754339	0.547752	0	0	2.540961	0
A	CO_RUNEX	0.422188	0.566808	0.537514	0.543985	0.644759	0.520332	0.217605	0.619091574	0.481783	6.399762	19.60665	0.51965	0.464278
A	CO_STREX	1.869853	2.062033	2.476803	2.519175	0.955528	0.532136	1.335071	0.02033926	2.40398	2.428286	9.254762	0.802269	1.677728
A	CO2_NBIO_IDLEX	0	0	0	0	8.629142	13.30594	93.34151	943.5242391	70.3587	0	0	335.1915	0
A	CO2_NBIO_RUNEX	223.5678	274.0423	286.7814	345.5011	724.1397	707.7823	1075.793	1353.915062	1377.854	1708.359	217.4152	982.0955	1379.718
A	CO2_NBIO_STREX	46.85575	58.32833	61.12959	71.47318	10.29704	6.988651	12.26309	0.227877906	19.83032	23.63431	60.69642	4.455413	15.49638
A	NOX_IDLEX	0	0	0	0	0.057153	0.080674	0.552495	5.322411958	0.27522	0	0	3.441065	0
A	NOX_RUNEX	0.023878	0.04204	0.037797	0.041121	0.540293	0.479526	1.387111	2.739774204	0.992471	0.461911	1.176374	4.55076	1.220139
A	NOX_STREX	0.140197	0.184804	0.197592	0.205165	0.246852	0.149638	1.537339	2.468706627	0.704172	0.23992	0.274558	0.921394	0.223696
A	PM10_IDLEX	0	0	0	0	0.000941	0.001458	0.000333	0.003078572	9.32E-05	0	0	0.003308	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.060799793	0.13034	0.105346	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009927	0.010805	0.012	0.035410589	0.012	0.020357	0.004	0.01073	0.013259
A	PM10_RUNEX	0.001123	0.001281	0.0012	0.001239	0.009402	0.014059	0.006769	0.023515158	0.006207	0.003575	0.002197	0.028398	0.021295
A	PM10_STREX	0.001457	0.001745	0.001514	0.001498	0.00023	0.000111	0.000146	1.55055E-06	0.000203	0.00028	0.003032	6.95E-05	0.000214
A	PM25_IDLEX	0	0	0	0	0.0009	0.001395	0.000318	0.002945394	8.91E-05	0	0	0.003165	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026057054	0.05586	0.045148	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002482	0.002701	0.003	0.008852647	0.003	0.005089	0.001	0.002683	0.003315
A	PM25_RUNEX	0.001035	0.001178	0.001105	0.001144	0.008949	0.013427	0.006466	0.022497815	0.005915	0.003374	0.002051	0.027151	0.020336
A	PM25_STREX	0.00134	0.001604	0.001392	0.001377	0.000212	0.000102	0.000135	1.42568E-06	0.000187	0.000258	0.002846	6.39E-05	0.000197
A	ROG_DIURN	0.028392	0.057801	0.049982	0.05438	0.001487	0.000664	0.0004	5.87207E-06	0.001374	0.000658	1.541954	0.000476	0.345034
A	ROG_HTSK	0.075799	0.130152	0.10537	0.108605	0.065539	0.029632	0.02305	0.000287033	0.024588	0.008869	0.68751	0.005475	0.033282
A	ROG_IDLEX	0	0	0	0	0.018244	0.014348	0.025161	0.402043613	0.049811	0	0	0.283618	0
A	ROG_RESTL	0.028058	0.055091	0.054224	0.059499	0.000877	0.000423	0.000259	4.07266E-06	0.000692	0.000395	0.919808	0.00024	0.144096
A	ROG_RUNEX	0.004678	0.008413	0.00736	0.008182	0.086278	0.100264	0.01509	0.027437367	0.025535	0.023102	2.271895	0.08263	0.047451
A	ROG_RUNLS	0.185685	0.503518	0.399385	0.384158	0.533341	0.172816	0.12848	0.001513081	0.295196	0.052314	1.8224	0.034925	0.714121
A	ROG_STREX	0.149946	0.214026	0.222944	0.237955	0.054504	0.029168	0.062333	4.6671E-06	0.115108	0.134505	1.957015	0.031473	0.075872
A	SO2_IDLEX	0	0	0	0	8.35E-05	0.000127	0.000886	0.008650068	0.000671	0	0	0.003193	0
A	SO2_RUNEX	0.000123	0.002821	0.010309	0.003234	0.007059	0.006831	0.010309	0.012018722	0.013407	0.014081	0.002151	0.009391	0.013521
A	SO2_STREX	0	0	0.000121	0.00067	0.000102	6.92E-05	0.000121	2.25504E-06	0.000196	0.000234	0.000601	4.41E-05	0.000153
A	TOG_DIURN	0.028392	0.057801	0.049982	0.05438	0.001487	0.000664	0.0004	5.87207E-06	0.001374	0.000658	1.541954	0.000476	0.345034
A	TOG_HTSK	0.075799	0.130152	0.10537	0.108605	0.065539	0.029632	0.02305	0.000287033	0.024588	0.008869	0.68751	0.005475	0.033282
A	TOG_IDLEX	0	0	0	0	0.025421	0.019105	0.034393	0.466707328	0.066263	0	0	0.407409	0
A	TOG_RESTL	0.028058	0.055091	0.054224	0.059499	0.000877	0.000423	0.000259	4.07266E-06	0.000692	0.000395	0.919808	0.00024	0.144096
A	TOG_RUNEX	0.006784	0.012273	0.010689	0.011829	0.103523	0.11579	0.019013	0.121616669	0.035315	0.863105	2.831962	0.098792	0.059659
A	TOG_RUNLS	0.185685	0.503518	0.399385	0.384158	0.533341	0.172816	0.12848	0.001513081	0.295196	0.052314	1.8224	0.034925	0.714121
A	TOG_STREX	0.164172	0.234331	0.244096	0.26053	0.059675	0.031936	0.068247	5.10989E-06	0.126029	0.147266	2.130473	0.034459	0.08307

CalEEMod EMFAC2017 Fleet Mix Input

Year 2028

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted	0.546979	0.059425	0.192177	0.116557	0.025074	0.006287	0.010738	0.011176	0.001131	0.000748	0.028084	0.000803	0.000822
Parking Lot	0.546979	0.059425	0.192177	0.116557	0.025074	0.006287	0.010738	0.011176	0.001131	0.000748	0.028084	0.000803	0.000822

CalEEMod EMFAC2017 Emission Factors Input — Year 2030

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.004104	0.002605	0.005188	0.027066798	0.008824	0	0	0.068888	0
A	CH4_RUNEX	0.001062	0.001635	0.001633	0.001706	0.005798	0.00538	0.001432	0.08619495	0.003748	0.833053	0.334663	0.005462	0.005114
A	CH4_STREX	0.030408	0.03896	0.043872	0.044767	0.009438	0.005206	0.011822	8.65914E-07	0.02166	0.030956	0.253258	0.006135	0.018849
A	CO_IDLEX	0	0	0	0	0.174078	0.133198	0.551828	5.988651525	0.562089	0	0	2.835223	0
A	CO_RUNEX	0.39515	0.497514	0.500356	0.499778	0.53874	0.498358	0.184257	0.596470955	0.398348	6.398355	19.24408	0.47211	0.322398
A	CO_STREX	1.763963	1.944061	2.365016	2.372091	0.898464	0.500582	1.241063	0.019869127	2.281572	2.389953	9.305814	0.875111	1.586482
A	CO2_NBIO_IDLEX	0	0	0	0	8.424391	13.04016	91.23108	902.7737504	72.0507	0	0	329.0611	0
A	CO2_NBIO_RUNEX	216.8353	265.7772	274.9471	331.5967	702.3104	686.5646	1045.93	1280.132048	1322.84	1671.513	217.2106	945.3913	1340.952
A	CO2_NBIO_STREX	45.30983	56.39083	58.54373	68.43076	9.913165	6.642895	11.83489	0.20467843	18.98754	22.73019	60.17452	4.885329	14.87616
A	NOX_IDLEX	0	0	0	0	0.052978	0.075222	0.521106	5.202994293	0.291951	0	0	3.047311	0
A	NOX_RUNEX	0.0213	0.033603	0.032077	0.034081	0.420357	0.388379	1.365983	2.614779728	1.019709	0.460341	1.173097	3.701429	1.140174
A	NOX_STREX	0.130474	0.16619	0.17722	0.181839	0.227903	0.135734	1.544668	2.498654452	0.73348	0.229166	0.274089	1.090758	0.223472
A	PM10_IDLEX	0	0	0	0	0.00095	0.001477	0.000266	0.002568356	9.88E-05	0	0	0.002646	0
A	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.060818132	0.13034	0.105346	0.01176	0.7448	0.13034
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009946	0.010828	0.012	0.035425367	0.012	0.020357	0.004	0.010639	0.013263
A	PM10_RUNEX	0.00097	0.00111	0.001075	0.001095	0.008388	0.013826	0.006694	0.022671905	0.006449	0.003575	0.002221	0.023998	0.018842
A	PM10_STREX	0.001292	0.001531	0.001375	0.001353	0.000217	0.000106	0.000146	1.53176E-06	0.000206	0.00028	0.002917	7.8E-05	0.000205
A	PM25_IDLEX	0	0	0	0	0.000909	0.001413	0.000255	0.00245725	9.45E-05	0	0	0.002532	0
A	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.03822	0.05586	0.026064914	0.05586	0.045148	0.00504	0.3192	0.05586
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002486	0.002707	0.003	0.008856342	0.003	0.005089	0.001	0.00266	0.003316
A	PM25_RUNEX	0.000893	0.001021	0.000991	0.00101	0.00798	0.013204	0.006394	0.021691043	0.006146	0.003375	0.002072	0.02294	0.017991
A	PM25_STREX	0.001188	0.001408	0.001265	0.001244	0.000199	9.75E-05	0.000134	1.4084E-06	0.000189	0.000258	0.002732	7.17E-05	0.000188
A	ROG_DIURN	0.025117	0.048781	0.046761	0.05207	0.001338	0.000589	0.000371	5.57228E-06	0.001395	0.000646	1.531205	0.000594	0.286242
A	ROG_HTSK	0.067832	0.111389	0.096616	0.101084	0.061609	0.025888	0.021245	0.000276577	0.024738	0.008465	0.662478	0.006713	0.026763
A	ROG_IDLEX	0	0	0	0	0.017399	0.013775	0.025181	0.399973409	0.050372	0	0	0.314347	0
A	ROG_RESTL	0.025037	0.047718	0.051154	0.057244	0.00081	0.000388	0.000247	3.93944E-06	0.000707	0.00039	0.905554	0.000303	0.124927
A	ROG_RUNEX	0.00382	0.00638	0.006135	0.006654	0.079502	0.098148	0.013432	0.026059734	0.021875	0.023072	2.251166	0.070371	0.041311
A	ROG_RUNLS	0.176082	0.428445	0.369476	0.357642	0.533626	0.149225	0.114186	0.001462886	0.299311	0.043279	1.634824	0.043249	0.516682
A	ROG_STREX	0.12933	0.177541	0.194919	0.204532	0.046302	0.024672	0.058993	4.51784E-06	0.110389	0.129873	1.936167	0.034784	0.071811
A	SO2_IDLEX	0	0	0	0	8.15E-05	0.000125	0.000866	0.008283551	0.000687	0	0	0.003138	0
A	SO2_RUNEX	0.000115	0.002763	0.010024	0.003061	0.006845	0.006624	0.010024	0.01137157	0.012858	0.013716	0.002149	0.009051	0.013141
A	SO2_STREX	0	0	0.000117	0.000633	9.81E-05	6.57E-05	0.000117	2.02546E-06	0.000188	0.000225	0.000595	4.83E-05	0.000147
A	TOG_DIURN	0.025117	0.048781	0.046761	0.05207	0.001338	0.000589	0.000371	5.57228E-06	0.001395	0.000646	1.531205	0.000594	0.286242
A	TOG_HTSK	0.067832	0.111389	0.096616	0.101084	0.061609	0.025888	0.021245	0.000276577	0.024738	0.008465	0.662478	0.006713	0.026763
A	TOG_IDLEX	0	0	0	0	0.02417	0.018242	0.03443	0.463873706	0.066713	0	0	0.452317	0
A	TOG_RESTL	0.025037	0.047718	0.051154	0.057244	0.00081	0.000388	0.000247	3.93944E-06	0.000707	0.00039	0.905554	0.000303	0.124927
A	TOG_RUNEX	0.005543	0.009308	0.008904	0.009613	0.094224	0.112968	0.016678	0.115228626	0.029871	0.86306	2.813111	0.084522	0.051069
A	TOG_RUNLS	0.176082	0.428445	0.369476	0.357642	0.533626	0.149225	0.114186	0.001462886	0.299311	0.043279	1.634824	0.043249	0.516682
A	TOG_STREX	0.1416	0.194385	0.213412	0.223937	0.050695	0.027013	0.06459	4.94647E-06	0.120862	0.142195	2.108152	0.038084	0.078623

CalEEMod EMFAC2017 Fleet Mix Input

Year 2030

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted	0.548735	0.059639	0.189953	0.116598	0.024933	0.006381	0.010873	0.011469	0.001123	0.000744	0.027916	0.000814	0.000822
Parking Lot	0.548735	0.059639	0.189953	0.116598	0.024933	0.006381	0.010873	0.011469	0.001123	0.000744	0.027916	0.000814	0.000822

Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust	CO2 Exhaust
NA	1	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005	1.0023
2022	1.0004	1.0003	1.0004	1.0018	1.0014	1.0065
2023	1.0007	1.0006	1.0007	1.0032	1.0027	1.0126
2024	1.0012	1.0010	1.0011	1.0051	1.0044	1.0207
2025	1.0018	1.0016	1.0016	1.0074	1.0065	1.0309
2026	1.0023	1.0022	1.0020	1.0091	1.0083	1.0394
2027	1.0028	1.0028	1.0024	1.0105	1.0102	1.0475
2028	1.0034	1.0035	1.0028	1.0117	1.0120	1.0554
2029	1.0040	1.0042	1.0032	1.0129	1.0138	1.0629
2030	1.0047	1.0051	1.0037	1.0142	1.0156	1.0702
2031	1.0054	1.0061	1.0042	1.0155	1.0173	1.0770
2032	1.0061	1.0072	1.0047	1.0169	1.0189	1.0834
2033	1.0068	1.0083	1.0052	1.0182	1.0204	1.0893
2034	1.0075	1.0095	1.0058	1.0196	1.0218	1.0947
2035	1.0081	1.0108	1.0063	1.0210	1.0232	1.0997
2036	1.0088	1.0121	1.0069	1.0223	1.0244	1.1041
2037	1.0094	1.0134	1.0074	1.0236	1.0255	1.1080
2038	1.0099	1.0148	1.0079	1.0248	1.0265	1.1114
2039	1.0104	1.0161	1.0085	1.0259	1.0274	1.1143
2040	1.0109	1.0174	1.0090	1.0270	1.0281	1.1168
2041	1.0113	1.0186	1.0095	1.0279	1.0288	1.1189
2042	1.0116	1.0198	1.0099	1.0286	1.0294	1.1207
2043	1.0119	1.0207	1.0103	1.0293	1.0299	1.1221
2044	1.0122	1.0216	1.0106	1.0299	1.0303	1.1233
2045	1.0124	1.0225	1.0109	1.0303	1.0306	1.1243
2046	1.0125	1.0233	1.0111	1.0308	1.0309	1.1251
2047	1.0127	1.0240	1.0113	1.0311	1.0311	1.1258
2048	1.0128	1.0246	1.0115	1.0314	1.0313	1.1263
2049	1.0128	1.0252	1.0116	1.0316	1.0315	1.1268
2050	1.0129	1.0257	1.0117	1.0318	1.0316	1.1272
Enter Year: 2023	**1.0007**	**1.0006**	**1.0007**	**1.0032**	**1.0027**	**1.0126**

*PM Exhaust off model factor is only applied to the PM Exhaust emissions not start/idle

The off-model adjustment factors need to be applied only to emissions from gasoline light duty vehicles (LDA, LDT1, LDT2 and MDV). Please note that the adjustment factors are by calendar year and includes all model years.

