Appendix A:
Air Quality and Greenhouse Gas Analysis

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Appendix A - Air Quality, Greenhouse Gas Emissions, and Energy Supporting Information

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BISHOP RANCH 6
AIR QUALITY & GREENHOUSE GAS ASSESSMENT

San Ramon, California

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Introduction

The purpose of this report is to address air quality, community health risk, and greenhouse gas (GHG) impacts associated with the proposed Bishop Ranch 6 project located at 2400 – 2440 Camino Ramon in San Ramon, California. The air quality impacts and GHG emissions would be associated with the demolition of the existing land uses, construction of the 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 mode. In addition, the potential project health risk impact (including 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 +/-31.05-acre Bishop Ranch 6 site is currently developed with three office buildings totaling approximately 500,000 square feet (sf) and associated parking lots. The project proposes to demolish the existing uses and construct 114 three-story detached three- and four-bedroom "detached rowhomes", 154 two- and three-story detached three- and four-bedroom "courtyard homes," and 136 three-story attached three- and four-bedroom townhomes, for a total of 404 units. All units have a two-car covered garage and there would be 160 guest street parking spaces throughout the site. In addition, there will be a two-acre public park along the Camino Ramon frontage.[2]

The project is within the North Camino Ramon Specific Plan (NCRSP) Area. The 295-acre Plan Area is for a mixed-use district with a blend of retail, service retail and workforce housing, in proximity to new and existing jobs. The NCRSP Draft Environmental Impact Report (EIR)[3] found that the NCRSP would have a less than significant impact with regards to GHG emissions generation, climate change impacts, and odor generation, and with the inclusion of Mitigation Measure AIR-4 the NCRSP would have a less than significant impact with regards to an increase in criteria pollutants and off-site and on-site community risk impacts. This analysis was conducted so that the proposed project is in accordance with Mitigation Measure AIR-4, which states the following:

MM AIR-4 Prior to the final discretionary approval for any residential use that is proposed pursuant to the North Camino Ramon Specific Plan, the City of San Ramon shall determine the area of impact from toxic emissions from Interstate 680 and

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[1] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.
[2] The project land uses have been updated since this analysis. The square footages of the residential uses have changed and the number of guest parking spaces increased from 115 to 160. These project modifications would result in similar or barely measurable increased emissions and risks, and would not change the project's impacts, as discussed further in the report.
[3] Michael Brandman Associates, *North Camino Ramon Specific Plan Draft Environmental Impact Report*, February 10, 2012, Web:
https://www.sanramon.ca.gov/UserFiles/Servers/Server_10826046/File/Our%20City/Departments/Community%20Development/Planning/Specific%20Plans/North%20Camino%20Ramon%20Specific%20Plan/Draft%20EIR%20North%20Camino%20Ramon%20Specific%20Plan.pdf

existing stationary sources that may potentially exceed the BAAQMD significance criteria for cancer or non-cancer Toxic Air Contaminant exposure. Emissions from Interstate 680 shall be estimated using the BAAQMD roadway screening tool. Impacts from stationary sources near the project shall be compared with the distance threshold recommended by California Air Resources Board's Land Use Handbook distance guidance. If residential projects are proposed within an area exceeding the threshold, the City shall require a Health Risk Assessment to determine the refined impact level and to identify design features such as high efficiency ventilation and cooling systems that shall be installed to reduce the impact to less than significant levels. The City shall prohibit the construction of any sensitive receptor land use within an area of impact of Interstate 680 or stationary source as described above unless the risk is less than the BAAQMD's significance criteria for TACs exposure.

Setting

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

<u>Air Pollutants of Concern</u>

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

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

<u>Toxic Air Contaminants</u>

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.[4] See *Attachment 1* for a detailed description of the community risk modeling methodology used in this assessment.

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, elementary schools, and parks. For cancer risk assessments, children are the most sensitive receptors, since they are more susceptible to cancer causing TACs. Residential locations are assumed to include infants and small children. The closest sensitive receptors to the project site are in the multi-family residences approximately 700 feet northeast of the project site. In addition, there is a middle school (Iron Horse Middle School, children 2 years and older) approximately 1,000 feet southeast of the project site. The project would also introduce new sensitive receptors (residents) to the area.

The City Center Mixed-Use Master Plan proposes to construction 4,500 residential units over 25 years south of the proposed Bishop Ranch 6 site. However, the City Center building complexes within 1,000 feet of the proposed Bishop Branch 6 site would not be constructed or operational until Phase 3 and 4 of the City Center Plan buildout, which would be after the construction of this project is completed. Therefore, the construction community risk from this project on the future residences of City Center were not included in this assessment.

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural,

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[4] 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.

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.[5]

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[6]. In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the Federal on-road and non-road 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

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

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

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*[7] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of their *CEQA Guidelines*. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modify procedures for assessing impacts related to risk and hazard impacts.

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

City of San Ramon General Plan 2035

Adopted April 28, 2015, the *San Ramon 2035 General Plan* includes goals, policies, and actions to improve air quality issues facing the City of San Ramon and to reduce the exposure of the City's population to air pollution.[8] The following goals, policies, and actions are applicable to the proposed project:

Guiding Policies- Regional Coordination

12.4-G-1 Improve and protect San Ramon's air quality and promote improvements in sub-regional air quality.

Implementing Policies

12.4-I-3 Analyze the air quality and climate change impacts of discretionary projects using applicable regulatory guidance; for example, the BAAQMD's CEQA Air Quality Guidelines.

Guiding Policies – Hazardous Emissions and Public Health

12.6-G-1 Minimize exposure of the public to hazardous air pollutant emissions, particulates, and noxious odors from freeways, major arterial roadways, commercial and industrial uses with substantial truck trips, and other uses that produce toxic emissions through the use and handling of fuels and solvents.

Implementing Policies

12.6-I-1 Locate sources of hazardous emissions at appropriate distances from existing and planned sensitive land uses in order to minimize or avoid potential health risks to people that might result from hazardous air pollutant emissions. Locate residential development projects and projects categorized as sensitive receptors at adequate distances from existing and potential sources of hazardous emissions.

12.6-I-3 Require construction and grading activities to incorporate particulate emissions reduction measures.

12.6-I-4 Require all new wood-burning stoves and fireplaces to comply with EPA- and BAAQMD-approved standards and provide informational handouts outlining low-emission alternatives to wood-burning fireplaces.

Guiding Policies- Energy Efficiency and Conservation

12.9-G-1 Minimize air emissions and potential climate change impacts related to energy consumption in government operations and the community.

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[8] City of San Ramon, California (2015). "Chapter 12 Air Quality and Greenhouse Gas". *City of San Ramon General Plan 2035*. http://www.ci.san-ramon.ca.us/UserFiles/Servers/Server_10826046/File/Our%20City/Departments/Community%20Development/Planning/General%20Plan/General%20Plan%202035%202017-07-01/12%20Air%20Quality.pdf

Implementing Policies

12.8-I-1 Increase the use of energy conservation features, renewable sources of energy and low-emission equipment in new and existing development projects within the City.

12.8-I-2 Encourage the use of solar-ready roofs into residential and commercial development. New residential development should include proper solar orientation (south-facing roof area sloped at 20° to 55° from the horizontal), clear access on the south sloped roof (no chimneys, heating vents, plumbing vents, etc.), electrical conduit installed for solar electric system wiring, plumbing installed for solar hot water systems, and space provided for a solar hot water storage tank. Roofs for commercial development should be designed to maximize potential area available for solar panels and provide electrical conduit to support future installation.

Guiding Policies- Climate Change

12.9-G-1 Reduce the City's proportionate contribution of greenhouse gas emissions and the potential impact that may result in climate change from internal governmental operations and land use activities within its authority.

Implementing Policies

12.9-I-5 Utilize tiered significance thresholds, as available, for the evaluation of project greenhouse gas emissions impacts, the preparation of project level greenhouse gas emission inventories, and the identification and application of mitigation.

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.

The City's 2035 General Plan includes a policy to reduce exposure of new sensitive receptors to hazardous pollutants (Guiding Policy 12.6-G-1) as does MM AIR-4 of the NCRSP Draft EIR. Therefore, the effect of existing air pollutant and TAC sources upon the project site was assessed.

Table 1. BAAQMD CEQA Significance Thresholds

Criteria Air Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	**Average Daily Emissions (lbs./day)**	**Annual Average Emissions (tons/year)**
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence**	**Combined Sources (Cumulative from all sources within 1000-foot zone of influence)**	
Excess Cancer Risk	>10 per one million	>100 per one million	
Hazard Index	>1.0	>10.0	
Incremental annual $PM_{2.5}$	>0.3 $\mu g/m^3$	>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*.[9] 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 construction and operational emissions below the BAAQMD thresholds (see Impact 2 below), 2) the project would be considered urban infill, 3) the project would be located near employment centers, 4) 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

[9] 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.[10] 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 project land uses[11] were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Single Family Housing	268	Dwelling Unit	735,673	31.05
Condo/Townhouse	136	Dwelling Unit	373,327	
Guest Parking	115	Parking Space	18,400	
City Park	2.0	Acre	87,120	

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 information provided by the project applicant.