Enter NA in the date field if adjustments do not apply

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLEX	NOx_STREX	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STREX	CH4_RUNE	CH4_IDLEX	CH4_STREX	N2O_RUNEX	N2O_IDLEX	N2O_STREX	ROG_RUNE	ROG_IDLEX	ROG_STREX	ROG_HOTS	ROG_RUNL	ROG_REST	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STREX	TOG_HOTS	TOG_RUNL	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2023	HHDT	Aggregate	Aggregate	Gasoline	2.370916	306.003	47.43728	3.456262	0	0.003398	0.000671	0	0.000248	0.005	0.02646	0.00073	0	0.00027	0.02	0.06174	2155.471	0	46.86619	0.078437	0	0.000173	0.139705	0	0.000194	0.357242	0	0.000906	0.043515	0.222811	0.012156	0.019683	0.521286	0	0.000992	0.043515	0.222811	0.012156	0.019683	32.14645	0	4.382798	0.02133	0	0.000464
Marin	2023	HHDT	Aggregate	Aggregate	Diesel	864.5484	84838.08	7667.602	3.033171	50.73442	2.463706	0.023905	0.034885	0	0.008849	0.026017	0.024986	0.036463	0	0.035398	0.060707	1461.041	9244.968	0	0.001213	0.173485	0	0.229655	1.45318	0	0.02611	3.73508	0	0	0	0	0.029724	4.252105	0	0	0	0	0	0	0.236884	53.41158	0	0.013803	0.087342	0
Marin	2023	HHDT	Aggregate	Aggregate	Natural Ga	61.72523	2517.857	240.7284	1.317036	20.17729	0	0.004815	0.026087	0	0.009	0.02646	0.005033	0.027266	0	0.036	0.06174	3110.087	3931.266	0	3.400209	1.232516	0	0.634012	0.801414	0	0.127515	0.037497	0	0	0	0	3.560098	1.280532	0	0	0	0	0	0	10.87339	21.86893	0	0	0	0
Marin	2023	LDA	Aggregate	Aggregate	Gasoline	131553.3	4374907	618062.6	0.038909	0	0.194769	0.001322	0	0.001753	0.002	0.01575	0.001437	0	0.001907	0.008	0.03675	256.7407	0	54.21129	0.002321	0	0.053166	0.004354	0	0.025966	0.00912	0	0.243495	0.105807	0.228268	0.184273	0.191849	0.013303	0	0.266595	0.105807	0.228268	0.184273	0.191849	0.583348	0	2.34627	0.002541	0	0.000536
Marin	2023	LDA	Aggregate	Aggregate	Diesel	2268.885	71569.93	10453.37	0.100838	0	0	0.008938	0	0	0.002	0.01575	0.009342	0	0	0.008	0.03675	216.4917	0	0	0.000806	0	0	0.034029	0	0	0.017342	0	0	0	0	0	0.019743	0	0	0	0	0	0	0.249228	0	0	0.002047	0	0
Marin	2023	LDA	Aggregate	Aggregate	Electricity	4237.673	167357	20726.78	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2023	LDT1	Aggregate	Aggregate	Gasoline	15619.75	497563.5	71471.62	0.081316	0	0.261194	0.001621	0	0.002197	0.002	0.01575	0.001763	0	0.002389	0.008	0.03675	302.3719	0	64.30006	0.004202	0	0.071251	0.006639	0	0.029069	0.018187	0	0.358014	0.189996	0.705199	0.353468	0.395019	0.026532	0	0.391979	0.189996	0.705199	0.353468	0.395019	0.896483	0	2.503475	0.002992	0	0.000636
Marin	2023	LDT1	Aggregate	Aggregate	Diesel	9.501206	114.0156	30.10747	1.118576	0	0	0.1592	0	0	0.002	0.01575	0.166398	0	0	0.008	0.03675	410.7999	0	0	0.010015	0	0	0.064572	0	0	0.215622	0	0	0	0	0	0.245471	0	0	0	0	0	0	1.373847	0	0	0.003884	0	0
Marin	2023	LDT1	Aggregate	Aggregate	Electricity	138.9456	5825.749	691.7468	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2023	LDT2	Aggregate	Aggregate	Gasoline	50999.73	1672558	236983	0.064615	0	0.282611	0.001291	0	0.001659	0.002	0.01575	0.001404	0	0.001804	0.008	0.03675	325.1651	0	69.80876	0.003125	0	0.069568	0.005711	0	0.032193	0.012466	0	0.3258	0.127773	0.458119	0.278733	0.267241	0.018188	0	0.35671	0.127773	0.458119	0.278733	0.267241	0.711315	0	2.901456	0.003218	0	0.000691
Marin	2023	LDT2	Aggregate	Aggregate	Diesel	573.8956	20192.3	2744.173	0.038289	0	0	0.00461	0	0	0.002	0.01575	0.004818	0	0	0.008	0.03675	299.0993	0	0	0.000668	0	0	0.047014	0	0	0.014374	0	0	0	0	0	0.016364	0	0	0	0	0	0	0.142908	0	0	0.002828	0	0
Marin	2023	LDT2	Aggregate	Aggregate	Electricity	592.1076	18637.24	2961.846	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2023	LHDT1	Aggregate	Aggregate	Gasoline	3424.787	119094.4	5104.23	0.244369	0.03778	0.519728	0.002271	0	0.000412	0.002	0.03276	0.00247	0	0.000448	0.008	0.07644	999.0343	120.4868	18.97551	0.011535	0.119288	0.025174	0.014495	0.003085	0.040588	0.056765	0.432589	0.128229	0.133645	0.997941	0.025878	0.046097	0.082832	0.631233	0.140395	0.133645	0.997941	0.025878	0.046097	1.06354	3.747449	1.81269	0.009886	0.001192	0.000188
Marin	2023	LHDT1	Aggregate	Aggregate	Diesel	2770.651	102611.7	34851.31	1.800178	2.064031	0	0.023324	0.026851	0	0.003	0.03276	0.024379	0.028065	0	0.012	0.07644	545.7943	133.6287	0	0.007641	0.005098	0	0.085791	0.021005	0	0.164516	0.10976	0	0	0	0	0.18729	0.124954	0	0	0	0	0	0	0.723937	0.909745	0	0.00516	0.001263	0
Marin	2023	LHDT2	Aggregate	Aggregate	Gasoline	468.7318	16520.56	6983.406	0.227324	0.037247	0.518202	0.002007	0	0.000325	0.002	0.03822	0.002183	0	0.000354	0.008	0.08918	1138.777	138.3242	21.46766	0.008251	0.119265	0.023711	0.014353	0.003031	0.040302	0.037529	0.426931	0.118586	0.111319	0.702443	0.021612	0.037259	0.054762	0.622977	0.129837	0.111319	0.702443	0.021612	0.037259	0.696512	3.758167	1.75372	0.011269	0.001369	0.000212
Marin	2023	LHDT2	Aggregate	Aggregate	Diesel	901.7193	34842.8	11342.49	1.142924	1.951762	0	0.020433	0.026778	0	0.003	0.03822	0.021357	0.027989	0	0.012	0.08918	605.0059	211.4435	0	0.006768	0.005098	0	0.095099	0.033236	0	0.145704	0.10976	0	0	0	0	0.165874	0.124954	0	0	0	0	0	0	0.62429	0.909745	0	0.005719	0.001999	0
Marin	2023	MCY	Aggregate	Aggregate	Gasoline	7093.436	51472.53	14186.87	1.189892	0	0.275576	0.001971	0	0.003258	0.001	0.00504	0.002105	0	0.003454	0.004	0.01176	218.2252	0	62.23681	0.344974	0	0.26269	0.067817	0	0.015415	2.358588	0	2.023258	0.770323	2.436421	0.968804	1.580476	2.908181	0	2.201367	0.770323	2.436421	0.968804	1.580476	21.09046	0	9.102345	0.00216	0	0.000616
Marin	2023	MDV	Aggregate	Aggregate	Gasoline	30011.06	954428.5	138706.8	0.079329	0	0.32782	0.00134	0	0.001794	0.002	0.01575	0.001458	0	0.001951	0.008	0.03675	391.9667	0	84.4216	0.003784	0	0.0797	0.006657	0	0.033944	0.015609	0	0.391891	0.138549	0.465352	0.3133	0.295012	0.022751	0	0.429068	0.138549	0.465352	0.3133	0.295012	0.786791	0	3.247018	0.003879	0	0.000835
Marin	2023	MDV	Aggregate	Aggregate	Diesel	1169.944	39704.38	5562.217	0.044081	0	0	0.004541	0	0	0.002	0.01575	0.004746	0	0	0.008	0.03675	389.5439	0	0	0.000539	0	0	0.061231	0	0	0.011598	0	0	0	0	0	0.013203	0	0	0	0	0	0	0.216306	0	0	0.003683	0	0
Marin	2023	MDV	Aggregate	Aggregate	Electricity	283.0616	9377.471	1439.318	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2023	MH	Aggregate	Aggregate	Gasoline	501.0557	4898.187	50.12561	0.372426	0	0.334382	0.001543	0	0.000342	0.003	0.05586	0.001678	0	0.000372	0.012	0.13034	1726.734	0	25.61832	0.012841	0	0.032123	0.023777	0	0.035216	0.054291	0	0.134499	0.078979	1.928948	0.031221	0.081913	0.079221	0	0.147259	0.078979	1.928948	0.031221	0.081913	1.315313	0	2.97659	0.017087	0	0.000254
Marin	2023	MH	Aggregate	Aggregate	Diesel	227.0799	2186.161	22.70799	3.989886	0	0	0.085154	0	0	0.004	0.05586	0.089004	0	0	0.016	0.13034	1013.916	0	0	0.004948	0	0	0.159373	0	0	0.106534	0	0	0	0	0	0.121282	0	0	0	0	0	0	0.373482	0	0	0.009585	0	0
Marin	2023	MHDT	Aggregate	Aggregate	Gasoline	340.9177	17931.13	6821.081	0.466074	0.088627	0.375533	0.001239	0	0.000429	0.003	0.05586	0.001348	0	0.000467	0.012	0.13034	1718.209	533.0051	38.96432	0.014577	0.264084	0.040141	0.023094	0.007511	0.029321	0.071875	1.014805	0.217019	0.087093	0.520722	0.018706	0.031905	0.10488	1.480801	0.237608	0.087093	0.520722	0.018706	0.031905	1.640264	15.14077	4.848739	0.017003	0.005275	0.000286
Marin	2023	MHDT	Aggregate	Aggregate	Diesel	1330.762	70922.65	11890	1.705089	9.39061	2.128121	0.007887	0.008284	0	0.003	0.05586	0.008244	0.008659	0	0.012	0.13034	1019.622	1253.781	0	0.000588	0.004831	0	0.16027	0.197077	0	0.012659	0.104015	0	0	0	0	0.014411	0.118413	0	0	0	0	0	0	0.115744	3.517008	0	0.009633	0.011845	0
Marin	2023	OBUS	Aggregate	Aggregate	Gasoline	126.035	6288.279	2521.708	0.431224	0.065195	0.322117	0.000971	0	0.000211	0.003	0.05586	0.001056	0	0.000229	0.012	0.13034	1762.799	377.0365	26.38299	0.01259	0.2022	0.030272	0.022317	0.005717	0.026364	0.059056	0.748317	0.155233	0.02755	0.315146	0.01488	0.030105	0.086174	1.091942	0.169961	0.02755	0.315146	0.01488	0.030105	1.301844	5.78686	3.291843	0.017444	0.003731	0.000261
Marin	2023	OBUS	Aggregate	Aggregate	Diesel	45.13689	3814.103	449.4934	1.849239	14.00397	2.215211	0.012201	0.004599	0	0.003	0.05586	0.012753	0.004807	0	0.012	0.13034	1219.379	3078.901	0	0.000623	0.048357	0	0.191669	0.48396	0	0.013413	1.041104	0	0	0	0	0.015269	1.185218	0	0	0	0	0	0	0.144784	16.40134	0	0.01152	0.029088	0
Marin	2023	SBUS	Aggregate	Aggregate	Gasoline	35.55027	1741.837	142.2011	0.63715	0.922766	0.545264	0.001614	0	0.000664	0.002	0.3192	0.001755	0	0.000722	0.008	0.7448	841.336	2510.632	49.23413	0.017884	2.437783	0.061814	0.031495	0.087893	0.050864	0.088977	10.58651	0.357768	0.073684	0.488575	0.009922	0.024194	0.129835	15.4478	0.391711	0.073684	0.488575	0.009922	0.024194	2.073511	81.90683	9.561102	0.008326	0.024845	0.000487
Marin	2023	SBUS	Aggregate	Aggregate	Diesel	149.6531	4687.64	1726.976	8.369237	51.77231	0.601765	0.04743	0.057376	0	0.003	0.3192	0.049575	0.05997	0	0.012	0.7448	1142.942	3720.666	0	0.005465	0.012259	0	0.179655	0.584837	0	0.117652	0.263932	0	0	0	0	0.133938	0.300467	0	0	0	0	0	0	0.30955	5.013283	0	0.010798	0.035151	0
Marin	2023	UBUS	Aggregate	Aggregate	Gasoline	35.79722	3316.694	143.1889	0.305064	0	0.766739	0.001556	0	0.000556	0.002959	0.055135	0.001692	0	0.000605	0.011836	0.128648	2168.787	0	78.56328	0.006738	0	0.099352	0.02551	0	0.066511	0.022125	0	0.419806	0.050216	0.303553	0.008866	0.013427	0.032285	0	0.459635	0.050216	0.303553	0.008866	0.013427	0.373046	0	7.02563	0.021462	0	0.000777
Marin	2023	UBUS	Aggregate	Aggregate	Diesel	56.94108	2735.932	227.7643	0.736038	0	0	0.005241	0	0	0.007247	0.035051	0.005478	0	0	0.028987	0.081786	1355.588	0	0	0.068936	0	0	0.21308	0	0	0.000985	0	0	0	0	0	0.070354	0	0	0	0	0	0	0.115664	0	0	0.012815	0	0
Marin	2023	UBUS	Aggregate	Aggregate	Natural Ga	12.55051	425.3158	50.20204	0.46653	0	0	0.003047	0	0	0.007823	0.032226	0.003185	0	0	0.031293	0.075193	1936.564	0	0	0.629626	0	0	0.394781	0	0	0.086151	0	0	0	0	0	6.153676	0	0	0	0	0	0	46.51504	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNE	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2024	HHDT	Aggregate	Aggregate	Gasoline	2.393533	295.9956	47.88981	3.419373	0	0.003427	0.000697	0	0.000247	0.005	0.02646	0.000758	0	0.000269	0.02	0.06174	2120.174	0	45.9617	0.078442	0	0.000159	0.139964	0	0.000168	0.355808	0	0.000832	0.045785	0.236158	0.012858	0.020029	0.519194	0	0.000911	0.045785	0.236158	0.012858	0.020029	31.77875	0	4.050312	0.020981	0	0.000455
Marin	2024	HHDT	Aggregate	Aggregate	Diesel	891.3086	86917.04	7923.202	3.00541	50.06378	2.481614	0.024042	0.033058	0	0.008852	0.026024	0.025129	0.034552	0	0.035407	0.060723	1434.59	9114.809	0	0.00121	0.173439	0	0.225498	1.432721	0	0.026051	3.734099	0	0	0	0	0.029657	4.250988	0	0	0	0	0	0.240452	53.5553	0	0.013553	0.086112	0
Marin	2024	HHDT	Aggregate	Aggregate	Natural Ga	63.12546	2574.966	246.1893	1.205673	19.91682	0	0.004572	0.023849	0	0.009	0.02646	0.004779	0.024927	0	0.036	0.06174	3084.699	3896.469	0	3.360325	1.224142	0	0.628836	0.794321	0	0.118247	0.035174	0	0	0	0	3.509482	1.269474	0	0	0	0	0	10.91133	21.88807	0	0	0	0
Marin	2024	LDA	Aggregate	Aggregate	Gasoline	133488.9	4388991	627482.2	0.034651	0	0.182811	0.001268	0	0.001685	0.002	0.01575	0.001379	0	0.001833	0.008	0.03675	249.3805	0	52.64554	0.002044	0	0.049164	0.004055	0	0.024927	0.007873	0	0.222074	0.099515	0.219566	0.173023	0.17852	0.543447	0	2.267239	0.002468	0	0.000521
Marin	2024	LDA	Aggregate	Aggregate	Diesel	2251.126	69765.21	10359.08	0.086272	0	0	0.007743	0	0	0.002	0.01575	0.008093	0	0	0.008	0.03675	211.3346	0	0	0.000718	0	0	0.033219	0	0	0.015467	0	0	0	0	0	0.017608	0	0	0	0	0	0.237686	0	0	0.001998	0	0
Marin	2024	LDA	Aggregate	Aggregate	Electricity	4672.563	187778.5	22811.84	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2024	LDT1	Aggregate	Aggregate	Gasoline	15815.19	498632.8	72444.31	0.070384	0	0.242566	0.001522	0	0.002065	0.002	0.01575	0.001655	0	0.002246	0.008	0.03675	294.4384	0	62.59035	0.003627	0	0.065147	0.005996	0	0.027871	0.015498	0	0.32265	0.176148	0.658573	0.330937	0.364564	0.807197	0	2.415439	0.002914	0	0.000619
Marin	2024	LDT1	Aggregate	Aggregate	Diesel	8.736885	105.9258	27.60266	1.022322	0	0	0.145798	0	0	0.002	0.01575	0.15239	0	0	0.008	0.03675	403.1815	0	0	0.009195	0	0	0.063375	0	0	0.197962	0	0	0	0	0	0.225366	0	0	0	0	0	1.262534	0	0	0.003812	0	0
Marin	2024	LDT1	Aggregate	Aggregate	Electricity	172.3048	7390.27	857.9863	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2024	LDT2	Aggregate	Aggregate	Gasoline	51368.49	1658844	238446.9	0.057335	0	0.262679	0.001256	0	0.001621	0.002	0.01575	0.001366	0	0.001763	0.008	0.03675	314.726	0	67.70123	0.002825	0	0.065289	0.005259	0	0.030688	0.011131	0	0.303093	0.123961	0.451035	0.276015	0.261703	0.616242	0	0.331849	0.123961	0.451035	0.276015	0.261703	0.666926	0	2.822711	0.003114	0	0.00067
Marin	2024	LDT2	Aggregate	Aggregate	Diesel	587.7502	20062.53	2793.428	0.036847	0	0	0.004583	0	0	0.002	0.01575	0.00479	0	0	0.008	0.03675	292.7454	0	0	0.000666	0	0	0.046016	0	0	0.014337	0	0	0	0	0	0.016322	0	0	0	0	0	0.144903	0	0	0.002767	0	0
Marin	2024	LDT2	Aggregate	Aggregate	Electricity	714.0577	22003.07	3562.756	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2024	LHDT1	Aggregate	Aggregate	Gasoline	3402.516	117242.7	50692.42	0.22198	0.036803	0.520249	0.002247	0	0.000402	0.002	0.03276	0.002444	0	0.000438	0.008	0.07644	986.6473	119.4123	18.80704	0.010569	0.116958	0.023713	0.013264	0.00305	0.039621	0.051841	0.421458	0.120529	0.129572	0.974382	0.025382	0.044782	0.075646	0.614991	0.131964	0.129572	0.974382	0.025382	0.044782	0.978645	3.749967	1.775872	0.009764	0.001182	0.000186
Marin	2024	LHDT1	Aggregate	Aggregate	Diesel	2818.765	103049.9	35456.51	1.595968	1.97143	0	0.021659	0.026712	0	0.003	0.03276	0.022638	0.02792	0	0.012	0.07644	537.5175	131.9903	0	0.00742	0.005098	0	0.08449	0.020747	0	0.159755	0.10976	0	0	0	0	0.18187	0.124954	0	0	0	0	0	0.704808	0.909745	0	0.005081	0.001248	0
Marin	2024	LHDT2	Aggregate	Aggregate	Gasoline	471.2057	16449.74	7020.263	0.201801	0.036217	0.500472	0.001984	0	0.000316	0.002	0.03822	0.002158	0	0.000344	0.008	0.08918	1124.039	136.9864	21.24151	0.007171	0.116806	0.022302	0.012976	0.002998	0.039359	0.032032	0.415232	0.110967	0.106236	0.65798	0.02088	0.035332	0.046741	0.605905	0.121495	0.106236	0.65798	0.02088	0.035332	0.598971	3.761634	1.701988	0.011123	0.001356	0.00021
Marin	2024	LHDT2	Aggregate	Aggregate	Diesel	939.5525	35625.43	11818.39	1.010163	1.854479	0	0.019809	0.026757	0	0.003	0.03822	0.020704	0.027967	0	0.012	0.08918	595.8244	208.7904	0	0.006643	0.005098	0	0.093655	0.032819	0	0.143013	0.10976	0	0	0	0	0.16281	0.124954	0	0	0	0	0	0.61635	0.909745	0	0.005633	0.001974	0
Marin	2024	MCY	Aggregate	Aggregate	Gasoline	7171.208	51250.73	14342.42	1.1865	0	0.275575	0.001982	0	0.003079	0.001	0.00504	0.00212	0	0.003268	0.004	0.01176	218.0145	0	61.89949	0.342849	0	0.261141	0.067663	0	0.015422	2.336083	0	2.009476	0.754271	2.327595	0.959384	1.573691	2.888591	0	2.186629	0.754271	2.327595	0.959384	1.573691	20.7085	0	9.131437	0.002157	0	0.000613
Marin	2024	MDV	Aggregate	Aggregate	Gasoline	30339.73	952720.9	140224.7	0.068571	0	0.299514	0.001287	0	0.001718	0.002	0.01575	0.001399	0	0.001869	0.008	0.03675	379.1747	0	81.74213	0.003332	0	0.073483	0.005999	0	0.032056	0.013529	0	0.356988	0.133271	0.45397	0.308274	0.287519	0.719731	0	0.390856	0.133271	0.45397	0.308274	0.287519	0.720284	0	3.097962	0.003752	0	0.000809
Marin	2024	MDV	Aggregate	Aggregate	Diesel	1198.125	39566	5666.444	0.04028	0	0	0.004319	0	0	0.002	0.01575	0.004515	0	0	0.008	0.03675	380.2993	0	0	0.000518	0	0	0.059778	0	0	0.011153	0	0	0	0	0	0.012697	0	0	0	0	0	0.21398	0	0	0.003595	0	0
Marin	2024	MDV	Aggregate	Aggregate	Electricity	375.235	12131.02	1901.584	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2024	MH	Aggregate	Aggregate	Gasoline	497.0312	4893.698	49.723	0.32986	0	0.334889	0.001489	0	0.00033	0.003	0.05586	0.00162	0	0.000359	0.012	0.13034	1693.522	0	25.14699	0.011299	0	0.031448	0.021949	0	0.035856	0.046765	0	0.129563	0.072837	1.757278	0.02907	0.075017	0.068239	0	0.141855	0.072837	1.757278	0.02907	0.075017	1.104267	0	2.8681	0.016759	0	0.000249
Marin	2024	MH	Aggregate	Aggregate	Diesel	232.368	2200.647	23.2368	3.856542	0	0	0.079806	0	0	0.004	0.05586	0.083415	0	0	0.016	0.13034	1000.165	0	0	0.004827	0	0	0.157212	0	0	0.103927	0	0	0	0	0	0.118314	0	0	0	0	0	0.360952	0	0	0.009455	0	0
Marin	2024	MHDT	Aggregate	Aggregate	Gasoline	344.764	18186.05	6898.038	0.38537	0.088796	0.367975	0.001228	0	0.000411	0.003	0.05586	0.001336	0	0.000447	0.012	0.13034	1685.478	525.6716	38.06248	0.01189	0.26735	0.038807	0.020002	0.007713	0.029536	0.057731	1.017334	0.207012	0.081278	0.480283	0.017483	0.02914	0.084241	1.484492	0.226652	0.081278	0.480283	0.017483	0.02914	1.309933	15.1701	4.583258	0.016679	0.005202	0.000377
Marin	2024	MHDT	Aggregate	Aggregate	Diesel	1380.74	71691.19	12309.45	1.711144	8.904333	2.140975	0.007926	0.007213	0	0.003	0.05586	0.008284	0.007539	0	0.012	0.13034	1006.245	1229.853	0	0.000581	0.004752	0	0.158168	0.193316	0	0.012514	0.10231	0	0	0	0	0.014247	0.116472	0	0	0	0	0	0.117013	3.575097	0	0.009507	0.011619	0
Marin	2024	OBUS	Aggregate	Aggregate	Gasoline	124.1141	6015.378	2483.276	0.392333	0.065201	0.320896	0.001001	0	0.000216	0.003	0.05586	0.001089	0	0.000234	0.012	0.13034	1737.435	373.7136	26.0798	0.01143	0.202139	0.029758	0.020723	0.005734	0.026336	0.053395	0.748403	0.152355	0.028322	0.327171	0.015446	0.031048	0.077914	1.092068	0.166809	0.028322	0.327171	0.015446	0.031048	1.170848	5.787382	3.225391	0.017193	0.003698	0.000258
Marin	2024	OBUS	Aggregate	Aggregate	Diesel	47.70089	3983.542	473.1706	1.879319	13.7256	2.216204	0.012418	0.004501	0	0.003	0.05586	0.01298	0.004705	0	0.012	0.13034	1200.325	2997.314	0	0.000627	0.047206	0	0.188674	0.471136	0	0.013499	1.01634	0	0	0	0	0.015367	1.157025	0	0	0	0	0	0.146105	16.04396	0	0.01134	0.028317	0
Marin	2024	SBUS	Aggregate	Aggregate	Gasoline	36.95198	1785.678	147.8079	0.463366	0.92653	0.543438	0.001403	0	0.000637	0.002	0.3192	0.001526	0	0.000693	0.008	0.7448	826.8896	2474.592	47.18208	0.012332	2.461742	0.058099	0.025007	0.09045	0.052089	0.060586	10.64152	0.331909	0.044054	0.273209	0.007192	0.014686	0.088406	15.52808	0.363399	0.044054	0.273209	0.007192	0.014686	1.366438	82.24088	8.6482	0.008183	0.024488	0.000467
Marin	2024	SBUS	Aggregate	Aggregate	Diesel	150.6045	4725.185	1737.955	8.046338	50.43582	0.664658	0.04605	0.054122	0	0.003	0.3192	0.048132	0.05657	0	0.012	0.7448	1130.263	3691.914	0	0.00535	0.012154	0	0.177662	0.580317	0	0.11519	0.261665	0	0	0	0	0.131135	0.297886	0	0	0	0	0	0.306506	5.260683	0	0.010678	0.034879	0
Marin	2024	UBUS	Aggregate	Aggregate	Gasoline	35.81348	3318.201	143.2539	0.187362	0	0.639467	0.00218	0	0.000724	0.002959	0.055135	0.002371	0	0.000788	0.011836	0.128648	1890.425	0	71.60479	0.006818	0	0.079959	0.018107	0	0.061285	0.022124	0	0.335051	0.023271	0.108158	0.004834	0.007846	0.032283	0	0.366838	0.023271	0.108158	0.004834	0.007846	0.281351	0	7.02335	0.018707	0	0.000709
Marin	2024	UBUS	Aggregate	Aggregate	Diesel	56.96356	2736.954	227.8543	0.73604	0	0	0.005241	0	0	0.007247	0.035051	0.005478	0	0	0.028987	0.081786	1355.613	0	0	0.068936	0	0	0.213083	0	0	0.000985	0	0	0	0	0	0.070354	0	0	0	0	0	0.115664	0	0	0.012815	0	0
Marin	2024	UBUS	Aggregate	Aggregate	Natural Ga	12.55959	425.7291	50.23838	0.466513	0	0	0.003047	0	0	0.007823	0.032228	0.003185	0	0	0.031291	0.075199	1936.505	0	0	6.029341	0	0	0.394769	0	0	0.086147	0	0	0	0	0	6.153384	0	0	0	0	0	46.51259	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2025
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUN	PM10_IDLE	PM10_STR	PM10_PMB	PM10_PMT	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2025	HHDT	Aggregate	Aggregate	Gasoline	2.38479	283.6928	47.71489	3.426886	0	0.003996	0.000728	0	0.00025	0.005	0.02646	0.000792	0	0.000272	0.02	0.06174	2081.427	0	45.21414	0.079014	0	0.000161	0.141384	0	0.000194	0.357773	0	0.000843	0.048131	0.249886	0.013578	0.020523	0.522061	0	0.000923	0.048131	0.249886	0.013578	0.020523	31.40858	0	3.850537	0.020597	0	0.000447
Marin	2025	HHDT	Aggregate	Aggregate	Diesel	910.2895	88744.5	8110.951	2.955629	49.4765	2.500744	0.023916	0.03109	0	0.008854	0.02603	0.024997	0.032496	0	0.035414	0.060736	1403.887	8967.413	0	0.001199	0.173335	0	0.220671	1.409552	0	0.025808	3.731847	0	0	0	0	0	0.02938	4.248424	0	0	0	0	0	0	0.242027	53.68587	0	0.013263	0.08472	0
Marin	2025	HHDT	Aggregate	Aggregate	Natural Ga	64.16458	2617.371	250.2418	1.107285	19.6815	0	0.004361	0.021882	0	0.009	0.02646	0.004558	0.022872	0	0.036	0.06174	3057.152	3859.076	0	3.325216	1.216798	0	0.62322	0.786698	0	0.110062	0.033123	0	0	0	0	0	3.464897	1.259762	0	0	0	0	0	0	10.94493	21.91194	0	0	0	0
Marin	2025	LDA	Aggregate	Aggregate	Gasoline	135372.9	4400754	636446.8	0.031303	0	0.171826	0.001222	0	0.001628	0.002	0.01575	0.001329	0	0.001771	0.008	0.03675	242.0513	0	51.08252	0.001815	0	0.045427	0.003815	0	0.023878	0.006877	0	0.202788	0.09395	0.212944	0.163367	0.167371	0.010035	0	0.222027	0.09395	0.212944	0.163367	0.167371	0.510567	0	2.180456	0.002395	0	0.000506
Marin	2025	LDA	Aggregate	Aggregate	Diesel	2223.777	67993.07	10233.91	0.073006	0	0	0.006761	0	0	0.002	0.01575	0.007067	0	0	0.008	0.03675	205.7768	0	0	0.000649	0	0	0.032345	0	0	0.013981	0	0	0	0	0	0	0.015916	0	0	0	0	0	0	0.226815	0	0	0.001945	0	0
Marin	2025	LDA	Aggregate	Aggregate	Electricity	5149.998	210993.3	25111.71	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2025	LDT1	Aggregate	Aggregate	Gasoline	16011.48	499665.4	73393.52	0.061456	0	0.225795	0.001437	0	0.001953	0.002	0.01575	0.001563	0	0.002124	0.008	0.03675	286.4615	0	60.87409	0.003146	0	0.059583	0.005466	0	0.026699	0.01327	0	0.291115	0.163782	0.617611	0.310817	0.337801	0.732607	0	2.322403	0.002835	0	0.000602
Marin	2025	LDT1	Aggregate	Aggregate	Diesel	8.089602	99.67697	25.51859	0.928433	0	0	0.132713	0	0	0.002	0.01575	0.138714	0	0	0.008	0.03675	394.7658	0	0	0.008395	0	0	0.062052	0	0	0.18074	0	0	0	0	0	0	0.205761	0	0	0	0	0	0	1.153676	0	0	0.003732	0	0
Marin	2025	LDT1	Aggregate	Aggregate	Electricity	209.1247	9144.703	1040.422	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2025	LDT2	Aggregate	Aggregate	Gasoline	51712.5	1646055	239775.9	0.051388	0	0.245222	0.001225	0	0.001591	0.002	0.01575	0.001332	0	0.001731	0.008	0.03675	304.3367	0	65.60334	0.002567	0	0.061315	0.004886	0	0.029293	0.009998	0	0.282414	0.120295	0.443156	0.273091	0.256533	0.01459	0	0.309208	0.120295	0.443156	0.273091	0.256533	0.629466	0	2.7432	0.003012	0	0.000649
Marin	2025	LDT2	Aggregate	Aggregate	Diesel	597.7521	19863.29	2826.376	0.035153	0	0	0.004493	0	0	0.002	0.01575	0.004696	0	0	0.008	0.03675	285.88	0	0	0.000661	0	0	0.044936	0	0	0.014224	0	0	0	0	0	0	0.016193	0	0	0	0	0	0	0.146173	0	0	0.002703	0	0
Marin	2025	LDT2	Aggregate	Aggregate	Electricity	847.8881	25592.49	4219.012	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2025	LHDT1	Aggregate	Aggregate	Gasoline	3383.684	115695.2	50411.85	0.200551	0.035829	0.484329	0.002223	0	0.000393	0.002	0.03276	0.002417	0	0.000427	0.008	0.07644	973.2039	118.2199	18.62799	0.009541	0.114649	0.022373	0.012109	0.003015	0.038675	0.046438	0.410376	0.113457	0.125311	0.953309	0.024758	0.043207	0.667762	0.598819	0.124221	0.125311	0.953309	0.024758	0.043207	0.887249	3.752616	1.74413	0.009631	0.00117	0.000184
Marin	2025	LHDT1	Aggregate	Aggregate	Diesel	2865.164	103470	36040.16	1.412488	1.882724	0	0.020128	0.026585	0	0.003	0.03276	0.021038	0.027787	0	0.012	0.07644	528.9352	130.2598	0	0.00722	0.005098	0	0.083141	0.020475	0	0.155451	0.10976	0	0	0	0	0	0.176971	0.124954	0	0	0	0	0	0	0.687923	0.909745	0	0.005	0.001231	0
Marin	2025	LHDT2	Aggregate	Aggregate	Gasoline	473.6445	16384.66	7056.598	0.179798	0.035221	0.482769	0.001972	0	0.00031	0.002	0.03822	0.002145	0	0.000338	0.008	0.08918	1108.273	135.5252	20.99938	0.006358	0.114376	0.020958	0.011784	0.002963	0.038421	0.028005	0.403905	0.103655	0.101191	0.615421	0.020263	0.033674	0.040865	0.589377	0.113489	0.101191	0.615421	0.020263	0.033674	0.526413	3.76452	1.65477	0.010967	0.001341	0.000208
Marin	2025	LHDT2	Aggregate	Aggregate	Diesel	976.3545	36347.09	12281.31	0.895268	1.765056	0	0.019329	0.026763	0	0.003	0.03822	0.020203	0.027974	0	0.012	0.08918	586.4609	206.0367	0	0.006536	0.005098	0	0.092183	0.032386	0	0.140727	0.10976	0	0	0	0	0	0.160208	0.124954	0	0	0	0	0	0	0.610356	0.909745	0	0.005544	0.001948	0
Marin	2025	MCY	Aggregate	Aggregate	Gasoline	7251.819	51070.17	14503.64	1.183501	0	0.275318	0.002008	0	0.003049	0.001	0.00504	0.002147	0	0.003239	0.004	0.01176	217.8381	0	61.60291	0.341016	0	0.259819	0.067526	0	0.015418	2.316874	0	1.99802	0.74066	2.229887	0.951133	1.568364	2.871799	0	2.174394	0.74066	2.229887	0.951133	1.568364	20.37895	0	9.161047	0.002156	0	0.00061
Marin	2025	MDV	Aggregate	Aggregate	Gasoline	30670.31	951548.9	141721.9	0.059889	0	0.274228	0.001241	0	0.001659	0.002	0.01575	0.00135	0	0.001804	0.008	0.03675	366.5041	0	79.09969	0.002955	0	0.067814	0.005458	0	0.030297	0.011829	0	0.325676	0.12838	0.442596	0.304312	0.281687	0.017259	0	0.356574	0.12838	0.442596	0.304312	0.281687	0.667736	0	2.963752	0.003627	0	0.000783
Marin	2025	MDV	Aggregate	Aggregate	Diesel	1221.483	39342.5	5748.722	0.036894	0	0	0.004096	0	0	0.002	0.01575	0.004281	0	0	0.008	0.03675	370.5969	0	0	0.000497	0	0	0.058253	0	0	0.010706	0	0	0	0	0	0	0.012189	0	0	0	0	0	0	0.211214	0	0	0.003503	0	0
Marin	2025	MDV	Aggregate	Aggregate	Electricity	476.3902	15034.22	2405.337	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2025	MH	Aggregate	Aggregate	Gasoline	493.7302	4888.328	49.39277	0.29305	0	0.335395	0.001444	0	0.000321	0.003	0.05586	0.001571	0	0.000349	0.012	0.13034	1662.655	0	24.68889	0.010001	0	0.030813	0.020362	0	0.036455	0.040478	0	0.124997	0.066901	1.578662	0.027051	0.068576	0.059065	0	0.136856	0.066901	1.578662	0.027051	0.068576	0.932013	0	2.768542	0.016453	0	0.000244
Marin	2025	MH	Aggregate	Aggregate	Diesel	237.0836	2212.291	23.70836	3.735024	0	0	0.074858	0	0	0.004	0.05586	0.078242	0	0	0.016	0.13034	986.4937	0	0	0.004713	0	0	0.155063	0	0	0.101476	0	0	0	0	0	0	0.115524	0	0	0	0	0	0	0.349193	0	0	0.009326	0	0
Marin	2025	MHDT	Aggregate	Aggregate	Gasoline	349.8192	18464.26	6999.183	0.322505	0.088939	0.360995	0.001225	0	0.000398	0.003	0.05586	0.001332	0	0.000433	0.012	0.13034	1654.76	518.3817	37.22235	0.009806	0.270037	0.037658	0.017582	0.00788	0.029701	0.046769	1.019458	0.1984	0.076325	0.445338	0.016424	0.026789	1.053345	15.19473	4.35174	0.016375	0.00513	0.000368
Marin	2025	MHDT	Aggregate	Aggregate	Diesel	1427.728	72254.4	12700.29	1.713801	8.480055	2.152419	0.007943	0.006354	0	0.003	0.05586	0.008303	0.006641	0	0.012	0.13034	991.8636	1208.096	0	0.000574	0.004697	0	0.155907	0.189896	0	0.012368	0.101118	0	0	0	0	0	0.01408	0.115115	0	0	0	0	0	0	0.117976	3.629574	0	0.009371	0.011413	0
Marin	2025	OBUS	Aggregate	Aggregate	Gasoline	122.4487	5781.186	2449.954	0.361096	0.065205	0.318544	0.001032	0	0.000221	0.003	0.05586	0.001122	0	0.00024	0.012	0.13034	1710.728	370.1758	25.79824	0.010493	0.201995	0.029324	0.019405	0.005747	0.026247	0.048861	0.748461	0.150074	0.029032	0.338485	0.015968	0.031957	0.071298	1.092152	0.164312	0.029032	0.338485	0.015968	0.031957	1.056027	5.787731	3.178983	0.016929	0.003663	0.000255
Marin	2025	OBUS	Aggregate	Aggregate	Diesel	51.41884	4134.598	509.2154	1.85044	13.60935	2.217953	0.012087	0.004461	0	0.003	0.05586	0.012634	0.004662	0	0.012	0.13034	1168.019	2918.105	0	0.000619	0.046726	0	0.183596	0.458685	0	0.013326	1.005998	0	0	0	0	0	0.01517	1.145252	0	0	0	0	0	0	0.144624	15.89472	0	0.011035	0.027569	0
Marin	2025	SBUS	Aggregate	Aggregate	Gasoline	39.66615	1892.883	158.6646	0.44065	0.92653	0.539792	0.001408	0	0.00064	0.002	0.3192	0.001532	0	0.000696	0.008	0.7448	817.9035	2449.998	46.5566	0.011515	2.460748	0.057364	0.024045	0.091036	0.051893	0.056496	10.64152	0.327492	0.046803	0.293044	0.007807	0.015796	0.082439	15.52808	0.358563	0.046803	0.293044	0.007807	0.015796	1.270129	82.24088	8.481409	0.008094	0.024245	0.000461
Marin	2025	SBUS	Aggregate	Aggregate	Diesel	151.2833	4754.002	1745.788	7.709537	49.02177	0.730127	0.044601	0.050882	0	0.003	0.3192	0.046617	0.053183	0	0.012	0.7448	1116.957	3660.32	0	0.005219	0.012069	0	0.17557	0.575351	0	0.112365	0.259852	0	0	0	0	0	0.127919	0.295822	0	0	0	0	0	0	0.302606	5.520465	0	0.010552	0.034581	0
Marin	2025	UBUS	Aggregate	Aggregate	Gasoline	35.82975	3319.708	143.319	0.214749	0	0.675379	0.00218	0	0.000724	0.002959	0.055135	0.002371	0	0.000788	0.011836	0.128648	1890.401	0	71.67596	0.006795	0	0.085347	0.020016	0	0.062651	0.022121	0	0.358641	0.02875	0.138093	0.005844	0.009171	0.032278	0	0.392667	0.02875	0.138093	0.005844	0.009171	0.302808	0	7.019814	0.018707	0	0.000709
Marin	2025	UBUS	Aggregate	Aggregate	Diesel	54.97159	2424.219	219.8864	0.722949	0	0	0.005162	0	0	0.00702	0.036163	0.005395	0	0	0.028079	0.08438	1428.35	0	0	0.067301	0	0	0.224517	0	0	0.000962	0	0	0	0	0	0	0.068685	0	0	0	0	0	0	0.112627	0	0	0.013503	0	0
Marin	2025	UBUS	Aggregate	Aggregate	Natural Ga	14.58313	739.9012	58.33254	0.483983	0	0	0.003151	0	0	0.008322	0.029783	0.003294	0	0	0.033287	0.069495	1997.574	0	0	6.323431	0	0	0.407219	0	0	0.090349	0	0	0	0	0	0	6.455525	0	0	0	0	0	0	49.03158	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDLE	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLEX	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_RESTL	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_RESTL	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2026	HHDT	Aggregate	Aggregate	Gasoline	2.369563	271.7504	47.41022	3.414633	0	0.004401	0.000763	0	0.000256	0.005	0.02646	0.00083	0	0.000278	0.02	0.06174	2040.462	0	44.48608	0.078695	0	0.000164	0.141553	0	0.000195	0.355529	0	0.000858	0.050663	0.264697	0.01433	0.021225	0.518787	0	0.000939	0.050663	0.264697	0.01433	0.021225	31.10907	0	3.688151	0.020192	0	0.00044