The 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 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 estimated start date would be January 2023 and the project would be built out over a period of approximately 6 years, or 1,564 construction workdays. The project's occupancy would start in mid-2024 and last through mid-2028 as areas of the project site complete construction. The earliest year of full operation was assumed to be 2029.

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

[11] The project land uses have been updated since this analysis. Including garage and livable space, the single-family housing square footage would increase to 775,218-sf and the townhome square footage would decrease to 341,711-sf, for a net unmodeled residential use of 7,929-sf. Also, the number of guest parking spaces increased from 115 to 160. However, construction activities (i.e., schedule, equipment quantities, hours used) would not change with the new project land uses. While emissions (i.e., ROG, Energy) would increase slightly from these land uses changes, the project's criteria pollutant and GHG emissions and the community risk impacts are far below the thresholds that any minor increase should not cause the emissions and impacts to exceed the thresholds.

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. Therefore, post-CalEEMod calculations using the EMFAC2017 model was conducted to address this issue.

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 and grading were estimated from the provided demolition and grading volumes. 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 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 trucks, these were treated as vendor travel distances. Each trip was assumed to include an idle time of 5 minutes. Emissions associated with vehicle starts were also included. On road emissions in Contra Costa County for 2023 - 2028 were used in these calculations. Table 3 provides the traffic inputs that were combined with the EMFAC2017 emission database 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[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	70.3% LDA 6.9% LDT1 22.8% LDT2	32.6% MHDT 67.4% 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.
Demolition	400	-	2,274	500,000-sf of existing building demolition and 2,500 tons of pavement demolition. CalEEMod default worker trips.
Grading / Excavation	600	-	1,250	10,000-cy soil export. CalEEMod default worker trips.
Trenching – Underground Utilities	2,210	-	-	CalEEMod default worker trips.
Building Foundation	233,025	58,500	1,440	720 cement truck round trips. CalEEMod default worker and vendor trips.
Building Construction - Exterior	262,900	66,000	-	CalEEMod default worker and vendor trips.
Fine Grade, Rock, and Pave	1,840	-	240	120 cement truck round trips. CalEEMod default worker trips.
Architectural Coating	52,800	-	-	CalEEMod default worker trips.

Notes: [1] Based on 2023-2028 EMFAC2017 light-duty vehicle fleet mix for Contra Costa County.
[2] Includes 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	0.15	1.12	0.10	0.05
2024	1.18	2.16	0.15	0.11
2025	2.15	2.88	0.18	0.13
2026	2.14	2.87	0.18	0.13
2027	2.13	2.84	0.18	0.13
2028	2.09	2.55	0.16	0.12
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (259 construction workdays)	1.17	8.63	0.75	0.41
2024 (262 construction workdays)	8.99	16.51	1.16	0.82
2025 (261 construction workdays)	16.45	22.07	1.36	1.03
2026 (261 construction workdays)	16.41	22.01	1.36	1.02
2027 (261 construction workdays)	16.35	21.74	1.35	1.02
2028 (260 construction workdays)	16.10	19.62	1.25	0.92
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 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.

<u>CalEEMod Inputs</u>

Land Uses

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

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. With construction beginning in 2023, the project's occupancy would start in mid-2024 and last through mid-2028 as areas of the project site complete construction. The earliest year of full operation would be 2029. Although full building out is expected to occur by 2029, emissions associated with a later building out year would be lower.

Traffic Information

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.[12] The project land uses have been slightly reduced since the provided trip generation table was calculated, so corrective adjustments were made to the table to match the updated project's land uses. The trip generation table also did not include a trip rate for the proposed park. Correspondence with the traffic consultant indicated that the contribution from the park would be negligible; the park would generate two daily trips as it mostly serves the new neighborhood with pedestrian visitors. Therefore, park genera1ted trips were not included in the modeling. The project would generate 2,155 fewer daily trips than the existing land uses. 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 types and lengths 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 activity. Additionally, CARB has recently released EMFAC off-model adjustment factors to account for the Safer Affordable Efficient (SAFE) Vehicle Rule Part one.[13,14] 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.[15]

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[12] Email correspondence with Justin Hu, Associate Development Manager, SummerHill Apartment Communities, December 17, 2020, *20-11-11 BR6 - Gibson Trip Gen*.

[13] 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

[14] California Air Resource Board, 2020. *EMFAC Off-Model Adjustment Factors for Carbon Dioxide ($CO_2$0 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

[15] See CARB 2018: https://ww2.arb.ca.gov/our-work/programs/mobile-source-emissions-inventory/road-documentation/msei-modeling-tools-emfac

Energy

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards.[16] GHG emissions modeling includes those indirect emissions from electricity consumption. The electricity produced emission rate was modified in CalEEMod. CalEEMod has a default emission factor of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on Pacific Gas and Electric's (PG&E) 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 CO2 per megawatt of electricity delivered in the year 2017.[17] This intensity factor was used in the model and it was assumed that all powered was supplied by PG&E.

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 fueled 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).[18]

Existing Uses

A CalEEMod model run was developed to compute emissions from use of the existing building as if it were operating in 2029. Inputs for this modeling scenario included 563,800-sf entered as "General Office Building" and 18.11 acres entered as "Parking lot". The existing trip generation rates and other inputs were applied to the existing modeling in the same manner described for the proposed project. Historical energy usage rates were assigned by CalEEMod.

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

Annual emissions were predicted using CalEEMod. The daily emissions were estimated assuming 365 days of operation. Table 5 shows average daily emissions of ROG, NO_X, total PM_{10}, and total $PM_{2.5}$ during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds.

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[16] An update to CalEEMod to include new 2019 Title 24 standards that include more energy efficient buildings has not been completed at the time of this analysis.
[17] PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf
[18] Bay Area Air Quality Management District, https://www.baaqmd.gov/~/media/dotgov/files/rules/regulation-6-rule-3/documents/20191120_r0603_final-pdf.pdf?la=en

Table 5. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
2029 Project Operational Emissions (*tons/year*)	6.38 tons	2.19 tons	3.06 tons	0.87 tons
2029 Existing Operational Emissions (*tons/year*)	4.01 tons	2.56 tons	3.89 tons	1.08 tons
Net Annual Emissions (*tons/year*)	2.37 tons	-0.37 tons	-0.83 tons	-0.21 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2029 Project Operational Emissions (*lbs./day*)[1]	13.00 lbs.	-2.00 lbs.	-4.54 lbs.	-1.14 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.

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 stationary sources).

Project construction activity would generate dust and equipment exhaust that would affect nearby sensitive receptors. The project would not include the installation of any emergency generators 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 daily trips generated by the project, assumed almost all automobile trips, are in deficit once netted by existing trips (i.e., 2,155 fewer daily trips)[19] and emissions from automobile traffic generated by the project would be spread out over a broad geographical area and not localized. Therefore, project traffic was not be considered a local source of substantial TACs or $PM_{2.5}$.

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

[19] Email correspondence with Justin Hu, Associate Development Manager, SummerHill Apartment Communities, December 17, 2020, *20-11-11 BR6 - Gibson Trip Gen*.

period was used, per BAAQMD guidance,[20] with the sensitive receptors being exposed to both project construction and operation emissions during this timeframe.

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

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

Modeled Sensitive Receptors

Receptors for this assessment included locations where sensitive populations would be present for extended periods of time (i.e., chronic exposures). This includes the existing residences to the northeast of the site and the middle school students 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 middle school (2 years and older).

The City Center Mixed-Use Master Plan proposes to construction 4,500 residential units over 25 years south of the proposed Bishop Ranch 6 site. However, the City Center building complexes within 1,000 feet of the proposed Bishop Branch 6 site would not be constructed or operational until Phase 3 and 4 of the City Center Plan buildout, which would be after the construction of this project is completed. Therefore, the construction community risk from this project on the future residences of City Center were not included in this assessment.

Community Health Risk from Project Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known toxic air contaminant (TAC). The air pollutant emissions associated with this activity were previously addressed in this report by predicting daily emissions and were found to be below significance thresholds. Therefore, this activity 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 $PM_{2.5}$.[21] 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.