Marin	2026	HHDT	Aggregate	Aggregate	Diesel	926.5049	90543.13	8267.453	2.902296	48.90358	2.5193	0.0237	0.029414	0	0.008855	0.026035	0.024772	0.030744	0	0.035421	0.060748	1372.613	8804.719	0	0.001186	0.173081	0	0.215756	1.383979	0	0.025531	3.726385	0	0	0	0	0	0.029065	4.242206	0	0	0	0	0	0	0.242895	53.74665	0	0.012968	0.083183	0
Marin	2026	HHDT	Aggregate	Aggregate	Natural Ga	65.09346	2655.012	253.8645	1.018818	19.46911	0	0.004169	0.02013	0	0.009	0.02646	0.004357	0.02104	0	0.036	0.06174	3028.351	3820.056	0	3.293549	1.210254	0	0.617349	0.778743	0	0.10268	0.031286	0	0	0	0	0	3.424682	1.251097	0	0	0	0	0	0	10.97522	21.93429	0	0	0	0
Marin	2026	LDA	Aggregate	Aggregate	Gasoline	137264.4	4404067	645321.1	0.028695	0	0.162546	0.001171	0	0.001571	0.002	0.01575	0.001274	0	0.001708	0.008	0.03675	235.4439	0	49.64375	0.001629	0	0.042124	0.003626	0	0.02297	0.006075	0	0.186009	0.088969	0.20718	0.154633	0.157447	0.488865	0	0.203656	0.088969	0.20718	0.154633	0.157447	0.484087	0	2.100572	0.00233	0	0.000491
Marin	2026	LDA	Aggregate	Aggregate	Diesel	2190.831	66194.96	10092.53	0.061137	0	0	0.005789	0	0	0	0.01575	0.006051	0	0	0.008	0.03675	200.3707	0	0	0.000581	0	0	0.031495	0	0	0.012518	0	0	0	0	0	0	0.014251	0	0	0	0	0	0	0.21622	0	0	0.001894	0	0
Marin	2026	LDA	Aggregate	Aggregate	Electricity	5615.594	226155.3	27340.79	0	0	0	0	0	0	0	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2026	LDT1	Aggregate	Aggregate	Gasoline	16207.16	499806.8	74328.81	0.054172	0	0.211311	0.001357	0	0.001848	0.002	0.01575	0.001475	0	0.00201	0.008	0.03675	279.184	0	59.26707	0.002745	0	0.054641	0.005033	0	0.025674	0.01142	0	0.263306	0.152487	0.580846	0.29169	0.313031	0.016663	0	0.288287	0.152487	0.580846	0.29169	0.313031	0.670353	0	2.232143	0.002763	0	0.000586
Marin	2026	LDT1	Aggregate	Aggregate	Diesel	7.126501	91.94383	22.71114	0.807849	0	0	0.115359	0	0	0.002	0.01575	0.120575	0	0	0.008	0.03675	384.5969	0	0	0.007369	0	0	0.060453	0	0	0.15866	0	0	0	0	0	0	0.180624	0	0	0	0	0	0	1.032732	0	0	0.003636	0	0
Marin	2026	LDT1	Aggregate	Aggregate	Electricity	245.8693	10534.81	1220.691	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2026	LDT2	Aggregate	Aggregate	Gasoline	52049.34	1631740	241078.3	0.046449	0	0.229892	0.001187	0	0.001554	0.002	0.01575	0.001291	0	0.00169	0.008	0.03675	294.7538	0	63.62435	0.002344	0	0.057663	0.004575	0	0.028041	0.009026	0	0.263566	0.116599	0.434407	0.269274	0.250948	0.01317	0	0.288572	0.116599	0.434407	0.269274	0.250948	0.597913	0	2.669172	0.002917	0	0.00063
Marin	2026	LDT2	Aggregate	Aggregate	Diesel	604.8215	19576.1	2846.232	0.033795	0	0	0.004423	0	0	0.002	0.01575	0.004623	0	0	0.008	0.03675	279.1737	0	0	0.000657	0	0	0.043882	0	0	0.014135	0	0	0	0	0	0	0.016092	0	0	0	0	0	0	0.147213	0	0	0.002639	0	0
Marin	2026	LDT2	Aggregate	Aggregate	Electricity	979.9887	28966.74	4860.641	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2026	LHDT1	Aggregate	Aggregate	Gasoline	3372.919	114485	50251.46	0.182271	0.03487	0.466241	0.002208	0	0.000386	0.002	0.03276	0.002402	0	0.000419	0.008	0.07644	958.9806	116.9331	18.43725	0.008728	0.112302	0.021121	0.011118	0.002977	0.037705	0.042209	0.39944	0.106836	0.121594	0.939466	0.024247	0.041932	0.061591	0.582863	0.116972	0.121594	0.939466	0.024247	0.041932	0.815749	3.754679	1.717321	0.00949	0.001157	0.000182
Marin	2026	LHDT1	Aggregate	Aggregate	Diesel	2909.086	103899.9	36592.64	1.24575	1.797474	0	0.01872	0.026509	0	0.003	0.03276	0.019567	0.027708	0	0.012	0.07644	520.0858	128.4423	0	0.007037	0.005098	0	0.08175	0.020189	0	0.151494	0.10976	0	0	0	0	0	0.172466	0.124954	0	0	0	0	0	0	0.6728	0.909745	0	0.004917	0.001214	0
Marin	2026	LHDT2	Aggregate	Aggregate	Gasoline	475.6633	16332.87	7086.674	0.158198	0.034259	0.465925	0.001956	0	0.000303	0.002	0.03822	0.002127	0	0.00033	0.008	0.08918	1091.543	133.9407	20.74272	0.005437	0.112071	0.019717	0.01065	0.002929	0.037561	0.02323	0.392965	0.096841	0.095858	0.574934	0.019476	0.031715	0.033897	0.573414	0.106029	0.095858	0.574934	0.019476	0.031715	0.441382	3.767672	1.610245	0.010802	0.001325	0.000205
Marin	2026	LHDT2	Aggregate	Aggregate	Diesel	1011.582	37022.14	12724.43	0.793706	1.682181	0	0.018921	0.026779	0	0.003	0.03822	0.019776	0.027989	0	0.012	0.08918	576.914	203.1835	0	0.006443	0.005098	0	0.090683	0.031938	0	0.138723	0.10976	0	0	0	0	0	0.157927	0.124954	0	0	0	0	0	0	0.605517	0.909745	0	0.005454	0.001921	0
Marin	2026	MCY	Aggregate	Aggregate	Gasoline	7315.392	50937.17	14630.78	1.180767	0	0.27489	0.002025	0	0.002983	0.001	0.00504	0.002167	0	0.003172	0.004	0.01176	217.6794	0	61.30627	0.339381	0	0.258455	0.067404	0	0.015412	2.299672	0	1.985297	0.721626	2.092083	0.939947	1.558971	2.856662	0	2.16079	0.721626	2.092083	0.939947	1.558971	20.08316	0	9.192938	0.002154	0	0.000607
Marin	2026	MDV	Aggregate	Aggregate	Gasoline	31006.61	949200	143227.8	0.053002	0	0.252418	0.001194	0	0.001603	0.002	0.01575	0.001299	0	0.001744	0.008	0.03675	354.9009	0	76.63752	0.002648	0	0.062798	0.00502	0	0.028756	0.01047	0	0.298289	0.123789	0.431364	0.300571	0.276666	0.015276	0	0.326589	0.123789	0.431364	0.300571	0.276666	0.627385	0	2.850441	0.003512	0	0.000758
Marin	2026	MDV	Aggregate	Aggregate	Diesel	1239.975	39005.81	5812.896	0.033292	0	0	0.003792	0	0	0.002	0.01575	0.003964	0	0	0.008	0.03675	361.2782	0	0	0.000472	0	0	0.056788	0	0	0.010168	0	0	0	0	0	0	0.011575	0	0	0	0	0	0	0.207763	0	0	0.003415	0	0
Marin	2026	MDV	Aggregate	Aggregate	Electricity	578.0956	17803.73	2906.499	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0
Marin	2026	MH	Aggregate	Aggregate	Gasoline	490.8885	4884.557	49.10848	0.26016	0	0.336176	0.001403	0	0.000311	0.003	0.05586	0.001526	0	0.000339	0.012	0.13034	1634.842	0	24.25285	0.008803	0	0.030262	0.018953	0	0.037029	0.034594	0	0.120991	0.060853	1.389558	0.025075	0.062377	0.050479	0	0.13247	0.060853	1.389558	0.025075	0.062377	0.771367	0	2.67844	0.016178	0	0.00024
Marin	2026	MH	Aggregate	Aggregate	Diesel	241.2996	2223.271	24.12996	3.619385	0	0	0.069906	0	0	0.004	0.05586	0.073067	0	0	0.016	0.13034	973.7898	0	0	0.004593	0	0	0.153066	0	0	0.098894	0	0	0	0	0	0	0.112584	0	0	0	0	0	0	0.337035	0	0	0.009206	0	0
Marin	2026	MHDT	Aggregate	Aggregate	Gasoline	355.8992	18748.27	7120.831	0.273876	0.089044	0.354565	0.001229	0	0.000392	0.003	0.05586	0.001337	0	0.000426	0.012	0.13034	1627.265	511.5007	36.45876	0.008292	0.272049	0.036632	0.015708	0.008011	0.029807	0.038877	1.021023	0.19079	0.072369	0.415921	0.015785	0.025265	0.056729	1.489874	0.208891	0.072369	0.415921	0.015785	0.025265	0.865542	15.21292	4.150286	0.016103	0.005062	0.000361
Marin	2026	MHDT	Aggregate	Aggregate	Diesel	1468.941	72709.51	13045.24	1.709891	8.118667	2.162548	0.007921	0.005618	0	0.003	0.05586	0.008279	0.005872	0	0.012	0.13034	977.0442	1189.735	0	0.000566	0.004657	0	0.153578	0.18701	0	0.012192	0.100269	0	0	0	0	0	0.01388	0.114149	0	0	0	0	0	0	0.118477	3.684595	0	0.009231	0.01124	0
Marin	2026	OBUS	Aggregate	Aggregate	Gasoline	120.8112	5571.225	2417.191	0.327656	0.065207	0.317425	0.001061	0	0.000226	0.003	0.05586	0.001153	0	0.000246	0.012	0.13034	1684.873	366.6976	25.49491	0.009528	0.201832	0.028957	0.01808	0.005755	0.026231	0.044076	0.748486	0.148054	0.029696	0.350037	0.016472	0.032886	0.064316	1.092188	0.162101	0.029696	0.350037	0.016472	0.032886	0.949863	5.787884	3.116139	0.016673	0.003629	0.000252
Marin	2026	OBUS	Aggregate	Aggregate	Diesel	54.8724	4289.533	542.096	1.830235	13.43713	2.21928	0.011808	0.0044	0	0.003	0.05586	0.012342	0.004599	0	0.012	0.13034	1139.659	2839.172	0	0.000612	0.046014	0	0.179138	0.446278	0	0.013185	0.990678	0	0	0	0	0	0.01501	1.127811	0	0	0	0	0	0	0.143504	15.67363	0	0.010767	0.026823	0
Marin	2026	SBUS	Aggregate	Aggregate	Gasoline	42.37995	1999.826	169.5198	0.424781	0.92653	0.548029	0.001413	0	0.000642	0.002	0.3192	0.001537	0	0.000698	0.008	0.7448	809.961	2428.266	46.01114	0.010782	2.459701	0.057044	0.023405	0.091189	0.052484	0.052826	10.64152	0.325486	0.049609	0.312894	0.008434	0.016925	0.077083	15.52808	0.356366	0.049609	0.312894	0.008434	0.016925	1.184546	82.24088	8.334575	0.008015	0.02403	0.000455
Marin	2026	SBUS	Aggregate	Aggregate	Diesel	151.5256	4768.747	1748.584	7.343755	47.46677	0.800619	0.043003	0.047556	0	0.003	0.3192	0.044947	0.049706	0	0.012	0.7448	1102.936	3625.295	0	0.005059	0.012008	0	0.173366	0.569846	0	0.108928	0.258524	0	0	0	0	0	0.124006	0.29431	0	0	0	0	0	0	0.297323	5.80297	0	0.010142	0.03425	0
Marin	2026	UBUS	Aggregate	Aggregate	Gasoline	35.84601	3321.215	143.384	0.239583	0	0.672493	0.002196	0	0.000752	0.002959	0.055135	0.002388	0	0.000818	0.011836	0.128648	1882.693	0	70.47903	0.006746	0	0.088002	0.021651	0	0.061963	0.022011	0	0.369579	0.020955	0.118495	0.003915	0.006733	0.032118	0	0.404642	0.020955	0.118495	0.003915	0.006733	0.323661	0	7.157297	0.018631	0	0.000697
Marin	2026	UBUS	Aggregate	Aggregate	Diesel	52.9566	2362.693	211.8264	0.729097	0	0	0.005199	0	0	0.007126	0.035641	0.005434	0	0	0.028506	0.083161	1425.757	0	0	0.068069	0	0	0.224109	0	0	0.000973	0	0	0	0	0	0	0.069469	0	0	0	0	0	0	0.114053	0	0	0.013479	0	0
Marin	2026	UBUS	Aggregate	Aggregate	Natural Ga	16.6297	802.8628	66.51879	0.469447	0	0	0.003064	0	0	0.007907	0.031818	0.003203	0	0	0.031627	0.074241	1946.761	0	0	6.07873	0	0	0.39686	0	0	0.086853	0	0	0	0	0	0	6.20379	0	0	0	0	0	0	46.93563	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2027
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDL	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLE	N2O_STRE	ROG_RUNI	ROG_IDLE	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNI	TOG_IDLE	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_REST	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2027	HHDT	Aggregate	Aggregate	Gasoline	2.355582	261.4949	47.13048	3.183951	0	0.00398	0.000798	0	0.000263	0.005	0.02646	0.000867	0	0.000286	0.02	0.06174	1994.986	0	44.50593	0.074677	0	0.000166	0.135357	0	0.000194	0.333925	0	0.000867	0.053131	0.279105	0.015056	0.021968	0.487263	0	0.000949	0.053131	0.279105	0.015056	0.021968	30.81318	0	4.033759	0.019742	0	0.00044
Marin	2027	HHDT	Aggregate	Aggregate	Diesel	940.7552	92494.13	8406.482	2.843769	48.40607	2.537752	0.023405	0.027721	0	0.008857	0.02604	0.024463	0.028975	0	0.035428	0.060759	1339.297	8644.089	0	0.001169	0.172958	0	0.210519	1.35873	0	0.025163	3.723738	0	0	0	0	0	0.028646	4.239192	0	0	0	0	0	0	0.242885	53.84888	0	0.012653	0.081665	0
Marin	2027	HHDT	Aggregate	Aggregate	Natural Ga	65.72504	2681.091	256.3277	0.942063	19.28472	0	0.003999	0.018601	0	0.009	0.02646	0.00418	0.019442	0	0.036	0.06174	2997.369	3779.04	0	3.265919	1.204545	0	0.611033	0.770382	0	0.096255	0.029691	0	0	0	0	0	3.389613	1.243546	0	0	0	0	0	0	11.00151	21.95382	0	0	0	0
Marin	2027	LDA	Aggregate	Aggregate	Gasoline	139112	4418192	653865	0.026599	0	0.154839	0.001111	0	0.001502	0.002	0.01575	0.001208	0	0.001634	0.008	0.03675	229.5185	0	48.33855	0.001473	0	0.039246	0.003477	0	0.022216	0.005409	0	0.17149	0.084295	0.201622	0.146705	0.148665	0.007893	0	0.18776	0.084295	0.201622	0.146705	0.148665	0.462245	0	2.028212	0.002271	0	0.000478
Marin	2027	LDA	Aggregate	Aggregate	Diesel	2153.423	64639.13	9938.191	0.050383	0	0	0.004827	0	0	0.002	0.01575	0.005045	0	0	0	0.008	0.03675	195.1498	0	0	0.000515	0	0	0.030675	0	0	0.011082	0	0	0	0	0	0.012616	0	0	0	0	0	0	0.205743	0	0	0.001845	0	0
Marin	2027	LDA	Aggregate	Aggregate	Electricity	6056.414	240458.9	29435.86	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2027	LDT1	Aggregate	Aggregate	Gasoline	16398.8	501212.9	75235.25	0.048029	0	0.198899	0.001273	0	0.001741	0.002	0.01575	0.001385	0	0.001894	0.008	0.03675	272.4929	0	57.7735	0.002405	0	0.050294	0.004671	0	0.024801	0.00985	0	0.23893	0.142016	0.546902	0.273314	0.289802	0.014374	0	0.261599	0.142016	0.546902	0.273314	0.289802	0.617193	0	2.147223	0.002697	0	0.000572
Marin	2027	LDT1	Aggregate	Aggregate	Diesel	4.378335	73.60747	15.33946	0.490616	0	0	0.068309	0	0	0.002	0.01575	0.071398	0	0	0.008	0.03675	361.6408	0	0	0.004735	0	0	0.056845	0	0	0.101933	0	0	0	0	0	0	0.116044	0	0	0	0	0	0	0.79253	0	0	0.003419	0	0
Marin	2027	LDT1	Aggregate	Aggregate	Electricity	282.0737	11863.57	1396.417	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2027	LDT2	Aggregate	Aggregate	Gasoline	52360.72	1622401	242273.5	0.042176	0	0.21626	0.001139	0	0.001504	0.002	0.01575	0.001238	0	0.001635	0.008	0.03675	285.8587	0	61.77131	0.002146	0	0.054307	0.004307	0	0.026924	0.008163	0	0.246284	0.112772	0.424635	0.264453	0.244832	0.011912	0	0.26965	0.112772	0.424635	0.264453	0.244832	0.570423	0	2.599569	0.002829	0	0.000611
Marin	2027	LDT2	Aggregate	Aggregate	Diesel	607.5159	19290.4	2850.093	0.031662	0	0	0.004206	0	0	0.002	0.01575	0.004396	0	0	0.008	0.03675	272.4562	0	0	0.000644	0	0	0.042826	0	0	0.013869	0	0	0	0	0	0	0.015789	0	0	0	0	0	0	0.147103	0	0	0.002576	0	0
Marin	2027	LDT2	Aggregate	Aggregate	Electricity	1110.182	32133.08	5486.269	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2027	LHDT1	Aggregate	Aggregate	Gasoline	3365.757	113570.9	50144.76	0.164203	0.033933	0.448941	0.002191	0	0.000378	0.002	0.03276	0.002383	0	0.000411	0.008	0.07644	944.0417	115.5503	18.23594	0.007774	0.110046	0.019992	0.010168	0.002941	0.036804	0.037046	0.388768	0.100832	0.117849	0.930684	0.023574	0.040346	0.054057	0.567289	0.110398	0.117849	0.930684	0.023574	0.040346	0.728614	3.756997	1.693437	0.009342	0.001143	0.00018
Marin	2027	LHDT1	Aggregate	Aggregate	Diesel	2952.051	104375.9	37133.09	1.096517	1.716102	0	0.017439	0.026461	0	0.003	0.03276	0.018227	0.027658	0	0.012	0.07644	511.0802	126.5582	0	0.006872	0.005098	0	0.080335	0.019893	0	0.147957	0.10976	0	0	0	0	0	0.168439	0.124954	0	0	0	0	0	0	0.659604	0.909745	0	0.004832	0.001196	0
Marin	2027	LHDT2	Aggregate	Aggregate	Gasoline	478.4686	16310.96	7128.47	0.140628	0.033338	0.448847	0.001952	0	0.0003	0.002	0.03822	0.002123	0	0.000326	0.008	0.08918	1074.283	132.2706	20.47805	0.004862	0.109798	0.018533	0.009705	0.002895	0.036691	0.020433	0.382475	0.090324	0.090856	0.537427	0.018901	0.030251	0.029815	0.558107	0.098894	0.090856	0.537427	0.018901	0.030251	0.390933	3.769997	1.572206	0.010631	0.001309	0.000203
Marin	2027	LHDT2	Aggregate	Aggregate	Diesel	1045.975	37670.77	13157.05	0.706505	1.606146	0	0.018588	0.026796	0	0.003	0.03822	0.019429	0.028007	0	0.012	0.08918	567.309	200.2827	0	0.006366	0.005098	0	0.089173	0.031482	0	0.137056	0.10976	0	0	0	0	0	0.15603	0.124954	0	0	0	0	0	0	0.602084	0.909745	0	0.005363	0.001893	0
Marin	2027	MCY	Aggregate	Aggregate	Gasoline	7370.101	50838.37	14740.2	1.1784	0	0.2747	0.002037	0	0.002902	0.001	0.00504	0.002182	0	0.00309	0.004	0.01176	217.5373	0	60.98198	0.337956	0	0.256868	0.067298	0	0.015416	2.28468	0	1.969935	0.701633	1.941392	0.928304	1.54862	2.843388	0	2.14432	0.701633	1.941392	0.928304	1.54862	19.82735	0	9.226079	0.002153	0	0.000603
Marin	2027	MDV	Aggregate	Aggregate	Gasoline	31345.66	949779.9	144733.6	0.047267	0	0.233794	0.001139	0	0.00154	0.002	0.01575	0.001239	0	0.001675	0.008	0.03675	344.2513	0	74.35781	0.002385	0	0.058373	0.004657	0	0.027437	0.009308	0	0.27423	0.119462	0.419954	0.296515	0.271736	0.013582	0	0.300248	0.119462	0.419954	0.296515	0.271736	0.593081	0	2.748482	0.003407	0	0.000736
Marin	2027	MDV	Aggregate	Aggregate	Diesel	1253.823	38720.93	5859.023	0.029628	0	0	0.003439	0	0	0.002	0.01575	0.003595	0	0	0.008	0.03675	352.3038	0	0	0.000445	0	0	0.053377	0	0	0.009571	0	0	0	0	0	0	0.010896	0	0	0	0	0	0	0.203694	0	0	0.003331	0	0
Marin	2027	MDV	Aggregate	Aggregate	Electricity	678.314	20394.21	3394.842	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0.003309	0.012708	0	0	0	0	0	0	0
Marin	2027	MH	Aggregate	Aggregate	Gasoline	489.5524	4887.263	48.97482	0.23348	0	0.336909	0.001373	0	0.000304	0.003	0.05586	0.001493	0	0.000331	0.012	0.13034	1605.059	0	23.81749	0.007869	0	0.029777	0.017802	0	0.03754	0.030054	0	0.117528	0.055531	1.234402	0.023378	0.057102	0.043855	0	0.128678	0.055531	1.234402	0.023378	0.057102	0.650192	0	2.602393	0.015883	0	0.000236
Marin	2027	MH	Aggregate	Aggregate	Diesel	245.7105	2236.44	24.57105	3.515477	0	0	0.065609	0	0	0.004	0.05586	0.068575	0	0	0.016	0.13034	960.5521	0	0	0.004496	0	0	0.150985	0	0	0.096795	0	0	0	0	0	0	0.110195	0	0	0	0	0	0	0.326799	0	0	0.009081	0	0
Marin	2027	MHDT	Aggregate	Aggregate	Gasoline	361.8126	19024.21	7239.146	0.234071	0.089141	0.349202	0.001234	0	0.000386	0.003	0.05586	0.001342	0	0.00042	0.012	0.13034	1598.443	504.1507	35.70544	0.007051	0.273814	0.035744	0.014185	0.008123	0.029938	0.032354	1.022462	0.184014	0.06865	0.388719	0.015156	0.023798	0.047211	1.491974	0.201473	0.06865	0.388719	0.015156	0.023798	0.710136	15.22964	3.971351	0.015818	0.004989	0.000353
Marin	2027	MHDT	Aggregate	Aggregate	Diesel	1511.24	73428.59	13406.73	1.700564	7.784047	2.171736	0.007862	0.004932	0	0.003	0.05586	0.008218	0.005155	0	0.012	0.13034	960.8458	1169.784	0	0.000557	0.004613	0	0.151032	0.183874	0	0.011991	0.099316	0	0	0	0	0	0.013651	0.113064	0	0	0	0	0	0	0.118661	3.729913	0	0.009078	0.011052	0
Marin	2027	OBUS	Aggregate	Aggregate	Gasoline	119.1987	5385.71	2384.928	0.299928	0.065207	0.316608	0.001088	0	0.00023	0.003	0.05586	0.001183	0	0.000251	0.012	0.13034	1656.75	362.8917	25.19672	0.008705	0.201649	0.028624	0.01694	0.00576	0.026226	0.040032	0.748493	0.146259	0.030314	0.361332	0.016948	0.033755	0.058415	1.092199	0.160135	0.030314	0.361332	0.016948	0.033755	0.852618	5.787928	3.067759	0.016395	0.003591	0.000249
Marin	2027	OBUS	Aggregate	Aggregate	Diesel	58.44735	4450.703	576.229	1.811294	13.29213	2.220389	0.011536	0.004349	0	0.003	0.05586	0.012057	0.004546	0	0.012	0.13034	1112.289	2766.933	0	0.000606	0.045415	0	0.174836	0.434923	0	0.013052	0.977779	0	0	0	0	0	0.014858	1.113127	0	0	0	0	0	0	0.142442	15.48748	0	0.010508	0.026141	0
Marin	2027	SBUS	Aggregate	Aggregate	Gasoline	45.08297	2106.417	180.3319	0.398949	0.92653	0.549047	0.001417	0	0.000644	0.002	0.3192	0.001541	0	0.0007	0.008	0.7448	801.3311	2404.581	45.46558	0.010123	2.458836	0.05635	0.022466	0.091555	0.052597	0.049498	10.64152	0.320967	0.052447	0.332825	0.009069	0.018068	0.072228	15.52808	0.351419	0.052447	0.332825	0.009069	0.018068	1.106203	82.24088	8.210346	0.00781	0.023795	0.00045
Marin	2027	SBUS	Aggregate	Aggregate	Diesel	151.2768	4768.63	1745.714	6.940538	45.72424	0.877792	0.041189	0.044121	0	0.003	0.3192	0.043052	0.046115	0	0.012	0.7448	1087.08	3584.035	0	0.004862	0.01197	0	0.170874	0.56336	0	0.104681	0.257717	0	0	0	0	0	0.119171	0.293391	0	0	0	0	0	0	0.290217	6.115246	0	0.010027	0.03386	0
Marin	2027	UBUS	Aggregate	Aggregate	Gasoline	35.86227	3322.722	143.4491	0.261218	0	0.700672	0.002201	0	0.000756	0.002959	0.055135	0.002393	0	0.000822	0.011836	0.128648	1875.729	0	70.2539	0.006725	0	0.092258	0.023007	0	0.063291	0.021995	0	0.388529	0.024084	0.144933	0.004309	0.007296	0.032094	0	0.425391	0.024084	0.144933	0.004309	0.007296	0.341126	0	7.198742	0.018562	0	0.000695
Marin	2027	UBUS	Aggregate	Aggregate	Diesel	49.58329	2255.598	198.3332	0.740514	0	0	0.005269	0	0	0.007324	0.034671	0.005507	0	0	0.029297	0.080899	1420.941	0	0	0.069495	0	0	0.223352	0	0	0.000993	0	0	0	0	0	0	0.070925	0	0	0	0	0	0	0.116702	0	0	0.013433	0	0
Marin	2027	UBUS	Aggregate	Aggregate	Natural Ga	20.03458	911.3946	80.13831	0.449054	0	0	0.002943	0	0	0.007324	0.034671	0.003076	0	0	0.029297	0.080899	1875.478	0	0	5.735455	0	0	0.382328	0	0	0.081948	0	0	0	0	0	0	5.853453	0	0	0	0	0	0	43.99535	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2028
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDL	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLEX	ROG_STRE	ROG_HOTS	TOG_RUNI	TOG_RESTI	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2028	HHDT	Aggregate	Aggregate	Gasoline	2.295364	249.7293	45.92565	3.248377	0	0.00403	0.000837	0	0.000273	0.005	0.02646	0.00091	0	0.000297	0.02	0.06174	1945.569	0	43.65681	0.07569	0	0.000171	0.137501	0	0.000196	0.339164	0	0.000894	0.05499	0.289876	0.015611	0.022508	0.494907	0	0.000979	0.05499	0.289876	0.015611	0.022508	30.54109	0	3.896592	0.019253	0	0.000432
Marin	2028	HHDT	Aggregate	Aggregate	Diesel	950.6699	94082.51	8495.905	2.791506	47.93489	2.556591	0.023087	0.026059	0	0.008859	0.026044	0.024131	0.027238	0	0.035435	0.06077	1306.416	8473.792	0	0.001152	0.172735	0	0.20535	1.331962	0	0.024799	3.718941	0	0	0	0.028232	4.233731	0	0	0	0	0.24287	53.91438	0	0.012342	0.080056	0
Marin	2028	HHDT	Aggregate	Aggregate	Natural Ga	65.79454	2683.851	256.5987	0.878985	19.12939	0	0.003857	0.017343	0	0.009	0.02646	0.004031	0.018127	0	0.036	0.06174	2963.938	3735.14	0	3.242977	1.199862	0	0.604218	0.761433	0	0.090915	0.028373	0	0	0	3.360489	1.237342	0	0	0	0	11.02335	21.97212	0	0	0	0
Marin	2028	LDA	Aggregate	Aggregate	Gasoline	140934.6	4431727	662214.1	0.024922	0	0.14841	0.001042	0	0.001423	0.002	0.01575	0.001133	0	0.001548	0.008	0.03675	224.2554	0	47.15697	0.001343	0	0.036715	0.003358	0	0.021585	0.004857	0	0.158826	0.08	0.196544	0.139393	0.140626	0.007088	0	0.173894	0.08	0.196544	0.139393	0.140626	0.444207	0	1.962578	0.002219	0	0.000467
Marin	2028	LDA	Aggregate	Aggregate	Diesel	2109.316	63186.34	9770.582	0.040356	0	0	0.003804	0	0	0.002	0.01575	0.003976	0	0	0.008	0.03675	190.1	0	0	0.000458	0	0	0.029881	0	0	0.009871	0	0	0	0	0.011237	0	0	0	0	0.194901	0	0	0.001797	0	0
Marin	2028	LDA	Aggregate	Aggregate	Electricity	6474.538	253419.2	31409.07	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0
Marin	2028	LDT1	Aggregate	Aggregate	Gasoline	16596.91	502693	76151.12	0.042947	0	0.188	0.001189	0	0.001638	0.002	0.01575	0.001293	0	0.001781	0.008	0.03675	266.4142	0	56.41375	0.002131	0	0.046497	0.004375	0	0.024042	0.008598	0	0.217858	0.132289	0.512177	0.257057	0.269524	0.012546	0	0.238528	0.132289	0.512177	0.257057	0.269524	0.574676	0	2.079877	0.002636	0	0.000558
Marin	2028	LDT1	Aggregate	Aggregate	Diesel	3.559985	68.73062	13.17956	0.356199	0	0	0.047919	0	0	0.002	0.01575	0.050086	0	0	0.008	0.03675	348.8945	0	0	0.003856	0	0	0.054841	0	0	0.083026	0	0	0	0	0.09452	0	0	0	0	0.648366	0	0	0.003298	0	0
Marin	2028	LDT1	Aggregate	Aggregate	Electricity	317.6863	13105.02	1567.517	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0
Marin	2028	LDT2	Aggregate	Aggregate	Gasoline	52671.45	1614231	243476.4	0.03857	0	0.204151	0.001081	0	0.001443	0.002	0.01575	0.001175	0	0.00157	0.008	0.03675	277.6978	0	60.04699	0.001974	0	0.051219	0.004081	0	0.025923	0.007423	0	0.230483	0.108735	0.412602	0.258869	0.23839	0.010832	0	0.25235	0.108735	0.412602	0.258869	0.23839	0.547193	0	2.537276	0.002748	0	0.000594
Marin	2028	LDT2	Aggregate	Aggregate	Diesel	609.1617	18989.75	2847.991	0.030643	0	0	0.004121	0	0	0.002	0.01575	0.004307	0	0	0.008	0.03675	265.9964	0	0	0.000641	0	0	0.041811	0	0	0.013803	0	0	0	0	0.015714	0	0	0	0	0	0.147359	0	0	0.002515	0	0
Marin	2028	LDT2	Aggregate	Aggregate	Electricity	1236.98	35065.58	6089.756	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0
Marin	2028	LHDT1	Aggregate	Aggregate	Gasoline	3362.593	112815.7	50097.63	0.147609	0.033023	0.432396	0.002178	0	0.000371	0.002	0.03276	0.002369	0	0.000403	0.008	0.07644	929.8766	114.1637	18.03671	0.006837	0.107826	0.018984	0.009311	0.002903	0.035944	0.031892	0.378408	0.095471	0.1148	0.934222	0.022899	0.038796	0.046536	0.552172	0.104529	0.1148	0.934222	0.022899	0.038796	0.641711	3.759125	1.673741	0.009202	0.00113	0.000178
Marin	2028	LHDT1	Aggregate	Aggregate	Diesel	2993.575	104851.2	37655.41	0.962805	1.638285	0	0.016235	0.026384	0	0.003	0.03276	0.016969	0.027577	0	0.012	0.07644	502.7749	124.7162	0	0.006725	0.005098	0	0.079029	0.019604	0	0.144795	0.10976	0	0	0	0.164839	0.124954	0	0	0	0	0.648039	0.909745	0	0.004753	0.001179	0
Marin	2028	LHDT2	Aggregate	Aggregate	Gasoline	481.2744	16299.12	7170.271	0.124289	0.032453	0.43301	0.001946	0	0.000295	0.002	0.03822	0.002116	0	0.000321	0.008	0.08918	1058.134	130.6123	20.22311	0.00423	0.107624	0.01746	0.00884	0.00286	0.0359	0.017191	0.372399	0.084405	0.085745	0.500078	0.018243	0.028642	0.025086	0.543404	0.092413	0.085745	0.500078	0.018243	0.028642	0.334017	3.772283	1.539847	0.010471	0.001293	0.0002
Marin	2028	LHDT2	Aggregate	Aggregate	Diesel	1079.472	38280.09	13578.4	0.63078	1.536186	0	0.018316	0.026815	0	0.003	0.03822	0.019144	0.028027	0	0.012	0.08918	558.6076	197.5228	0	0.0063	0.005098	0	0.087805	0.031048	0	0.135635	0.10976	0	0	0	0.154411	0.124954	0	0	0	0	0.599663	0.909745	0	0.005281	0.001867	0
Marin	2028	MCY	Aggregate	Aggregate	Gasoline	7434.969	50770.57	14869.94	1.176374	0	0.274558	0.002051	0	0.002846	0.001	0.00504	0.002197	0	0.003032	0.004	0.01176	217.4152	0	60.69642	0.336717	0	0.255491	0.067204	0	0.015419	2.271895	0	1.957015	0.68751	1.8224	0.919808	1.541954	2.831962	0	2.130473	0.68751	1.8224	0.919808	1.541954	19.60665	0	9.254762	0.002151	0	0.000601
Marin	2028	MDV	Aggregate	Aggregate	Gasoline	31681.46	950601.2	146222.1	0.042551	0	0.218126	0.001077	0	0.001469	0.002	0.01575	0.001172	0	0.001598	0.008	0.03675	334.5579	0	72.24431	0.002161	0	0.054469	0.004358	0	0.026317	0.008319	0	0.253138	0.115325	0.408385	0.291851	0.2665	0.012139	0	0.277154	0.115325	0.408385	0.291851	0.2665	0.564098	0	2.655556	0.003311	0	0.000715
Marin	2028	MDV	Aggregate	Aggregate	Diesel	1265.09	38420.31	5894.67	0.026479	0	0	0.003116	0	0	0.002	0.01575	0.003257	0	0	0.008	0.03675	343.789	0	0	0.000421	0	0	0.054039	0	0	0.009066	0	0	0	0	0.010321	0	0	0	0	0	0.199475	0	0	0.00325	0	0
Marin	2028	MDV	Aggregate	Aggregate	Electricity	777.116	22814.03	3871.02	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0
Marin	2028	MH	Aggregate	Aggregate	Gasoline	488.9877	4890.747	48.91833	0.209235	0	0.337878	0.001345	0	0.000298	0.003	0.05586	0.001463	0	0.000324	0.012	0.13034	1578.129	0	23.40627	0.006981	0	0.029382	0.016771	0	0.038021	0.02566	0	0.1146	0.05027	1.078634	0.021774	0.052136	0.037444	0	0.125472	0.05027	1.078634	0.021774	0.052136	0.531778	0	2.534099	0.015617	0	0.000232
Marin	2028	MH	Aggregate	Aggregate	Diesel	249.6963	2247.228	24.96963	3.420218	0	0	0.061668	0	0	0.004	0.05586	0.064456	0	0	0.016	0.13034	947.9061	0	0	0.004407	0	0	0.148998	0	0	0.094874	0	0	0	0	0.108008	0	0	0	0	0	0.317375	0	0	0.008961	0	0
Marin	2028	MHDT	Aggregate	Aggregate	Gasoline	368.6148	19297.63	7375.244	0.203238	0.089213	0.344807	0.001241	0	0.000384	0.003	0.05586	0.001349	0	0.000418	0.012	0.13034	1572.005	497.1564	35.00608	0.006142	0.275095	0.034949	0.013005	0.008207	0.030048	0.027609	1.023537	0.177935	0.065798	0.366757	0.014775	0.022821	0.040286	1.493543	0.194816	0.065798	0.366757	0.014775	0.022821	0.595167	15.24215	3.811079	0.015556	0.00492	0.000246
Marin	2028	MHDT	Aggregate	Aggregate	Diesel	1545.183	73915.16	13678.04	1.696194	7.506526	2.180356	0.00783	0.004336	0	0.003	0.05586	0.008184	0.004532	0	0.012	0.13034	946.2426	1153.188	0	0.000549	0.004582	0	0.148736	0.181265	0	0.011822	0.098652	0	0	0	0.013458	0.112308	0	0	0	0	0.119032	3.777364	0	0.00894	0.010895	0
Marin	2028	OBUS	Aggregate	Aggregate	Gasoline	118.0874	5234.522	2362.692	0.274933	0.06521	0.316237	0.001113	0	0.000235	0.003	0.05586	0.00121	0	0.000255	0.012	0.13034	1629.459	359.1472	24.90118	0.007996	0.201412	0.028311	0.015941	0.005759	0.026232	0.036507	0.748535	0.144543	0.030875	0.370681	0.017396	0.03452	0.053271	1.09226	0.158256	0.030875	0.370681	0.017396	0.03452	0.778956	5.788182	3.018707	0.016125	0.003554	0.000246
Marin	2028	OBUS	Aggregate	Aggregate	Diesel	61.38132	4581.794	604.1694	1.81223	13.17729	2.221252	0.011401	0.004309	0	0.003	0.05586	0.011916	0.004504	0	0.012	0.13034	1090.405	2709.844	0	0.000604	0.044941	0	0.171396	0.42595	0	0.013001	0.967562	0	0	0	0.014801	1.101496	0	0	0	0	0.142275	15.34005	0	0.010302	0.025601	0
Marin	2028	SBUS	Aggregate	Aggregate	Gasoline	47.78039	2211.758	191.1216	0.376726	0.92653	0.548338	0.001421	0	0.000646	0.002	0.3192	0.001545	0	0.000702	0.008	0.7448	793.5714	2383.301	44.9789	0.009507	2.457936	0.055858	0.02162	0.09194	0.05259	0.046391	10.64152	0.317731	0.055269	0.352583	0.009705	0.019214	0.067693	15.52808	0.347875	0.055269	0.352583	0.009705	0.019214	1.032767	82.24088	8.099179	0.007853	0.023585	0.000445
Marin	2028	SBUS	Aggregate	Aggregate	Diesel	150.6357	4756.754	1738.315	6.49157	43.78143	0.96241	0.039115	0.040533	0	0.003	0.3192	0.040884	0.042366	0	0.012	0.7448	1069.754	3537.38	0	0.004621	0.011953	0	0.16815	0.556027	0	0.099481	0.257351	0	0	0	0.113251	0.292974	0	0	0	0	0.281065	6.460097	0	0.010107	0.033419	0
Marin	2028	UBUS	Aggregate	Aggregate	Gasoline	35.87854	3324.228	143.5142	0.27631	0	0.705667	0.002207	0	0.000758	0.002959	0.055135	0.0024	0	0.000825	0.011836	0.128648	1857.63	0	69.51456	0.006709	0	0.093973	0.02397	0	0.063214	0.021969	0	0.395612	0.026086	0.153868	0.004653	0.007747	0.032058	0	0.433146	0.026086	0.153868	0.004653	0.007747	0.352802	0	7.142212	0.018383	0	0.000688
Marin	2028	UBUS	Aggregate	Aggregate	Diesel	49.60578	2256.62	198.4231	0.740514	0	0	0.005269	0	0	0.007324	0.034671	0.005507	0	0	0.029297	0.080899	1420.941	0	0	0.069495	0	0	0.223352	0	0	0.000993	0	0	0	0	0.070925	0	0	0	0	0	0.116702	0	0	0.013433	0	0
Marin	2028	UBUS	Aggregate	Aggregate	Natural Ga	20.04366	911.8079	80.17465	0.449054	0	0	0.002943	0	0	0.007324	0.034671	0.003076	0	0	0.029297	0.080899	1875.478	0	0	5.735455	0	0	0.382328	0	0	0.081948	0	0	0	0	0.853453	0	0	0	0	0	43.99535	0	0	0	0	0