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[20] BAAQMD, 2016. *BAAQMD Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines*. December 2016.
[21] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

Construction Emissions

The CalEEMod and EMFAC2017 models 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 emissions from all construction stages as 0.5437 tons (1,087 pounds). 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 as 0.0722 tons (144 pounds) for the overall construction period. The breakdown of yearly emissions is included in *Attachment 4*.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at sensitive receptors (residences and middle 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.[22]

Construction Sources

To represent the construction equipment exhaust emissions, an area source emission release height of 20 feet (6 meters) was used for the area sources.[23] 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.

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[22] Bay Area Air Quality Management District (BAAQMD), 2012, *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.
[23] 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

AERMOD Inputs and Meteorological Data

The modeling used a five-year data set (2013-2017) of hourly meteorological data from the Livermore Airport prepared for use with the AERMOD model by BAAQMD. Construction activity was not treated as a continuous source. Rather emissions were modeled only for the days and hours that they would occur. Construction emissions were modeled as occurring daily between 7:00 a.m. to 5:00 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 2023-2028 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors.

Receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) were used to represent the breathing height on the first and second floors of nearby multi-family residences.[24] Receptor heights of 3 feet (1 meter) and 13 feet (4 meters) were used to represent the breathing height of the children on the first and second floors at the middle school.

Summary of Construction Community Risk Impacts

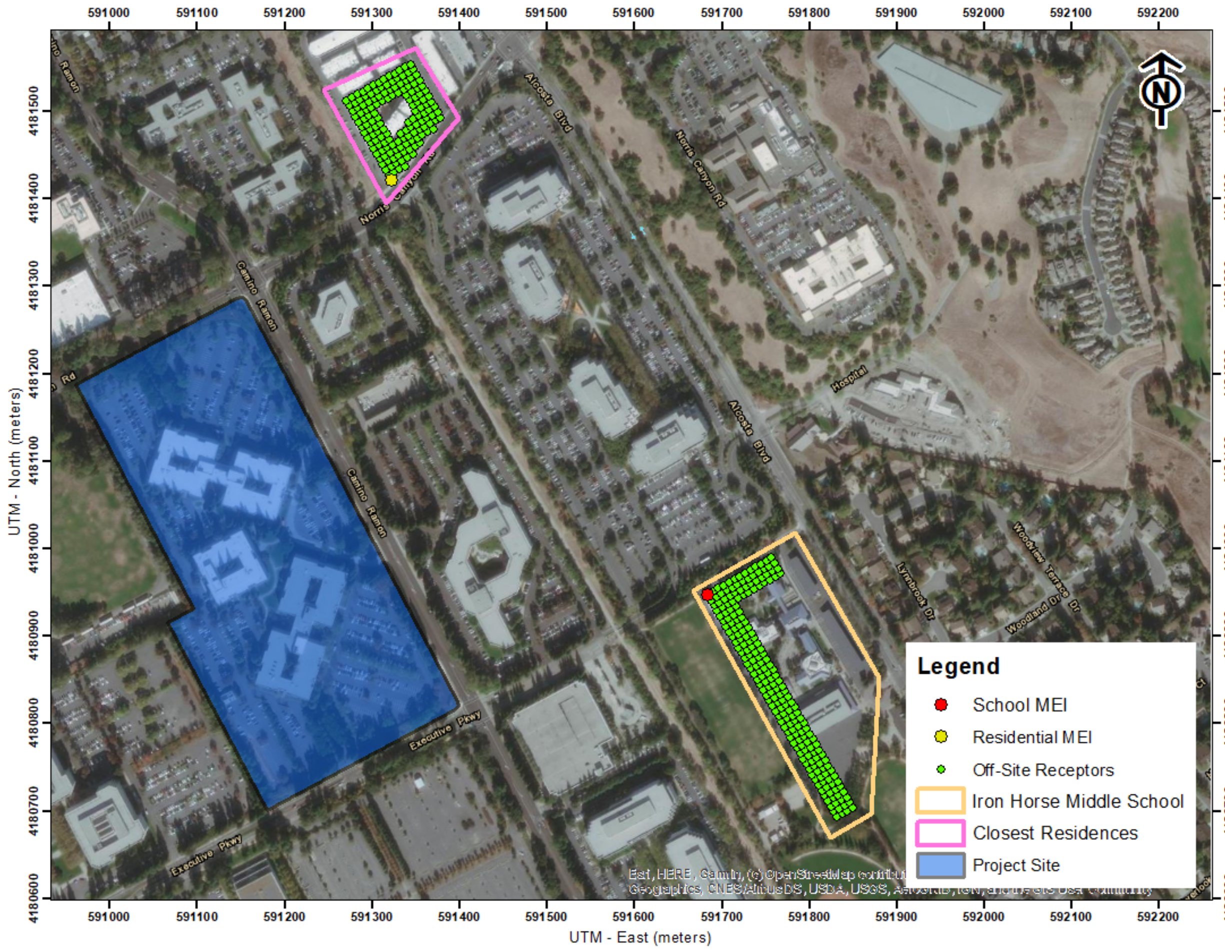
The increased cancer risk calculations were based on applying the BAAQMD recommended age sensitivity factors to the TAC concentrations, as described in *Attachment 1*. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer causing TACs. Infant exposure at residences was used as a worst-case assumption, while child and adult exposures would be less. The range of infant through adult exposures were assumed to occur at all residences and child exposure was assumed to occur at the middle school during the entire construction period. In addition, Student Adjust Factors were included at the school receptors assuming school children are present 9 hours per day.

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 there was a school MEI and a residential MEI. The school MEI was located on the first floor (3 feet above ground) of the northwest corner of the middle school. The residential MEI was located on the first floor (5 feet above ground) of the southwest corner unit in the multi-family residential building to the northeast of the project site. The locations of the school and residential MEIs are shown in Figure 1. Table 6 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.

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

Figure 1. Project Construction Site, Locations of Off-Site Sensitive Receptors, and Locations of TAC Impacts



Community Risks from Project Operation – Generator and Traffic

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.

<u>Project Traffic</u>

Per BAAQMD recommended risks and methodology, a road with less than 10,000 total vehicles per day is considered a low-impact source of TACs.[25] This project would generate 2,155 fewer daily trips dispersed on the roadway system with a majority of the trips being from light-duty vehicles (i.e., passenger automobiles), which is less than 10,000 daily vehicles. Therefore, emissions from project traffic would be negligible and not included within this analysis.

[25] 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

Project Generator

An emergency generator powered by a diesel engine would produce TAC and air pollutant emissions that would need to be assessed. However, the proposed project would not include the operation of an on-site generator. Therefore, emissions from a generator were not included within this analysis.

Summary of Project-Related Community Risks at the Offsite Project MEIs

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 six years of construction cancer risks. The annual $PM_{2.5}$ concentration and HI values are based on an annual maximum risk for the entirety of the project. As shown in Table 6, the unmitigated maximum cancer risks, $PM_{2.5}$ concentration, and HI from construction activities at the school and residential MEI locations would not exceed the BAAQMD single-source significance thresholds.

Table 6. Construction and Operation Risk Impacts at the Off-Site Project MEIs

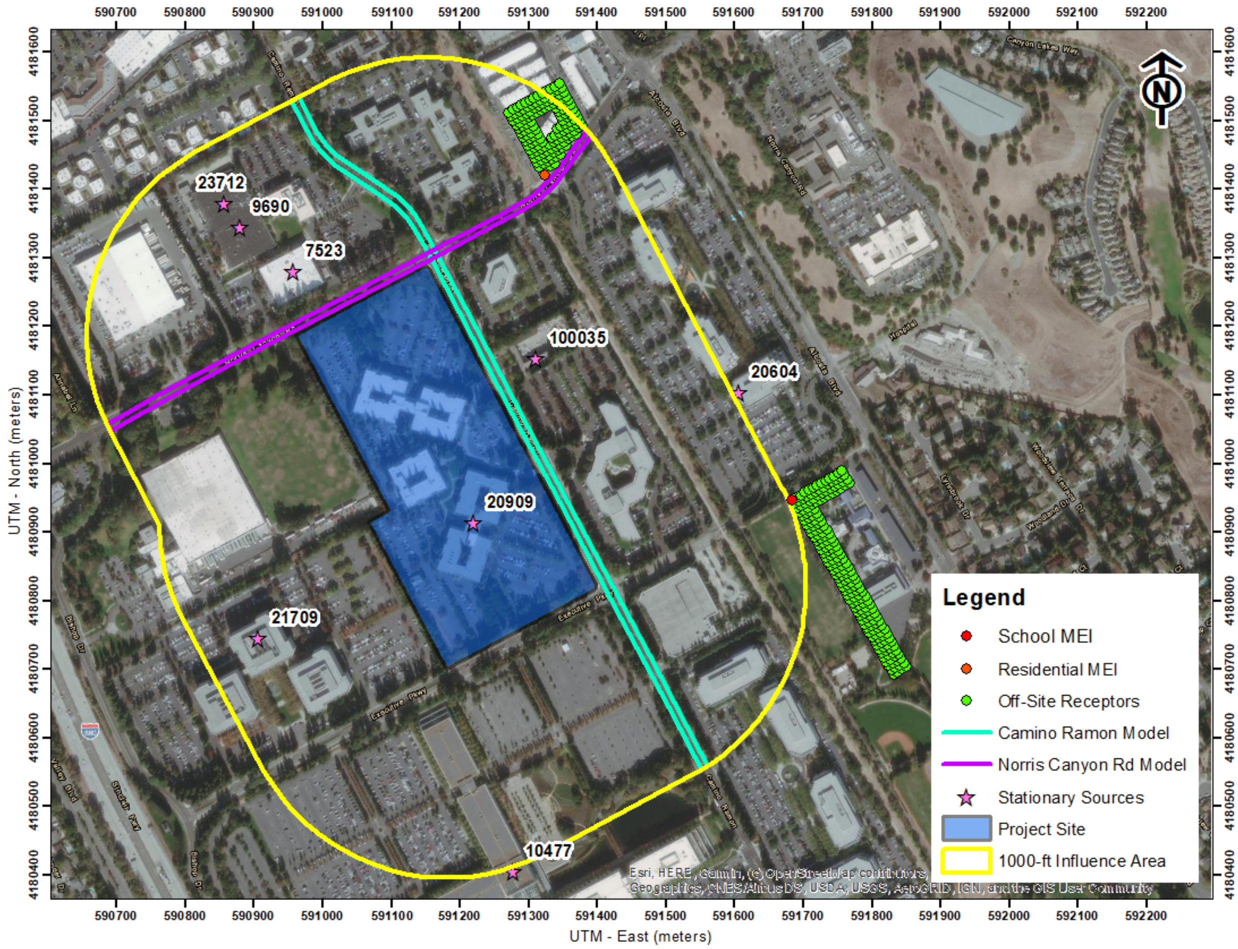
Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Iron Horse Middle School Receptors				
Project Construction	Unmitigated	3.1 (child)	0.01	<0.01
	BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Residential Receptors				
Project Construction	Unmitigated	1.7 (infant)	0.01	<0.01
	BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceeds Threshold?	Unmitigated	*No*	*No*	*No*

Cumulative Community Risks of all TAC Sources at the Off-site Project 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 a project site (i.e. influence area). These sources include railroads, freeways or highways, busy surface streets, and stationary sources identified by BAAQMD.

A review of the project area indicates that traffic on Camino Ramon and Norris Canyon Road have 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. A review of BAAQMD's stationary source map website identified eight stationary sources with the potential to affect the project MEIs. Figure 2 shows the location of the sources affecting the MEIs. Community risk impacts from these sources upon the school MEI are reported in Tables 7 and upon the residential MEI are reported in Tables 8. Details of the modeling and community risk calculations are included in *Attachment 5*.

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



<u>Local Roadways – Camino Ramon and Norris Canyon Road</u>

Camino Ramon and Norris Canyon Road are located near the project site and project MEIs. Traffic on Camino Ramon and Norris Canyon Road is a source of TACs that could adversely affect sensitive receptors at the project site and MEIs. This assessment was conducted following guidance provided by the BAAQMD and OEHHA to analyze potential community health risk impacts at the project site and MEIs from nearby sources of TAC emissions.

Potential community risk impacts from Camino Ramon and Norris Canyon Road traffic TAC emissions to sensitive receptors at the project site and MEIs were evaluated. This analysis involved the development of DPM, total organic gases (TOG), and $PM_{2.5}$ emissions for project traffic on Camino Ramon and Norris Canyon Road and using these emissions with an air quality dispersion model to calculate TAC and $PM_{2.5}$ concentrations at project site and MEIs receptor locations. Increased cancer risks, non-cancer health effects represented by the HI, and the increase in annual $PM_{2.5}$ concentrations were then computed using the modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters described in *Attachment 1*.

Busy roadways are a source of TAC emissions that could affect new sensitive receptors at the project site and at the MEIs. Camino Ramon and Norris Canyon Road are busy arterial roadways near the project site and MEIs. In the vicinity of the project site, using existing plus project traffic volumes provided by the project's traffic engineer.[26] Assuming a 1 percent per year increase for future traffic conditions, Camino Ramon has an ADT volume of 10,756 vehicles and Norris Canyon Road has an ADT volume of 12,123 vehicles. Because these traffic volumes are greater than an ADT of 10,000, a refined analysis of Camino Ramon and Norris Canyon Road to assess potential impacts to the sensitive receptors at the project site and MEIs was conducted.

Traffic Emissions

DPM, TOG, and $PM_{2.5}$ emissions from traffic on Camino Ramon and Norris Canyon Road in the project site and MEIs areas were calculated using the CT-EMFAC2017 model, a Caltrans version of CARB's EMFAC2017 emissions model, and local roadway traffic volumes. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM.

Emission processes modeled with CT-EMFAC2017 include running exhaust for DPM, $PM_{2.5}$ and TOG, running evaporative losses for TOG, and tire and brake wear and fugitive road dust for $PM_{2.5}$. DPM emissions are projected to decrease in the future and are reflected in the CT-EMFAC2017 emissions data. Inputs to the model include region (i.e., Contra Costa County), type of road (major/collector), truck percentages (BAAQMD truck percentages for non-state highways in Contra Costa County[27]), and traffic mix assigned by CT-EMFAC2017 for the county. Average hourly traffic distributions for Contra Costa County roadways were developed using the EMFAC model,[28] which were then applied to Camino Ramon and Norris Canyon Road traffic volumes to obtain estimated hourly traffic volumes and emissions. An average travel speed of 40 mph for Camino Ramon and Norris Canyon Road were used for all for all hours of the day based on posted speed limits.

In order to estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating the increased cancer risks for the residential sensitive receptors at the project site and residential MEI (3-year exposure period used for school MEI as middle school only has students there for 3 years) from traffic on Camino Ramon and Norris Canyon Road, the CT-EMFAC2017 model was used to develop vehicle emission factors for the year 2023 (project construction start 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 CT-EMFAC2017. Year 2023 emissions were conservatively assumed as being representative of future conditions over the time period that cancer risks are evaluated (30 years for residential project site and residential MEI, 3 years for

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[26] Email correspondence with Justin Hu, Associate Development Manager, SummerHill Apartment Communities, January 7, 2021, *21-01-07 BR6 Intersection Volumes*.

[27] 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

[28] The Burden output from EMFAC2007, a prior version of CARB's EMFAC model, was used for this since the current web-based version of EMFAC2014 does not include Burden type output with hour by hour traffic volume information.

school MEI), since, as discussed above, overall vehicle emissions, and in particular diesel truck emissions, will decrease in the future.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the EPA AERMOD air quality dispersion model, which is recommended by the BAAQMD for this type of analysis.[29] TAC and $PM_{2.5}$ emissions from traffic on Camino Ramon and Norris Canyon Road within about 1,000 feet of the project site were evaluated. Vehicle traffic on the roadways was modeled using a series of adjacent volume sources along a line (line volume sources); with line segments used for each of the travel directions on Camino Ramon and Norris Canyon Road. A 5-year data set (2013-2017) of hourly meteorological data from the Livermore Airport was used for the modeling. Other inputs to the model included road geometries and elevations, hourly traffic emissions, and receptor locations. Annual TAC and $PM_{2.5}$ concentrations for 2023 from traffic on Camino Ramon and Norris Canyon Road were calculated using the model. Concentrations were calculated at the residential MEI with receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) to represent the breathing heights of the first and second floors and at the school MEI with receptor heights of 3 feet (1 meters) and 13 feet (4 meters) to represent the breathing heights of the first and second floors of the school.

The roadway traffic contributions to cancer risk, annual $PM_{2.5}$ concentrations, and HI are shown in Table 7 for the school MEI and Table 8 for the residential MEI. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5*.

BAAQMD Permitted Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website.[30] This mapping tool identifies the location of nearby stationary sources and their estimated risk and hazard impacts. Eight sources were identified using this tool with five sources being generators, one a gas dispensing facility, one a solvent, and one a material handling equipment. A Stationary Source Information Form (SSIF) containing the identified sources was prepared and submitted to BAAQMD. BAAQMD provided input and clarification about the stationary sources.[31] After further review, the two sources (#7523 and #9690) did not have any risk or hazard impacts and one source (#20909) is part of the existing project site and would be removed.

The screening level risks and hazards posted on the GIS website for the stationary sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines, Gas Dispensing Facilities, and Generic Equipment*. Community risk impacts from the stationary sources upon the MEIs are reported in Table 7.

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[29] BAAQMD. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012
[30] BAAQMD, Web: https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[31] Email correspondence with Areana Flores, MSc, Environmental Planner, BAAQMD, January 19, 2021.