Source: EMFAC2017 (v1.0.3) Emission Rates
Region Type: County
Region: Marin
Calendar Year: 2030
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX, RESTLOSS and DIURN

Region	Calendar Y	Vehicle Cat	Model Yea	Speed	Fuel	Population	VMT	Trips	NOx_RUNE	NOx_IDLE	NOx_STRE	PM2.5_RU	PM2.5_IDL	PM2.5_STR	PM2.5_PMB	PM2.5_PMT	PM10_RUP	PM10_IDLE	PM10_STR	PM10_PMB	PM10_PMT	CO2_RUNE	CO2_IDLEX	CO2_STRE	CH4_RUNE	CH4_IDLEX	CH4_STRE	N2O_RUNE	N2O_IDLEX	N2O_STRE	ROG_RUNI	ROG_IDLEX	ROG_STRE	ROG_HOTS	ROG_RUNI	ROG_REST	ROG_DIUR	TOG_RUNE	TOG_IDLEX	TOG_STRE	TOG_HOTS	TOG_RUNI	TOG_RESTI	TOG_DIUR	CO_RUNEX	CO_IDLEX	CO_STREX	SOx_RUNE	SOx_IDLEX	SOx_STREX
Marin	2030	HHDT	Aggregate	Aggregate	Gasoline	2.188396	232.2581	43.78544	3.15732	0	0.004206	0.000906	0	0.000294	0.005	0.02646	0.000986	0	0.000319	0.02	0.06174	1849.858	0	42.66901	0.073706	0	0.000181	0.135198	0	0.000205	0.328494	0	0.000942	0.057658	0.304966	0.016432	0.023242	0.479338	0	0.001031	0.057658	0.304966	0.016432	0.023242	30.28884	0	4.142088	0.018306	0	0.000422
Marin	2030	HHDT	Aggregate	Aggregate	Diesel	992.1764	97276.08	8830.389	2.663596	46.62899	2.582814	0.022233	0.021602	0	0.008862	0.026053	0.023238	0.022579	0	0.035447	0.060791	1234.74	8066.419	0	0.001105	0.170833	0	0.194084	1.267929	0	0.023801	3.677979	0	0	0	0	0.027095	4.187099	0	0	0	0	0	0	0.240197	53.65216	0	0.011665	0.076208	0
Marin	2030	HHDT	Aggregate	Aggregate	Natural Ga	65.05417	2653.498	253.7113	0.7777	18.87893	0	0.003637	0.01532	0	0	0.009	0.02646	0.003802	0.016012	0	0.036	0.06174	2894.331	3644.734	0	3.206631	1.192338	0	0.590028	0.743003	0	0.082406	0.026249	0	0	0	0	3.314292	1.227366	0	0	0	0	0	0	11.05836	22.00204	0	0	0	0
Marin	2030	LDA	Aggregate	Aggregate	Gasoline	144353.5	4455419	677803	0.022422	0	0.138397	0.000912	0	0.001266	0.002	0.01575	0.000992	0	0.001377	0.008	0.03675	215.4485	0	45.12003	0.001137	0	0.032406	0.003185	0	0.020615	0.003988	0	0.137321	0.071671	0.186702	0.124484	0.124412	0.416093	0	1.85101	0.002132	0	0.000446
Marin	2030	LDA	Aggregate	Aggregate	Diesel	2046.802	60847.29	9518.155	0.027878	0	0	0.002595	0	0	0.002	0.01575	0.002712	0	0	0.008	0.03675	181.4714	0	0	0.000359	0	0	0.028525	0	0	0.007724	0	0	0	0	0	0.008793	0	0	0	0	0	0	0.175472	0	0	0.001716	0	0
Marin	2030	LDA	Aggregate	Aggregate	Electricity	7248.325	275925.8	35024.95	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	2030	LDT1	Aggregate	Aggregate	Gasoline	16964.77	505434.2	77868.37	0.034441	0	0.169458	0.001034	0	0.001442	0.002	0.01575	0.001125	0	0.001569	0.008	0.03675	255.8676	0	53.9808	0.001684	0	0.039913	0.003897	0	0.022807	0.006544	0	0.181214	0.113416	0.436698	0.223169	0.227929	0.00955	0	0.198406	0.113416	0.436698	0.223169	0.227929	0.504751	0	1.961025	0.002532	0	0.000534
Marin	2030	LDT1	Aggregate	Aggregate	Diesel	2.624735	64.32571	10.84799	0.184627	0	0	0.02285	0	0	0.002	0.01575	0.023884	0	0	0.008	0.03675	331.9732	0	0	0.002018	0	0	0.052182	0	0	0.043449	0	0	0	0	0	0.049463	0	0	0	0	0	0	0.35984	0	0	0.003138	0	0
Marin	2030	LDT1	Aggregate	Aggregate	Electricity	386.6936	15334.93	1893.963	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	2030	LDT2	Aggregate	Aggregate	Gasoline	53235.98	1600239	245703.3	0.032758	0	0.18361	0.000966	0	0.001316	0.002	0.01575	0.001051	0	0.001432	0.008	0.03675	263.4211	0	56.94227	0.001685	0	0.045668	0.003723	0	0.024228	0.00618	0	0.202148	0.099916	0.382645	0.244419	0.223158	0.009017	0	0.221327	0.099916	0.382645	0.244419	0.223158	0.509041	0	2.42399	0.002607	0	0.000563
Marin	2030	LDT2	Aggregate	Aggregate	Diesel	606.7802	18342.98	2820.445	0.029564	0	0	0.004055	0	0	0.002	0.01575	0.004238	0	0	0.008	0.03675	253.6579	0	0	0.000636	0	0	0.039871	0	0	0.013693	0	0	0	0	0	0.015588	0	0	0	0	0	0	0.147163	0	0	0.002398	0	0
Marin	2030	LDT2	Aggregate	Aggregate	Electricity	1481.148	40311.82	7234.903	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	2030	LHDT1	Aggregate	Aggregate	Gasoline	3367.256	111828.8	50167.1	0.116739	0.031315	0.403843	0.002143	0	0.000353	0.002	0.03276	0.00233	0	0.000384	0.008	0.07644	904.7971	111.4932	17.56606	0.005146	0.10368	0.016724	0.007768	0.002829	0.034504	0.022557	0.358983	0.082047	0.10917	0.945582	0.021375	0.035323	0.032915	0.523827	0.089831	0.10917	0.945582	0.021375	0.035323	0.452465	3.76382	1.592073	0.008954	0.001103	0.000174
Marin	2030	LHDT1	Aggregate	Aggregate	Diesel	3078.897	105913.4	38728.65	0.740931	1.495352	0	0.014144	0.02624	0	0.003	0.03276	0.014783	0.027427	0	0.012	0.07644	488.5145	121.2988	0	0.006485	0.005098	0	0.076788	0.019066	0	0.139628	0.10976	0	0	0	0	0.158957	0.124954	0	0	0	0	0	0	0.629833	0.909745	0	0.004618	0.001147	0
Marin	2030	LHDT2	Aggregate	Aggregate	Gasoline	488.7851	16334.66	7282.17	0.09958	0.030821	0.403779	0.001947	0	0.00029	0.002	0.03822	0.002117	0	0.000316	0.008	0.08918	1030.699	127.5441	19.76115	0.003411	0.103512	0.015488	0.007501	0.002789	0.034445	0.01312	0.353769	0.073393	0.07701	0.443912	0.017214	0.026117	0.019145	0.516219	0.080356	0.07701	0.443912	0.017214	0.026117	0.260364	3.77544	1.489121	0.0102	0.001262	0.000196
Marin	2030	LHDT2	Aggregate	Aggregate	Diesel	1143.253	39392.31	14380.69	0.508134	1.412164	0	0.017873	0.026776	0	0.003	0.03822	0.018681	0.027986	0	0.012	0.08918	543.8639	192.5606	0	0.006196	0.005098	0	0.085488	0.030268	0	0.133406	0.10976	0	0	0	0	0.151874	0.124954	0	0	0	0	0	0	0.597046	0.909745	0	0.005141	0.00182	0
Marin	2030	MCY	Aggregate	Aggregate	Gasoline	7565.494	50707.28	15130.99	1.173097	0	0.274089	0.002072	0	0.002732	0.001	0.00504	0.002221	0	0.002917	0.004	0.01176	217.2106	0	60.17452	0.334663	0	0.253258	0.067051	0	0.015413	2.251166	0	1.936167	0.662478	1.634824	0.905554	1.531205	19.24408	0	9.305814	0.002149	0	0.000595
Marin	2030	MDV	Aggregate	Aggregate	Gasoline	32365.63	953331	149235.6	0.035379	0	0.193985	0.000962	0	0.001333	0.002	0.01575	0.001046	0	0.00145	0.008	0.03675	317.9376	0	68.53386	0.001807	0	0.047982	0.003911	0	0.024583	0.006762	0	0.218412	0.107637	0.38138	0.281367	0.255649	0.009867	0	0.239133	0.107637	0.38138	0.281367	0.255649	0.518076	0	2.503384	0.003146	0	0.000678
Marin	2030	MDV	Aggregate	Aggregate	Diesel	1281.143	37800.1	5939.904	0.021529	0	0	0.002579	0	0	0.002	0.01575	0.002696	0	0	0.008	0.03675	328.2328	0	0	0.000374	0	0	0.051594	0	0	0.008049	0	0	0	0	0	0.009163	0	0	0	0	0	0	0.190343	0	0	0.003103	0	0
Marin	2030	MDV	Aggregate	Aggregate	Electricity	968.205	27140.57	4777.078	0	0	0	0	0	0	0.002	0.01575	0	0	0	0.008	0.03675	0	0	0	0	0	0	0	0	0	0	0	0.004888	0	0.003309	0.012708	0	0	0	0	0	0	0	0	0	0	0	0	0
Marin	2030	MH	Aggregate	Aggregate	Gasoline	491.3825	4909.494	49.15791	0.169641	0	0.340385	0.001301	0	0.000287	0.003	0.05586	0.001415	0	0.000312	0.012	0.13034	1532.796	0	22.65887	0.005526	0	0.02871	0.015121	0	0.038872	0.018404	0	0.109379	0.040765	0.786992	0.019036	0.043617	0.026855	0	0.119757	0.040765	0.786992	0.019036	0.043617	0.333444	0	2.416476	0.015168	0	0.000224
Marin	2030	MH	Aggregate	Aggregate	Diesel	257.1775	2266.102	25.71775	3.242828	0	0	0.054149	0	0	0.004	0.05586	0.056597	0	0	0.016	0.13034	925.3229	0	0	0.004224	0	0	0.145448	0	0	0.090938	0	0	0	0	0	0.103527	0	0	0	0	0	0	0.298469	0	0	0.008748	0	0
Marin	2030	MHDT	Aggregate	Aggregate	Gasoline	382.3255	19801.41	7649.569	0.158832	0.089337	0.339222	0.001254	0	0.000382	0.003	0.05586	0.001364	0	0.000415	0.012	0.13034	1526.696	484.2502	33.76061	0.004836	0.276984	0.033723	0.011305	0.008327	0.030325	0.02073	1.025366	0.168285	0.060605	0.325732	0.014125	0.021148	0.03025	1.496212	0.184251	0.060605	0.325732	0.014125	0.021148	0.430115	15.26345	3.540298	0.015108	0.004792	0.000334
Marin	2030	MHDT	Aggregate	Aggregate	Diesel	1608.021	75158.44	14171.86	1.684022	7.050353	2.195334	0.007748	0.003455	0	0.003	0.05586	0.008098	0.003612	0	0.012	0.13034	919.2664	1122.903	0	0.000535	0.004548	0	0.144496	0.176505	0	0.011509	0.097925	0	0	0	0	0.013102	0.11148	0	0	0	0	0	0	0.119483	3.859444	0	0.008685	0.010609	0
Marin	2030	OBUS	Aggregate	Aggregate	Gasoline	116.0852	4986.418	2322.633	0.232601	0.06522	0.31474	0.001157	0	0.000242	0.003	0.05586	0.001258	0	0.000264	0.012	0.13034	1579.034	351.864	24.3268	0.006786	0.201004	0.027751	0.014251	0.005758	0.02621	0.030455	0.74868	0.14143	0.031695	0.383477	0.018133	0.035766	0.044439	1.092472	0.154848	0.031695	0.383477	0.018133	0.035766	0.645223	5.789064	2.923146	0.015626	0.003482	0.000241
Marin	2030	OBUS	Aggregate	Aggregate	Diesel	66.58459	4818.696	653.1198	1.834213	12.93398	2.222609	0.011309	0.004223	0	0.003	0.05586	0.011821	0.004414	0	0.012	0.13034	1057.728	2606.592	0	0.000604	0.043935	0	0.16626	0.40972	0	0.012997	0.945917	0	0	0	0	0.014796	1.076854	0	0	0	0	0	0	0.14288	15.02768	0	0.009993	0.024626	0
Marin	2030	SBUS	Aggregate	Aggregate	Gasoline	53.11862	2417.489	212.4745	0.334932	0.92653	0.558713	0.001426	0	0.000648	0.002	0.3192	0.001551	0	0.000705	0.008	0.7448	779.964	2346.049	44.13699	0.008326	2.456124	0.055426	0.02013	0.092276	0.053356	0.04041	10.64152	0.314259	0.060651	0.390736	0.010961	0.021472	0.058967	15.52808	0.344074	0.060651	0.390736	0.010961	0.021472	0.891563	82.24088	7.906274	0.007718	0.023216	0.000437
Marin	2030	SBUS	Aggregate	Aggregate	Diesel	147.9348	4689.516	1707.147	5.436889	39.20963	1.156977	0.03403	0.032854	0	0.003	0.3192	0.035569	0.03434	0	0.012	0.7448	1030.671	3427.55	0	0.003986	0.011983	0	0.162007	0.538763	0	0.085817	0.257985	0	0	0	0	0.097696	0.293696	0	0	0	0	0	0	0.255878	7.260174	0	0.009737	0.032382	0
Marin	2030	UBUS	Aggregate	Aggregate	Gasoline	35.91106	3327.242	143.6443	0.273244	0	0.674036	0.002207	0	0.000758	0.002959	0.055135	0.002401	0	0.000825	0.011836	0.128648	1785.665	0	66.85533	0.006699	0	0.091049	0.023694	0	0.061278	0.02191	0	0.381991	0.024899	0.127294	0.004583	0.007598	0.031971	0	0.418232	0.024899	0.127294	0.004583	0.007598	0.350053	0	7.029465	0.017671	0	0.000662
Marin	2030	UBUS	Aggregate	Aggregate	Diesel	49.65075	2258.666	198.603	0.740514	0	0	0.005269	0	0	0.007324	0.034671	0.005507	0	0	0.029297	0.080899	1420.941	0	0	0.069495	0	0	0.223352	0	0	0.000993	0	0	0	0	0	0.070925	0	0	0	0	0	0	0.116702	0	0	0.013433	0	0
Marin	2030	UBUS	Aggregate	Aggregate	Natural Ga	20.06183	912.6345	80.24734	0.449054	0	0	0.002943	0	0	0.007324	0.034671	0.003076	0	0	0.029297	0.080899	1875.478	0	0	5.735455	0	0	0.382328	0	0	0.081948	0	0	0	0	0	5.853453	0	0	0	0	0	0	43.99535	0	0	0	0	0