Summary of Cumulative Risks at Off-Site Project MEIs

Both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the MEIs) are reported in Table 7 for the school MEI and Table 8 for the residential MEI. Without mitigation, the project's community risk from project construction activities would not exceed the single-source maximum increased cancer risk, $PM_{2.5}$ concentration, or HI thresholds. In addition, the combined unmitigated cancer risk, $PM_{2.5}$ concentration, and HI values would not exceed their respective cumulative thresholds.

Table 7. Impacts from Combined Sources at Off-Site School MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	3.1 (child)	0.01	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Cumulative Impacts				
Camino Ramon, 10,756 ADT		0.1	0.02	<0.01
Norris Canyon Road, 12,123 ADT		<0.1	0.01	<0.01
BioGenex Laboratories, Inc (Facility ID #7523, Generic Equipment), School MEI +1,000 feet		--	--	--
The Solaris Group (Facility ID #9690, Generic Equipment), School MEI +1,000 feet		--	--	--
Pacific Bell (Facility ID #10477, Generator), School MEI +1,000 feet		3.7	<0.01	0.01
Paycheck Inc (Facility ID #20604, Generator), School MEI 500 feet		0.8	<0.01	<0.01
Safe Security (Facility ID #20909, Generator), To Be Removed		--	--	--
Sunset Development Company (Facility ID #21709, Generator, Boiler), School MEI +1,000 feet		0.7	0.13	--
Canyon Corporate Park (Facility ID #23712, Generator), School MEI +1,000 feet		0.3	--	--
Sunset Development (Facility ID #100035, Gas Station), School MEI +1,000 feet		<0.1	--	--
Cumulative Total	Unmitigated	<8.9	<0.19	<0.05
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*

Table 8. Impacts from Combined Sources at Off-Site Residential MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Impacts				
Project Construction	Unmitigated	1.7 (infant)	0.01	<0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated	*No*	*No*	*No*
Cumulative Impacts				
Camino Ramon, 10,756 ADT		0.3	0.02	<0.01
Norris Canyon Road, 12,123 ADT		2.2	0.20	<0.01
BioGenex Laboratories, Inc (Facility ID #7523, Generic Equipment), School MEI +1,000 feet		--	--	--
The Solaris Group (Facility ID #9690, Generic Equipment), School MEI +1,000 feet		--	--	--
Pacific Bell (Facility ID #10477, Generator), School MEI +1,000 feet		3.7	<0.01	0.01
Paycheck Inc (Facility ID #20604, Generator), School MEI +1,000 feet		0.3	<0.01	<0.01
Safe Security (Facility ID #20909, Generator), To Be Removed		--	--	--
Sunset Development Company (Facility ID #21709, Generator, Boiler), School MEI +1,000 feet		0.7	0.13	--
Canyon Corporate Park (Facility ID #23712, Generator), School MEI +1,000 feet		0.3	--	--
Sunset Development (Facility ID #100035, Gas Station), School MEI 700 feet		<0.1	--	--
Cumulative Total	Unmitigated	<9.3	<0.38	<0.05
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Threshold?	Unmitigated	*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.

Non-CEQA: On-Site Community Risk Assessment for TAC Sources - New Project Residence to es

Exposure to Existing Sources of TACs and Air Pollutants

In addition to evaluating health impacts from project construction, a health risk assessment was completed to assess the impact existing TAC sources would have on the new proposed sensitive receptors (residents) that the project would introduce. The same TAC sources identified above were used in this health risk assessment.[32]

Local Roadways – Camino Ramon and Norris Canyon Road

The roadway analysis for the project residents was conducted in the same manner as described above for the off-site MEIs. The project set of receptors were placed around the boundary of the project residential area and were spaced every 23 feet (7 meters) to ensure maximum impacts were identified. Project residences in the project site would be located on the all the floors (first through third floors) of the single-family homes and townhouses. Roadway impacts were modeled at receptor heights of 5 feet (1.5 meters) and 15 feet (4.5 meters) representing sensitive receptors on the first and second floors. Project sensitive receptors higher than the second floor would have roadway impacts less than those on the second floor. The portions of Camino Ramon and Norris Canyon Road included in the modeling are shown in Figure 3 along with the project site and receptor locations where impacts were modeled.

Maximum increased cancer risks were conservatively calculated for the residents at the project site using the maximum modeled TAC concentrations. A 30-year exposure period was used in calculating cancer risks assuming the residents would include third trimester pregnancy and infants/children and were assumed to be in the new building area for 24 hours per day for 350 days per year. The highest impacts from Camino Ramon occurred at the first-floor receptor in a home along the eastern boundary of the site adjacent to the roadway. The highest impacts from Norris Canyon Road occurred at the first-floor receptors at the northwestern corner residential unit of the site adjacent to the roadway. Cancer risks associated with Camino Ramon and Norris Canyon Road are greatest closest to Camino Ramon and Norris Canyon Road and decrease with distance from the roads. The roadways' community risk impacts at the project site are shown in Table 9. Details of the emission calculations, dispersion modeling, and cancer risk calculations are contained in *Attachment 5.*

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.

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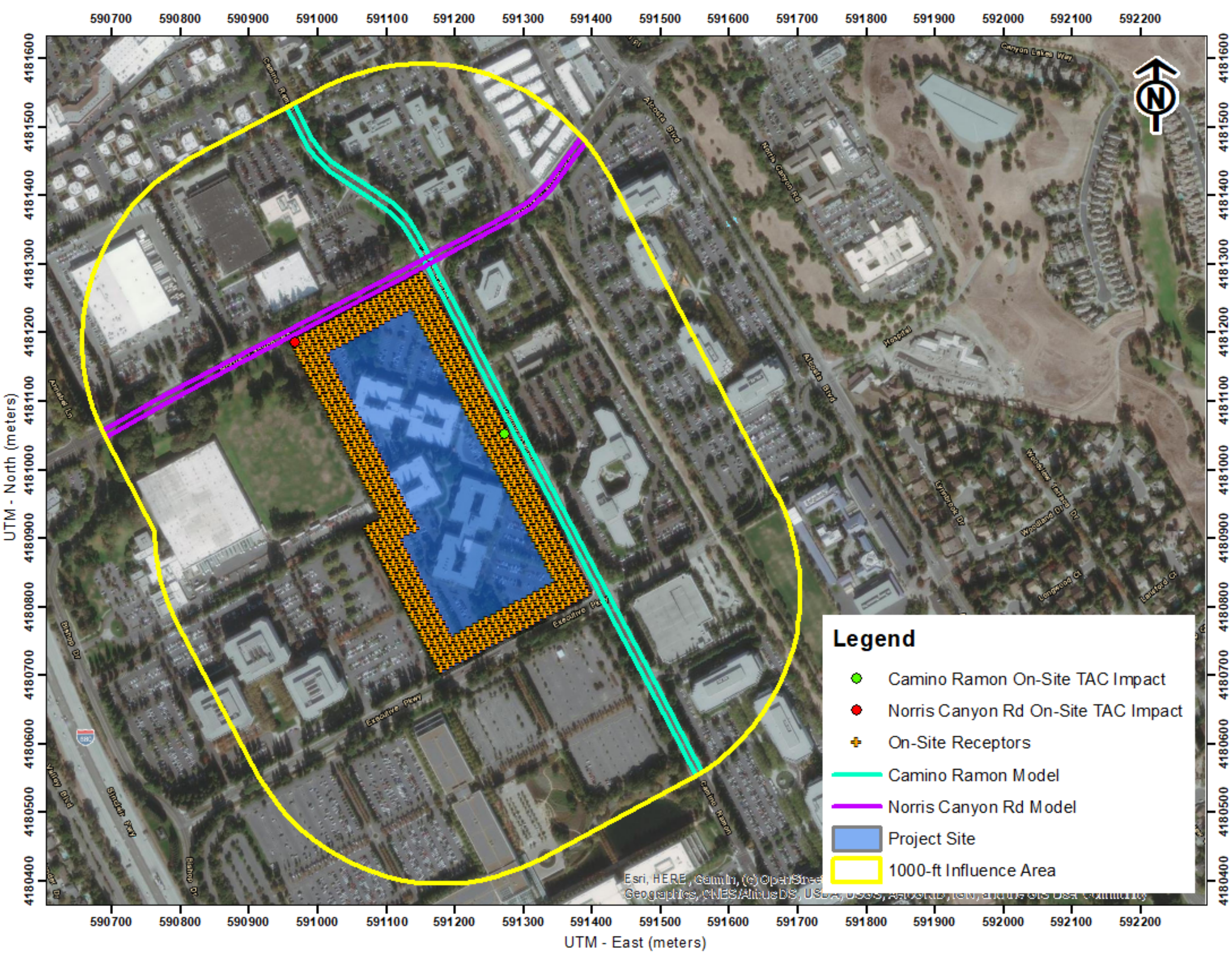
[32] We note that to the extent this analysis considers *existing* air quality issues in relation to the impact on *future residents* of the Project, it does so for informational purposes only pursuant to the judicial decisions in *CBIA v. BAAQMD* (2015) 62 Cal.4th 369, 386 and *Ballona Wetlands Land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

Interstate 680

Although Interstate 680 (I-680) is well beyond 1,000 feet from the project site, this analysis conservatively includes the effects from the freeway traffic. Screening data reported by BAAQMD was incorporated into this analysis. BAAQMD provided raster files with cancer risk and $PM_{2.5}$ values for all highways/freeways, roadways (ADT > 30,000), and rail lines within the Bay Area. The risk values shown in the raster files were modeled in AERMOD in 20x20-meter grid cells. The files incorporate AADT for the highway using EMFAC2014 data for fleet mix and include the OEHHA 2015 factor. These raster files were used to screen I-680 risks and hazards upon the project site. The freeway screening level impacts are listed in Table 9 and included in Attachment 5. Note that the cancer risk value is not adjusted for age sensitivity or exposure duration. It is conservatively higher than adjusted cancer risk values. Refined modeling of the freeway would have resulted in even lower risk values. Note that BAAQMD has found that non-cancer hazards were found to be minimal, so an HI value is not included.

Figure 3. Project Site, On-Site Residential Receptors, Roadway Segments Evaluated, and Locations of Maximum Roadway TAC Impacts



Summary of Community Health Risk at Project Site from Existing Sources

Community risk impacts from the combined sources on 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 maximum cancer risk from I-680 using BAAQMD screening data would exceed the single-source threshold for cancer risk. Annual $PM_{2.5}$ concentrations and HI from the nearby sources do not exceed the single source thresholds. However, portions of the project site along Norris Canyon Road would have cumulative annual $PM_{2.5}$ concentrations that exceed the threshold when accounting for Interstate 680 traffic too. However, Interstate 680 is beyond 1,000 feet, which is the distance recommended for evaluating cumulative sources.

Table 9. Impacts from Combined Sources to Project Site Receptors

Source	Maximum Cancer Risk (per million)	Maximum Annual $PM_{2.5}$ ($\mu g/m^3$)	Maximum Hazard Index
Camino Ramon, 10,756 ADT	1.8	0.17	<0.01
Norris Canyon Road, 12,123 ADT	3.2	0.29	<0.01
BioGenex Laboratories, Inc (Facility ID #7523, Generic Equipment), School MEI +1,000 feet	--	--	--
The Solaris Group (Facility ID #9690, Generic Equipment), School MEI +1,000 feet	--	--	--
Pacific Bell (Facility ID #10477, Generator), School MEI +1,000 feet	3.7	<0.01	0.01
Paycheck Inc (Facility ID #20604, Generator), School MEI +1,000 feet	0.3	<0.01	<0.01
Safe Security (Facility ID #20909, Generator), To Be Removed	--	--	--
Sunset Development Company (Facility ID #21709, Generator, Boiler), School MEI +1,000 feet	1.5	0.27	--
Canyon Corporate Park (Facility ID #23712, Generator), School MEI +1,000 feet	0.3	--	--
Sunset Development (Facility ID #100035, Gas Station), School MEI 700 feet	<0.1	--	--
Interstate 680 at 1,600 feet or further from the site based on BAAQMD 2014 Raster Data	<13.0	<0.26	--
BAAQMD Single-Source Threshold	***10.0***	***0.3***	***1.0***
Exceed Threshold?	*Yes**	*No*	*No*
Cumulative Total	<23.9	<1.01	<0.04
BAAQMD Cumulative Source Threshold	***100***	***0.8***	***10.0***
Exceed Threshold?	*No*	*Yes**	*No*

*When including effects from I-680 traffic that are beyond 1,000 feet from the project site.

Construction Impacts to New Project Residents

Since some portions of the project could be occupied prior to completion of construction activity, there is the potential that some new residents could be exposed to elevated levels of pollutants and contaminants during the completion of project construction. Since the exact phasing and occupancy of the project is not established, any modeling assessment would be speculative. Much, and perhaps all, of the earthwork, trenching, and infrastructure work, would be completed prior to occupancy of any new residents. This type of activity involves the most intensive use of diesel heavy-duty construction equipment. Rather than attempt to quantify impacts from this activity, which is not required under CEQA, the applicant proposes to use newer equipment that has low emissions.

Recommended Control Measures

Construction Equipment Controls

Controls on construction equipment are recommended once residents begin occupation of the project site during construction. Project construction plans would require that all diesel-powered off-road construction equipment used on-site to meet U.S. EPA Tier 4 standards for particulate matter emissions. If such equipment is not available, then such equipment shall include diesel particulate matter filters (DPFs) approved (i.e., certified) by the California Air Resources Board. Diesel equipment that meets the Tier 4 standards would have toxic air contaminant and $PM_{2.5}$ emissions that are 80 percent or lower than typical construction equipment used throughout the State.

Enhanced Filtration in New Residences.

Interstate 680 is beyond 1,000 feet from the project site and is should not be factored into this analysis. However, conservatively assuming that I-680 traffic would affect the project site, cancer risk and annual $PM_{2.5}$ concentrations would exceed thresholds recommended in the BAAQMD CEQA Air Quality Guidelines. In addition, some residents that occupy the project site prior to the completion of the project may be exposed to construction emissions of TACs and $PM_{2.5}$. To effectively reduce concentrations of TACs (i.e., DPM) and $PM_{2.5}$, measures are recommended based on recommendations provided in BAAQMD's *Air Quality CEQA Guidelines* and *Planning Healthy Places* documents.

A majority of the increased cancer risk would be caused by diesel particulate matter emissions from vehicle traffic. Install and maintain air filtration systems of fresh air supply either on an individual unit-by-unit basis, with individual air intake and exhaust ducts ventilating each unit separately, or through a centralized building ventilation system. The ventilation system should achieve a certain effectiveness, for example, to remove at least 30 percent of ambient $PM_{2.5}$ and DPM concentrations from indoor areas (depending on site-specific exposure). A properly installed and operated ventilation system with MERV13 filters is expected to achieve an 80-percent reduction.[33] The following construction features to minimize long-term cancer risk and annual $PM_{2.5}$ exposure for new project occupants should be considered:

[33] Bay Area Air Quality Management District (2016). Appendix B: Best Practices to Reduce Exposure to Local Air Pollution, *Planning Healthy Places A Guidebook for Addressing Local Sources of Air Pollutants in Community Planning* (p. 38). http://www.baaqmd.gov/~/media/files/planning-and-research/planning-healthy-places/php_may20_2016-pdf.pdf?la=en

1. Install air filtration in project building. The project includes installation of MERV13 air filtration devices in dwelling units where total $PM_{2.5}$ concentrations (i.e., exhaust + fugitive $PM_{2.5}$) are equal to or exceed 0.8 µg/m^3. All fresh air circulated into these dwelling units shall be filtered by this ventilation system, whether mechanical or passive.

2. The ventilation system shall be designed to keep the building at positive pressure when doors and windows are closed to reduce the intrusion of unfiltered outside air into the building.

3. As part of implementing this measure, an ongoing maintenance plan for the buildings' heating, ventilation, and air conditioning (HVAC) air filtration system shall be required.

4. For non-owner-occupied units, ensure that the lease agreement and other property documents (1) require cleaning, maintenance, and monitoring of the affected units for air flow leaks; (2) include assurance that new owners and tenants are provided information on the ventilation system; and (3) include provisions that fees associated with owning or leasing a unit(s) in the building include funds for cleaning, maintenance, monitoring, and replacements of the filters, as needed.

<u>Selection of Construction Equipment with Low Emissions</u>

Project construction plans would require that all diesel-powered off-road construction equipment used on-site would meet U.S. EPA Tier 4 standards for particulate matter emissions. If such equipment is not available, then such equipment shall include diesel particulate matter filters (DPFs) approved (i.e., certified) by the California Air Resources Board. Diesel equipment that meets the Tier 4 standards would have TAC and $PM_{2.5}$ emissions that are 80 percent or lower than typical construction equipment used throughout the State. Adverse effects to new project residents are anticipated to be well below any health risk thresholds given the anticipated low intensity use of diesel equipment during construction activities that may occur along with the control measures that the applicant would implement. In addition, new residences would include enhanced filtration in the HVAC units such that indoor levels of TACs and $PM_{2.5}$ would be greatly reduced.