Attachment 4: Project Construction and Operational Emissions and Health Risk Calculations

Aldersly Retirement Community, San Rafael, CA - Construction Emissions

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Construction Area	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023	Phase 1	0.0331	PH1_DPM	66.2	0.02015	2.54E-03	4,550	**5.58E-07**
2024	Phase 1	0.0156	PH1_DPM	31.2	0.00950	1.20E-03	4,550	**2.63E-07**
2025	Phase 2	0.0236	PH2_DPM	47.2	0.01437	1.81E-03	1,508	1.20E-06
2025	Phase 3	0.0128	PH3_DPM	25.6	0.00779	9.82E-04	946	1.04E-06
								2.24E-06
2026	Phase 4	0.0301	PH4_DPM	60.2	0.01833	2.31E-03	1,575	**1.47E-06**
2027	Phase 4	0.0020	PH4_DPM	4.0	0.00122	1.53E-04	1,575	**9.74E-08**
Total		*0.1172*		*234.4*	*0.0714*	*0.0090*		

Operation Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Construction Area	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2023	Phase 1	PH1_FUG	0.0463	92.6	0.02819	3.55E-03	4,550	**7.81E-07**
2024	Phase 1	PH1_FUG	0.0003	0.6	0.00018	2.30E-05	4,550	**5.06E-09**
2025	Phase 2	PH2_FUG	0.0136	27.2	0.00828	1.04E-03	1,508	6.92E-07
2025	Phase 3	PH3_FUG	0.0137	27.4	0.00834	1.05E-03	946	1.11E-06
								1.80E-06
2026	Phase 4	PH4_FUG	0.0475	95.0	0.02892	3.64E-03	1,575	**2.31E-06**
2027	Phase 4	PH4_FUG	0.0001	0.2	0.00006	7.67E-06	1,575	**4.87E-09**
Total			*0.12150*	*243.0*	*0.0740*	*0.0093*		

Operation Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

DPM Emissions and Modeling Emission Rates - Mitigated

Construction Year	Construction Area	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2023	Phase 1	0.0051	PH1_DPM	10.2	0.00311	3.91E-04	4,550	**8.60E-08**
2024	Phase 1	0.0036	PH1_DPM	7.2	0.00219	2.76E-04	4,550	**6.07E-08**
2025	Phase 2	0.0004	PH2_DPM	0.9	0.00026	3.30E-05	1,508	2.19E-08
2025	Phase 3	0.0032	PH3_DPM	6.4	0.00195	2.45E-04	946	2.60E-07
								2.81E-07
2026	Phase 4	0.0020	PH4_DPM	4.0	0.00122	1.53E-04	1,575	**9.74E-08**
2027	Phase 4	0.0004	PH4_DPM	0.8	0.00024	3.07E-05	1,575	**1.95E-08**
Total		*0.0147*		*29.5*	*0.0090*	*0.0011*		

Operation Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

PM2.5 Fugitive Dust Emissions for Modeling - Mitigated

Construction Year	Construction Area	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2023	Phase 1	PH1_FUG	0.0107	21.4	0.00651	8.21E-04	4,550	**1.80E-07**
2024	Phase 1	PH1_FUG	0.0003	0.6	0.00018	2.30E-05	4,550	**5.06E-09**
2025	Phase 2	PH2_FUG	0.0031	6.2	0.00189	2.38E-04	1,508	1.58E-07
2025	Phase 3	PH3_FUG	0.0032	6.4	0.00195	2.45E-04	946	2.60E-07
								4.17E-07
2026	Phase 4	PH4_FUG	0.0001	0.2	0.00006	7.67E-06	1,575	**4.87E-09**
2027	Phase 4	PH4_FUG	0.0001	0.2	0.00006	7.67E-06	1,575	**4.87E-09**
Total			*0.01750*	*35.0*	*0.0107*	*0.0013*		

Operation Hours

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

Off-Site Residential Receptors

Aldersly Retirement Community-Construction DPM/PM2.5 Modeling Information
AERMOD Risk Modeling Parameters and Maximum Concentrations
Construction Impacts - Unmitigated Emissions
Off-Site Residential Receptors (1.5 meter receptor heights)

Receptor Information

Number of Receptors	223
Receptor Height =	1.5 meters
Receptor spacing =	at specific residential locations

Meteorological Conditions

Gnoss Field Airport CARB Hourly Data	2009-2013
Land Use Classification	Urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Emission Period	DPM Concentration ($\mu g/m^3$)
2023 - Construction	0.10516
2024 - Construction	0.04956
2025 - Construction	0.03703
2026 - Construction	0.05593
2027 - Construction	0.00371

Aldersly Retirement Community-Construction DPM/PM2.5 Modeling Information
AERMOD Risk Modeling Parameters and Maximum Concentrations
Construction Impacts - Mitigated Emissions
Off-Site Residential Receptors (1.5 meter receptor heights)

Receptor Information

Number of Receptors	223
Receptor Height =	1.5 meters
Receptor spacing =	at specific residential locations

Meteorological Conditions

Gnoss Field Airport CARB Hourly Data	2009-2013
Land Use Classification	Urban
Wind speed =	variable
Wind direction =	variable

MEI Maximum Concentrations

Emission Period	DPM Concentration ($\mu g/m^3$)
2023 - Construction	0.01621
2024 - Construction	0.01144
2025 - Construction	0.00413
2026 - Construction	0.00371
2027 - Construction	0.00074

Aldersly Retirement Community - Construction Impacts
Maximum DPM Cancer Risk Calculations From Construction & Operation- Unmitigated
Off-Site Residential Receptors (1.5 meter receptor heights)
Residential Exposure (30-year)

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air (ug/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

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> Parameter	3rd Trimester	0 - <2	2 - 16	16 - 70
ASF	10	10	3	1
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

				Maximum - Exposure Information			
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	Annual DPM Conc. (ug/m3)	DPM Cancer Risk (per million)	Maximum Total PM2.5
0	2023	0.25	-0.25 - 0*	10	0.1052	1.43	
1	2023	1	1	10	0.1052	17.27	0.44
2	2024	1	2	10	0.0496	8.14	0.05
3	2025	1	3	3	0.0870	0.96	0.24
4	2026	1	4	3	0.0559	1.45	1.12
5	2027	1	5	3	0.0037	0.10	0.02
6	2028	1	6	3	0.0000	0.00	0.00
7	2029	1	7	3	0.0000	0.00	0.00
8	2030	1	8	3	0.0000	0.00	0.00
9	2031	1	9	3	0.0000	0.00	0.00
10	2032	1	10	3	0.0000	0.00	0.00
11	2033	1	11	3	0.0000	0.00	0.00
12	2034	1	12	3	0.0000	0.00	0.00
13	2035	1	13	3	0.0000	0.00	0.00
14	2036	1	14	3	0.0000	0.00	0.00
15	2037	1	15	3	0.0000	0.00	0.00
16	2038	1	16	3	0.0000	0.00	0.00
17	2039	1	17	1	0.0000	0.000	0.00
18	2040	1	18	1	0.0000	0.000	0.00
19	2041	1	19	1	0.0000	0.000	0.00
20	2042	1	20	1	0.0000	0.000	0.00
21	2043	1	22	1	0.0000	0.000	0.00
22	2044	1	23	1	0.0000	0.000	0.00
23	2045	1	24	1	0.0000	0.000	0.00
24	2046	1	25	1	0.0000	0.000	0.00
25	2047	1	26	1	0.0000	0.000	0.00
26	2048	1	27	1	0.0000	0.000	0.00
27	2049	1	28	1	0.0000	0.000	0.00
28	2050	1	29	1	0.0000	0.000	0.00
29	2051	1	29	1	0.0000	0.000	0.00
30	2052	1	29	1	0.0000	0.000	0.00
Total Increased Cancer Risk:						29.34	

* Third trimester of pregnancy

Aldersly Retirement Community - Construction Impacts - Mitigated
Maximum DPM Cancer Risk Calculations From Construction & Operation- Mitigated
Off-Site Residential Receptors (1.5 meter receptor heights)
Residential Exposure (30-year)

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air (ug/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

Cancer Potency Factors $(mg/kg\text{-}day)^{-1}$

TAC	CPF
DPM	1.10E+00

	Infant/Child			Adult
Age --> Parameter	3rd Trimester	0 - <2	2 - 16	16 - 70
ASF	10	10	3	1
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

				Maximum - Exposure Information			
Exposure Year	Year	Exposure Duration (years)	Age	Age Sensitivity Factor	Annual DPM Conc. (ug/m3)	DPM Cancer Risk (per million)	Maximum Total PM2.5
0	2023	0.25	-0.25 - 0*	10	0.0162	0.22	
1	2023	1	1	10	0.0162	2.66	0.11
2	2024	1	2	10	0.0114	1.88	0.08
3	2025	1	3	3	0.0041	0.11	0.08
4	2026	1	4	3	0.0037	0.10	0.02
5	2027	1	5	3	0.0007	0.02	0.01
6	2028	1	6	3	0.0000	0.00	0.00
7	2029	1	7	3	0.0000	0.00	0.00
8	2030	1	8	3	0.0000	0.00	0.00
9	2031	1	9	3	0.0000	0.00	0.00
10	2032	1	10	3	0.0000	0.00	0.00
11	2033	1	11	3	0.0000	0.00	0.00
12	2034	1	12	3	0.0000	0.00	0.00
13	2035	1	13	3	0.0000	0.00	0.00
14	2036	1	14	3	0.0000	0.00	0.00
15	2037	1	15	3	0.0000	0.00	0.00
16	2038	1	16	3	0.0000	0.00	0.00
17	2039	1	17	1	0.0000	0.000	0.00
18	2040	1	18	1	0.0000	0.000	0.00
19	2041	1	19	1	0.0000	0.000	0.00
20	2042	1	20	1	0.0000	0.000	0.00
21	2043	1	22	1	0.0000	0.000	0.00
22	2044	1	23	1	0.0000	0.000	0.00
23	2045	1	24	1	0.0000	0.000	0.00
24	2046	1	25	1	0.0000	0.000	0.00
25	2047	1	26	1	0.0000	0.000	0.00
26	2048	1	27	1	0.0000	0.000	0.00
27	2049	1	28	1	0.0000	0.000	0.00
28	2050	1	29	1	0.0000	0.000	0.00
29	2051	1	29	1	0.0000	0.000	0.00
30	2052	1	29	1	0.0000	0.000	0.00
Total Increased Cancer Risk:						4.98	

* Third trimester of pregnancy

Aldersly Retirement Community, San Rafael, CA - Cancer Risks from Project Operation
Project Emergency Generator
Impacts at Off-Site Receptors- 1.5m MEI Receptor Heights
Impact at Project MEI (28-year Exposure)

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

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

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

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

	Infant/Child			Adult
Age --> / Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
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 Year	Exposure Duration (years)	Age	Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Cancer Risk (per million)		Hazard Index	Total PM2.5
0	0.25	-0.25 - 0*	2023	0.0000	10	0.00		0.0000	0.0000
1	1	0 - 1	2023	0.0000	10	0.00		0.0000	0.0000
2	1	1 - 2	2024	0.0000	10	0.00		0.0000	0.0000
3	1	2 - 3	2025	0.0008	3	0.02		0.0002	0.0008
4	1	3 - 4	2026	0.0008	3	0.02		0.0002	0.0008
5	1	4 - 5	2027	0.0008	3	0.02		0.0002	0.0008
6	1	5 - 6	2028	0.0008	3	0.02		0.0002	0.0008
7	1	6 - 7	2029	0.0008	3	0.02		0.0002	0.0008
8	1	7 - 8	2030	0.0008	3	0.02		0.0002	0.0008
9	1	8 - 9	2031	0.0008	3	0.02		0.0002	0.0008
10	1	9 - 10	2032	0.0008	3	0.02		0.0002	0.0008
11	1	10 - 11	2033	0.0008	3	0.02		0.0002	0.0008
12	1	11 - 12	2034	0.0008	3	0.02		0.0002	0.0008
13	1	12 - 13	2035	0.0008	3	0.02		0.0002	0.0008
14	1	13 - 14	2036	0.0008	3	0.02		0.0002	0.0008
15	1	14 - 15	2037	0.0008	3	0.02		0.0002	0.0008
16	1	15 - 16	2038	0.0008	3	0.02		0.0002	0.0008
17	1	16-17	2039	0.0008	1	0.00		0.0002	0.0008
18	1	17-18	2040	0.0008	1	0.00		0.0002	0.0008
19	1	18-19	2041	0.0008	1	0.00		0.0002	0.0008
20	1	19-20	2042	0.0008	1	0.00		0.0002	0.0008
21	1	20-21	2043	0.0008	1	0.00		0.0002	0.0008
22	1	21-22	2044	0.0008	1	0.00		0.0002	0.0008
23	1	22-23	2045	0.0008	1	0.00		0.0002	0.0008
24	1	23-24	2046	0.0008	1	0.00		0.0002	0.0008
25	1	24-25	2047	0.0008	1	0.00		0.0002	0.0008
26	1	25-26	2048	0.0008	1	0.00		0.0002	0.0008
27	1	26-27	2049	0.0008	1	0.00		0.0002	0.0008
28	1	27-28	2050	0.0008	1	0.00		0.0002	0.0008
29	1	28-29	2051	0.0008	1	0.00		0.0002	0.0008
30	1	29-30	2052	0.0008	1	0.00		0.0002	0.0008
Total Increased Cancer Risk						**0.31**	**Max**	**0.0002**	**0.001**

* Third trimester of pregnancy

Daycare Receptors

Aldersly Retirement Community, San Rafael - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Concentrations From Project Construction
Daycare (Canal Child Care Center) - 1.0 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	0 - <2	2 - <16	16 - 30
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	2023	0.0285	3	1.79
2	1	2024	0.0134	3	0.84
3	1	2025	0.0183	3	0.00
4	1	2026	0.0085	3	0.00
Total					2.6

	Maximum Hazard Index	Maximum Total PM2.5
	0.006	0.0743
	0.003	0.0137
	0.004	0.033
	0.002	0.023
Max	0.01	0.07

* Children assumed to be 3 years of age or older

Aldersly Retirement Community, San Rafael, CA
Maximum DPM Cancer Risk Calculations From Project Generator
Canal Child Care Center - 1.0 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x DAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air (ug/m^3)
DAF = Daycare Adjustment Factor (unitless) for exposures different than 8 hours/day = (DHR/8 hrs)
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
DHR = Daycare operation hours (7:30 am - 6:00 pm)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	0 - <2	2 - <16	16 - 30
Parameter			
ASF =	10	3	1
DPM CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
DHR =	0	11	11
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
DAF =	0.00	1.38	1.38