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 GHG Emissions

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

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

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

Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, codified the State's GHG emissions target by directing CARB to reduce the State's global warming emissions to 1990 levels by 2020. AB 32 was signed and passed into law by Governor Schwarzenegger on September 27, 2006. Since that time, the CARB, CEC, California Public Utilities Commission (CPUC), and Building Standards Commission have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05, which has a target of reducing GHG emissions 80 percent below 1990 levels.

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

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

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

In April 2015, Governor Brown signed EO B-30-15, which extended the goals of AB 32, setting a greenhouse gas emissions target at 40 percent of 1990 levels by 2030. On September 8, 2016, Governor Brown signed Senate Bill (SB) 32, which legislatively established the GHG reduction target of 40 percent of 1990 levels by 2030. In November 2017, CARB issued *California's 2017 Climate Change Scoping Plan.* [34] 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

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

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;
- Greatly 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 hydrofluorocarbons or HFCs by 40 percent.

In the updated Scoping Plan, CARB recommends statewide targets of no more than 6 metric tons (MT) 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 in the State, 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.

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retails sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 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.[35] 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

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[35] 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.

systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[36]

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).[37] 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.[38] 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.[39] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

City of San Ramon Climate Action Plan

The San Ramon Climate Action Plan (CAP) was adopted by the City on August 23, 2011 and it is the City's primary implementation strategy for greenhouse gas policies to reduce emissions 15% below 2008 levels by 2020.[40] The CAP has been defined by BAAQMD as a "Qualified Greenhouse Gas Reduction Strategy." As a qualified document, the San Ramon CAP meets the BAAQMD Greenhouse Gas Reduction Strategies requirements and has identified implementation strategies that will help the city GHG reduction goals up to 2020. As such, it serves as a guidance document for local decision makers.

The CAP strategy is primarily based upon the land use, transportation, and conservation policies that are part of the General Plan 2035. The CAP demonstrates reductions in GHG emissions through land use planning (including density choices), reduction in vehicle miles traveled, and energy conservation measures such as increased energy efficiency for buildings, more efficient water use and recycling programs. However, the CAP does not have a Compliance Checklist or a specific metric ton GHG threshold for project-level construction or operation. Therefore, the BAAQMD's CEQA Air Quality Guideline's thresholds are used.

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[36] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf
[37] 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
[38] 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
[39] 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 accessed Nov. 26, 2019.
[40] City of San Ramon, California (2011). *City of San Ramon Climate Action Plan*. http://www.ci.san-ramon.ca.us/UserFiles/Servers/Server_10826046/File/Our%20City/Departments/Community%20Development/Planning/General%20Plan/Climate%20Action%20Plan/adoptedcap.pdf

BAAQMD GHG Significance Thresholds

The BAAQMD's CEQA Air Quality Guidelines do not use quantified thresholds for projects that are in a jurisdiction with a qualified GHG reductions plan (i.e., a Climate Action Plan). The plan has to address emissions associated with the period that the project would operate (e.g., beyond year 2020). For quantified emissions, the guidelines recommended a GHG threshold of 1,100 metric tons or 4.6 metric tons (MT) per capita. These 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 2.8 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 on the 1990 inventory and the projected 2030 statewide population and employment levels.[41] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold. Evidence published by the State indicates the AB 32 goal of reducing statewide GHG emissions to 1990 levels was met prior to 2020. Current State plans are to further reduce emissions to 40% below 1990 levels by 2030. Assuming statewide emissions are at 1990 levels or lower in 2020, it would be logical to reduce the BAAQMD-recommended threshold for meeting the AB 32 threshold by 40% to develop a threshold for 2030.

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 estimated by multiplying the total number of units (i.e., 404 units) by the persons per household rate for the City of San Ramon found in the California

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

Department of Finance Population and Housing Estimate report.[42] Using the 2.97-person per household 2019 rate, the number of future residents was estimated to be 1,200 residents. This total service population was used to calculate the per capita emissions.

Construction Emissions

GHG emissions associated with construction were computed at 5,255 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 net annual emissions resulting from operation of the proposed project are predicted to be -1,568 MT of CO_2e in 2029 and -1,556 MT of CO_{2e} in 2030. The service population emissions for the years 2029 and 2030 are predicted to be 3.0 and 2.9 MT/CO_{2e}/year/service population, respectively.

To be considered an exceedance of the threshold, the project emissions must exceed both the GHG significance threshold in metric tons per year and the service population significance threshold in the future year of 2030. As shown in Table 10, the project would exceed the per service population threshold of 2.8 MT of CO_2e/year/service population in 2030 but would not exceed the annual emissions bright-line threshold of 660 MT CO_2e/year in 2030.

In addition to the project's GHG emissions being below the emissions that are generated by the existing land uses, the proposed project is part of the NCRSP where the Draft EIR found GHG emissions associated with build-out of the plan (including the proposed project) to be less than significant. Also, with inclusion of new CalGreen Title 24 Building Energy Efficiency requirements, emissions would be lower than reported and likely below the Service Population Emissions threshold. Therefore, the project would not be in exceedance for GHG emissions.

[42] State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties, and the State, 2010-2019*. Sacramento, California. Available at: http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/.

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

Source Category	Existing Land Use		Proposed Project	
	2029	**2030**	**2029**	**2030**
Area	<0.1	<0.1	34	34
Energy Consumption	1,491	1,491	831	831
Mobile	3,178	3,123	2,480	2,437
Solid Waste Generation	264	264	193	193
Water Usage	209	209	36	36
Total (MT CO_{2e}/year)	5,142	5,087	3,574	3,531
Net Emissions			-1,568 MT CO_{2e}/year	-1,556 MT CO_{2e}/year
Significance Threshold				***660 MT CO_2e/year***
Service Population Emissions (MT CO_{2e}/year/service population)			**3.0**	**2.9**
Significance Threshold				***2.8 in 2030***
Exceeds both thresholds?				*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 existing and 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 this assessment, 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 project site and project MEIs

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminants (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.[43] 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.[44] 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.[45] 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). However, CARB and the BAAQMD recommend the use of a residential exposure duration of 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.

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

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[43] 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.

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

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

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 for moderate intensity.

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-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*

* Exposure Frequency can change dependent on the type of receptors (i.e. residential, worker, school, daycare). For worker exposures (adult), the exposure duration and frequency are 25 years 250 days/year and FAH is not applicable.

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 (µg/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: BISHOP RANCH 6

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size		404	Dwelling Units	31.05 total project acres disturbed
	approximately	905,000	s.f. residential	
		-	s.f. retail	
		-	s.f. office/commercial	
		87,120	s.f. other, specify:	2-acre park
	approximately	204,000	s.f. parking garage	2 covered spaces per unit
	approximately	18,400	s.f. uncovered parking	115 spaces
Construction Hours		7:30 am	to	5 pm

Pile Driving? NO.

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

IF YES (if BOTH separate values) -->

Fuel Type: _____N/A________

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	Start Date:	1/3/2023	Total phase:	40			**Overall Import/Export Volumes**
		End Date:	3/1/2023					
1	Concrete/Industrial Saws	81	0.73	2	6	0.3	710	**Demolition Volume**
3	Excavators	158	0.38	8	40	8	57638	Square footage of buildings to be demolished
	Rubber-Tired Dozers	247	0.4			0	0	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			0	0	_500,000_ square feet *or*
	Other Equipment?							_?_ Hauling volume (tons)
								Any pavement demolished and hauled? _2500 tons_
	Grading / Excavation	Start Date:	3/1/2023	Total phase:	40			
		End Date:	5/1/2023					**Soil Hauling Volume**
1	Excavators	158	0.38	2	10	0.5	1201	Export volume = _10,000_ cubic yards
2	Graders	187	0.41	6	20	3	18401	
	Rubber Tired Dozers	247	0.4			0	0	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	4	40	4	17227	
	Other Equipment?							
	Trenching - Underground Utilities	Start Date:	5/1/2023	Total phase:	170			
		End Date:	12/1/2023					
3	Excavators	158	0.38	4	30	0.7	21614	
2	Tractor/Loader/Backhoe	97	0.37	4	140	3.3	40197	
	Other Equipment?							
	Fine Grade, Rock, and Pave	Start Date:	12/1/2023	Total phase:	80			
		End Date:	4/1/2024					
2	Graders	187	0.41	6	14	1.1	12881	
2	Tractors/Loaders/Backhoes	97	0.37	6	20	1.5	8614	
2	Rollers	80	0.38	6	20	1.5	7296	
	Cement and Mortar Mixers	9	0.56			0	0	**Cement Trucks? _Y_ Total Round-Trips 120 trucks for the duration of fine grade, rock and pave.**
2	Rollers	80	0.38	6	20	1.5	7296	
1	Pavers	130	0.42	8	8	0.8	3494	
	Other Equipment?							
	Building - Foundation	Start Date:	9/1/2023	Total phase:	975			
		End Date:	10/1/2027					
3	Tractor/Loader/Backhoe	97	0.37	6	150	0.9	96903	**Cement Trucks? _Y_ Total Round-Trips 720 trucks for the duration of the project for foundations**
3	Excavators	158	0.38	6	150	0.9	162108	
	Other Equipment?							
	Building - Exterior	Start Date:	11/1/2023	Total phase:	1100			
		End Date:	4/31/28					
1	Cranes	231	0.29	4	50	0.2	13398	Electric? (Y/N) _N_ Otherwise assumed diesel
3	Forklifts	89	0.2	7	780	5.0	291564	Liquid Propane (LPG)? (Y/N) _N_ Otherwise Assumed diesel
2	Generator Sets	84	0.74	8	120	0.9	119347	2 70 KW Generators for 2 months until temporary line power is established.
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Welders	46	0.45			0	0	
	Other Equipment?							
Building - Interior/Architectural Coating		Start Date:	7/1/2024	Total phase:	1100			
		End Date:	12/31/2028					
15	Air Compressors	78	0.48	7	780	5.0	3066336	
	Aerial Lift	62	0.31			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