* 95th percentile 8-hr breathing rates for moderate intensity activities

Operation Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)		Hazard Index	PM2.5
1	1	2023	0.0000	3	0.00		0.0000	0.0000
2	1	2024	0.0000	3	0.00		0.0000	0.0000
3	1	2025	0.0007	3	0.02		0.0001	0.0007
4	1	2026	0.0007	3	0.02		0.0001	0.0007
Total Increased Cancer Risk					0.03	Max	0.0001	0.001

* Children assumed to be 3 years of age or older

San Rafael High School Receptors

Aldersly Retirement Community, San Rafael - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Concentratons From Project Construction
San Rafael High School (Grades 9-12) - 1.5 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	0 - <2	2 - <16	16 - 30
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	230
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)	Maximum: Hazard Index	Maximum: Total PM2.5
1	1	2023	0.0053	3	0.33	**0.001**	**0.0129**
2	1	2024	0.0025	3	0.16	0.000	0.0025
3	1	2025	0.0053	3	0.00	0.001	0.009
4	1	2026	0.0029	3	0.00	0.001	0.008
Total					**0.5**	**0.001**	**0.01**

* Children assumed to be 13 years of age or older

Aldersly Retirement Community, San Rafael, CA
Maximum DPM Cancer Risk Calculations From Project Generator
San Rafael High School (Grades 9-12) - 1.5 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air $(\mu g/m^3)$
SAF = Student Adjustment Factor (unitless)
= (24 hrs/24 hrs) x (7 days/7 days) = 1.0
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	0 - <2	2 - <16	16 - 30
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	0	180	180
AT =	70	70	70
SAF =	1.00	1.00	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction and Operation Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)		Hazard Index	Total PM2.5
1	1	2024	0.0000	3	0.000		0.0000	0.0000
2	1	2025	0.0000	3	0.000		0.0000	0.0000
3	1	2026	0.0004	3	0.004		0.0001	0.0004
4	1	2027	0.0004	3	0.004		0.0001	0.0004
Total Increased Cancer Risk					**0.01**	**Max**	**0.0001**	**0.0004**

* Children assumed to be 3 years of age or older

Attachment 5: Community Risk Modeling Information and Calculations

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Marin
Roadway Direction	North-South
Side of the Roadway	East
Distance from Roadway	860 feet
	MEIs
Annual Average Daily Traffic (ADT)	21,752

Results

Marin County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.023 ($\mu g/m^3$)

Cancer Risk

1.46 (per million)

Irwin Street

City of San Rafael ADT Volumes

Data for Marin County based on meteorological data collected from Mt. Tamalpias in 2005

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

1.00

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Marin
Roadway Direction	East-West
Side of the Roadway	North
Distance from Roadway	850 feet
	MEIs
Annual Average Daily Traffic (ADT)	22,240

Results

Marin County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.013 ($\mu g/m^3$)

Cancer Risk

0.88 (per million)

3rd Street

City of San Rafael ADT Volumes

Data for Marin County based on meteorological data collected from Mt. Tamalpias in 2005

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.60

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Marin
Roadway Direction	North-South
Side of the Roadway	East
Distance from Roadway	880 feet
Annual Average Daily Traffic (ADT)	21,752

Results

Marin County

NORTH-SOUTH DIRECTIONAL ROADWAY

PM2.5 annual average

0.022 ($\mu g/m^3$)

Cancer Risk

1.42 (per million)

Irwin Street

City of San Rafael ADT Volumes

Data for Marin County based on meteorological data collected from Mt. Tamalpias in 2005

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.98

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

Bay Area Air Quality Management District

Roadway Screening Analysis Calculator

County specific tables containing estimates of risk and hazard impacts from roadways in the Bay Area.

INSTRUCTIONS:

Input the site-specific characteristics of your project by using the drop down menu in the "Search Parameter" box. We recommend that this analysis be used for roadways with 10,000 AADT and above.

• County: Select the County where the project is located. The calculator is only applicable for projects within the nine Bay Area counties.

• Roadway Direction: Select the orientation that best matches the roadway. If the roadway orientation is neither clearly north-south nor east-west, use the highest values predicted from either orientation.

• Side of the Roadway: Identify on which side of the roadway the project is located.

• Distance from Roadway: Enter the distance in feet from the nearest edge of the roadway to the project site. The calculator estimates values for distances greater than 10 feet and less than 1000 feet. For distances greater than 1000 feet, the user can choose to extrapolate values using a distribution curve or apply 1000 feet values for greater distances.

• Annual Average Daily Traffic (ADT): Enter the annual average daily traffic on the roadway. These data may be collected from the city or the county (if the area is unincorporated).

When the user has completed the data entries, the screening level PM2.5 annual average concentration and the cancer risk results will appear in the Results Box on the right. Please note that the roadway tool is not applicable for California State Highways and the District refers the user to the Highway Screening Analysis Tool at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

Notes and References listed below the Search Boxes

Search Parameters

County	Marin
Roadway Direction	East-West
Side of the Roadway	North
Distance from Roadway	690 feet
Annual Average Daily Traffic (ADT)	22,240

Results

Marin County

EAST-WEST DIRECTIONAL ROADWAY

PM2.5 annual average

0.017 ($\mu g/m^3$)

Cancer Risk

1.09 (per million)

3rd Street

City of San Rafael ADT Volumes

Data for Marin County based on meteorological data collected from Mt. Tamalpias in 2005

Adjusted for 2015 OEHHA and EMFAC2014 for 2018

0.75

(per million)

Note that EMFAC2014 predicts DSL PM2.5 aggragate rates in 2018 that are 46% of EMFAC2011 for 2014. TOG gasoline rates are 56% of EMFAC2011 year 2014 rates. This is for light- and medium-duty vehciles traveling at 30 mph for Bay Area

Notes and References:

1. Emissions were developed using EMFAC2011 for fleet mix in 2014 assuming 10,000 AADT and includes impacts from diesel and gasoline vehicle exhaust, brake and tire wear, and resuspended dust.
2. Roadways were modeled using ~~CALINE4~~ Cal3qhcr air dispersion model assuming a source length of one kilometer. Meteorological data used to estimate the screening values are noted at the bottom of the "Results" box.
3. Cancer risks were estimated for 70 year lifetime exposure starting in 2014 that includes sensitivity values for early life exposures and OEHHA toxicity values adopted in 2013.

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	**9/24/2020**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	Aldersly Retirement Community
Address	364 Mission Ave
City	San Rafael
County	Marin
Type (residential, commercial, mixed use, industrial, etc.)	Senior Living
Project Size (# of units or building square feet)	69du
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. ue 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 Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

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	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
910	100099	San Rafael Valero	475 3rd St	35.67	0.16	--		Gas Dispensing Facility		2018 Dataset	0.02	0.6	0.003	#VALUE!
760	110977	San Rafael Chevron	440 3rd St	45.84	0.20	--		Gas Dispensing Facility		2018 Dataset	0.02	1.1	0.005	#VALUE!

Construction MEI

Project Site

Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
800	100099	0.02	0.7	0.003	#VALUE!
665	110977	0.03	1.3	0.01	#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
    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
    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.

Date last updated:
03/13/2018

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

429 E. Cotati Avenue
Cotati, CA 94931

Tel: 707-794-0400 *Fax: 707-794-0405*
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M E M O

Date: February 2, 2021

To: Alice Lin
Assistant Vice President
Greenbrier Development
3232 McKinney, Ste. 1160
Dallas, TX 75204

From: Casey Divine &
James Reyff
Illingworth & Rodkin, Inc.
429 East Cotati Avenue
Cotati, CA 94931

Via E-mail: **alin@greenbrierdevelopment.com**

SUBJECT: **Aldersly Retirement Community, San Rafael, CA –** Job# 20-145
Response to City's Comments on Air Quality Assessment

The purpose of this memo is to address the air quality comments raised by the City of San Rafael in their December 15, 2020 comment letter for the Aldersly Retirement Community project. Illingworth & Rodkin, Inc. (I&R) completed an evaluation of the air quality and greenhouse gas (GHG) impacts for the project in October 2020. [1] This assessment evaluated the air quality and GHG impacts in terms of emissions from construction and operation of the project and addressed health risks associated with the project. The City's comment was as follows:

1. Air Quality and GHG Assessment (Illingworth & Rodkin, Inc., October 22, 2020) *Construction Inputs* (Page 10). The construction schedule assumed that the earliest possible start date would be January 2023 and the project would be built out over a period of approximate 4 years and 3 months (954 construction workdays). The first full year of operation was assumed to be 2028. While these assumptions are not unreasonable, they differ somewhat from the phasing plan presented in other documents. Please check to make sure you are comfortable with these assumptions. For example, if start date of Phase 1 construction was June 2022 instead of January 2023, would that change emission rates or conclusions of assessment?

[1] Illingworth & Rodkin, Inc., *Aldersly Retirement Community Air Quality & Greenhouse Gas Assessment*, October 22, 2020.

I&R's response to the City's comment is as follows:

1. I&R used the construction data provided by the applicant for our air quality and GHG analysis and assumed the construction information was consistent with the submitted phasing plan. Regarding the City's questions of if a 6 month earlier construction start date would change emission rates or conclusions of assessment, unmitigated emissions could slightly increase due to the earlier start date because the CalEEMod model's unmitigated equipment and trucks assume less clean equipment for earlier years. However, either way the project would require mitigation and the mitigation of Tier 4 engines for construction equipment and compressed natural gas (CNG) powered aerial lifts would not change the mitigated emissions. Therefore, the conclusions of the assessment and mitigation requirements would not change.

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M E M O

Date: May 3, 2022

To: Peter Lin
Greenbrier Development
3232 McKinney, Ste. 1160
Dallas, TX 75204

From: Casey Divine &
James Reyff
Illingworth & Rodkin, Inc.
429 East Cotati Avenue
Cotati, CA 94931

Via E-mail: PLin@greenbrierdevelopment.com

SUBJECT: **Aldersly Retirement Community, San Rafael, CA –** Job# 20-145
Response to City's Comments on Air Quality Assessment

The purpose of this memo is to address the air quality comments raised by the City of San Rafael's Planning Consultant, Jayni Allsep, in an April 13, 2022 email for the Aldersly Retirement Community project. Illingworth & Rodkin, Inc. (I&R) completed an evaluation of the air quality and greenhouse gas (GHG) impacts for the project in October 2020.[1] This assessment evaluated the air quality and GHG impacts in terms of emissions from construction and operation of the project and addressed health risks associated with the project.

The City's comments were concerning two items:

1. The construction phasing plans have changed since the October 2020 air quality and GHG report was completed. Would there be any changes to the conclusions of the report based on the changes to the phasing plan?

2. Edna's Daycare located at 408 Belle Avenue was not identified in the October 2020 air quality and GHG report, which may be closer to the project site than the Canal Child Care Center. Can the report identify and take into consideration Edna's Daycare, especially with regard to construction-related effects?

[1] Illingworth & Rodkin, Inc., *Aldersly Retirement Community Air Quality & Greenhouse Gas Assessment*, October 22, 2020.

I&R's response to these comments are as follows:

1. Based on the updated phasing plans provided by the applicant,[2] there now appears to be similar or less construction activity as compared to the original phasing plans. The updated plans show three phases of construction instead of four phases, and overall, there would be similar or less construction / renovation of project buildings. This would mean there would be similar or less construction activities and construction emissions. Therefore, the construction mitigation measures in the original report would be sufficient to mitigate impacts from the updated phasing plan construction.

2. Although not identified as a daycare receptor, the October 2020 air quality and GHG report did include a receptor at the 408 Belle Avenue location analyzed as a residential receptor. This receptor did not have project impacts greater than the maximally exposure individual (MEI) as identified in the report. To address the City's comment, I&R used the exposure levels from the project's original construction modeling at the receptor and analyzed the project's impact as a daycare receptor (see Figure 1). Project construction health risk impacts at the Edna's Daycare receptor were conducted in the same manner as described in the report and are shown in Table 1. The project impacts at Edna's Daycare would be greater than the other childcare / school receptors identified in the original report but would not exceed significance thresholds. The project impacts would also not be greater than impacts at the MEI, which is a residence. The emissions and health risk calculations at Edna's Daycare for the project construction are included in *Attachment 1*.

Table 1. Construction and Operation Risk Impacts at Edna's Daycare

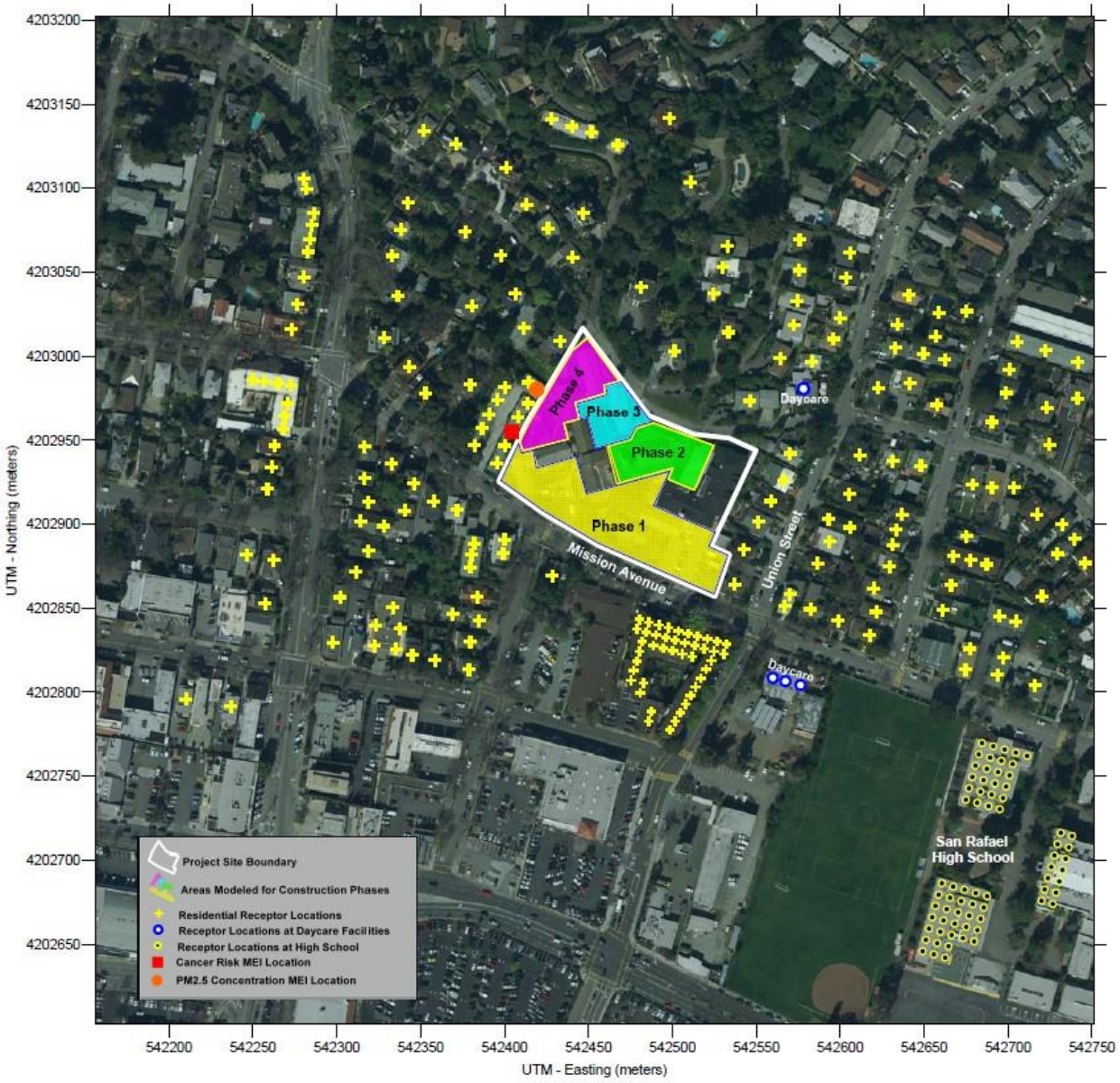
Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Edna's Daycare Receptor				
Project Construction (Years 0-4)	Unmitigated	5.96 (child)	0.08	0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceeds Threshold?	Unmitigated	*No*	*No*	*No*

Project Generator

The proposed project would no longer include an additional new emergency generator, which was assessed in the in the original air quality report. The existing emergency generator will remain for the existing buildings. Therefore, the operational emissions and health risks associated with the project generator would no longer affect the nearby sensitive receptors. Mitigation measures identified in the report would not change, as they were pertaining to construction impacts and would not be affected by the removal of the project generator from the projected equipment list.

[2] Perkins Eastman, *Aldersly Retirement Community Preliminary Construction Staging & Management Plan and Phasing Diagram*, March 22, 2022. Attachments: Site Logistics - 2022.04.27 - All phases.pdf, 22-0322 Phasing Diagram.pdf.

Figure 1. Locations of Project Construction Site, Off-Site Sensitive Receptors and Maximum TAC Impact Locations (MEIs)



Attachment 1: Project Construction Health Risk Calculations

Aldersly Retirement Community, San Rafael - Construction Impacts
Maximum DPM Cancer Risk and PM2.5 Concentratons From Project Construction
Daycare (Edna's Daycare) - 1.0 meters - Child Exposure

Student Cancer Risk (per million) = CPF x Inhalation Dose x ASF x ED/AT 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)

Inhalation Dose = C_{air} x SAF x 8-Hr BR x A x (EF/365) x 10^{-6}

Where: C_{air} = concentration in air ($\mu g/m^3$)
SAF = Student Adjustment Factor (unitless)
= (24 hrs/9 hrs) x (7 days/5 days) = 3.73
8-Hr BR = Eight-hour breathing rate (L/kg body weight-per 8 hrs)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

Values

	Infant	School Child	Adult
Age -->	**0 - <2**	**2 - <16**	**16 - 30**
Parameter			
ASF =	10	3	1
CPF =	1.10E+00	1.10E+00	1.10E+00
8-Hr BR* =	1200	520	240
A =	1	1	1
EF =	250	250	250
AT =	70	70	70
SAF =	1.00	3.73	1.00

* 95th percentile 8-hr breathing rates for moderate intensity activities

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)		Maximum Hazard Index	Maximum Total PM2.5
1	1	2023	0.0229	3	1.43		0.005	0.06
2	1	2024	0.0108	3	0.67		0.002	0.01
3	1	2025	0.0465	3	2.91		0.009	0.08
4	1	2026	0.0151	3	0.94		0.003	0.04
Total					**5.96**	**Max**	**0.01**	**0.08**

* Children assumed to be 3 years of age or older