Traffic Consultant Trip Gen					CalEEMod Default		
Land Use	Size	Daily Trips	New Trips	Weekday Trip Gen	Weekday	Sat	Sun
		3	3	*9.44*	.	. 1	.
					Rev	*9.83*	*8.55*
	13		1	*7.32*	. 1	.	.
					Rev	*7.14*	*6.10*
Total trips		*3525*					
Existing Office	3.			*10.07*	11. 3	.	1.
					Rev	*2.25*	*0.96*

TABLE 1
PROJECT TRIP GENERATION ESTIMATES
BR6 RESIDENTIAL REDEVELOPMENT

Land Use	ITE Land Use	Rate	Daily	A.M. Peak Hour			P.M. Peak Hour		
				In	Out	Total	In	Out	Total
TRIP GENERATION RATES [a]									
Single-Family Detached Housing	210	per Dwelling Unit	9.44	25%	75%	0.74	63%	37%	0.99
Multi-Family Housing (Low-Rise)	220	per Dwelling Unit	7.32	23%	77%	0.46	63%	37%	0.56
General Office Building	710	per ksf	[b]	86%	14%	[b]	16%	84%	[b]
TRIP GENERATION ESTIMATES									
Proposed Project									
Single Family Detached Housing	210	266 du	2,511	49	148	197	166	97	263
Multi-Family Housing (Low-Rise)	220	140 du	1,025	15	49	64	49	29	78
TOTAL - PROPOSED USES			**3,536**	**64**	**197**	**261**	**215**	**126**	**341**
Existing to be Removed									
General Office	710	563.8 ksf	(5,680)	(478)	(78)	(556)	(94)	(495)	(589)
TOTAL - EXISTING TO BE REMOVED			***(5,680)***	***(478)***	***(78)***	***(556)***	***(94)***	***(495)***	***(589)***
TOTAL - NET NEW PROJECT TRIPS			**(2,144)**	**(414)**	**119**	**(295)**	**121**	**(369)**	**(248)**

Notes:
ksf: 1,000 square feet, du: dwelling unit
[a] Trip generation rates are from *Trip Generation, 10th Edition* (Institute of Transportation Engineers, 2017) and are based on developments located in "General Urban/Suburban" location, unless otherwise noted.
[b] Trip generation rates for general office are based on fitted curve equation rates.
Weekday Daily - Ln(T) = 0.97 Ln(X) + 2.50 T = Average Vehicle Trips
Weekday A.M. Peak Hour - T = 0.94 (X) + 26.49 X = Gross Leasable Area (1,000 sf)

Construction Criteria Air Pollutants						
Unmitigated			1	.	**CO2e**	
3	.	.	. 3	. 1	.311	
	1.	1. 3	.	.	31 . 3	
	.	.	.1	.1	.	
	.	.	.1	.1	.	
	.	. 3	.1	.1	.	
	.	1.	.	.	3 . 1	
EMFAC						
3	.1	. 3	.	. 3	.	
	.1	. 3	.	. 3	3.3	
	.	.	.	. 3	1.3	
	.	. 1	.	. 3	.	
	.	.	.	. 3	.	
	.	.	.	. 3	. 1	
Total Construction Emissions by Year						
3	.1	1.1	.1	.	. 3	
	1.1	.1	.1	.11	1 .	
	.1	.	.1	.13	.1	
	.1	.	.1	.13	1.	
	.13	.	.1	.13	3.	
	.	.	.1	.1	.	
	Total Construction Emissions					
	.	1 .	.	.	.31	
	Average Daily Emissions					
3	1.1	. 3	.	. 1		**259**
	.	1 . 1	1.1	.		**262**
	1 .	.	1.3	1. 3		**261**
	1 . 1	. 1	1.3	1.		**261**
	1 .3	1.	1.3	1.		**261**
	1 .1	1 .	1.	.		**260**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
	.	11 .	.	.	.	
	1 .	1 .	1.	.	.	1 .
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
Operational Criteria Air Pollutants						
Unmitigated			1	.		
	.3	.1	3.	.		
	Existing Use Emissions					
	. 1	.	3.	1.		
	Net Annual Operational Emissions					
	.3	.3	. 3	. 1		
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**		
	Average Daily Emissions					
	13.	.	.	1.1		
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Category	**CO2e**			
			3	
	33.		33	
	3 .	1 1	31	1 1
	.	31	3	31 3
	1 3.3		1 3	
	3 .3		3	
	3 3.	1	3 31	
		1		1
	11 .			
		3.		.

2400-2440 Camino Ramon, San Ramon

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	136.00	Dwelling Unit	7.00	373,327.00	389
Single Family Housing	268.00	Dwelling Unit	22.05	735,673.00	766
Parking Lot	115.00	Space	0.00	18,400.00	0
City Park	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2029
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Co2 Intensity Factor 2017 = 210

Land Use - Provided land uses - plans & const worksheet

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Grading - grading = 10,000cy export

Demolition - existing building demo = 500,000-sf

Trips and VMT - 0 Trips EMFAC2017, 2,500 tons pavement demo, fine grade & pave = 120 cement truck round trips, building foundation = 720 cement truck round trips

Vehicle Trips - Trip rates based on provided traffic data

Vehicle Emission Factors - EMFAC2017 Emissions Contra Costa County 2029

Woodstoves - No wood all gas

Water And Wastewater - WWTP 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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	35.00	1,175.00
tblConstructionPhase	NumDays	500.00	1,171.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	45.00	44.00
tblConstructionPhase	NumDays	35.00	87.00
tblConstructionPhase	NumDays	500.00	1,066.00
tblConstructionPhase	PhaseEndDate	7/21/2025	12/29/2028
tblConstructionPhase	PhaseEndDate	4/14/2025	4/28/2028
tblConstructionPhase	PhaseEndDate	2/13/2023	3/1/2023
tblConstructionPhase	PhaseEndDate	5/15/2023	5/1/2023
tblConstructionPhase	PhaseEndDate	6/2/2025	4/1/2024
tblConstructionPhase	PhaseStartDate	6/3/2025	7/1/2024
tblConstructionPhase	PhaseStartDate	5/16/2023	11/3/2023
tblConstructionPhase	PhaseStartDate	3/14/2023	3/1/2023
tblConstructionPhase	PhaseStartDate	4/15/2025	12/1/2023
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	20.40	43.52
tblFireplaces	NumberGas	67.00	182.24
tblFireplaces	NumberWood	23.12	0.00
tblFireplaces	NumberWood	115.24	0.00

tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11

tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	1.6590e-003	8.4053e-004
tblFleetMix	OBUS	1.6590e-003	8.4053e-004
tblFleetMix	OBUS	1.6590e-003	8.4053e-004
tblFleetMix	OBUS	1.6590e-003	8.4053e-004
tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblGrading	MaterialExported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	136,000.00	373,327.00
tblLandUse	LandUseSquareFeet	482,400.00	735,673.00
tblLandUse	LandUseSquareFeet	46,000.00	18,400.00
tblLandUse	LotAcreage	8.50	7.00
tblLandUse	LotAcreage	87.01	22.05
tblLandUse	LotAcreage	1.03	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.30
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	7.00	0.20
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.90
tblOffRoadEquipment	UsageHours	8.00	0.80

tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.90
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblTripsAndVMT	HaulingTripNumber	2,274.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	0.00
tblTripsAndVMT	VendorTripNumber	60.00	0.00
tblTripsAndVMT	VendorTripNumber	60.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	239.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	48.00	0.00
tblTripsAndVMT	WorkerTripNumber	239.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblVehicleEF	HHD	0.35	0.02
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.45	6.21

tblVehicleEF	HHD	0.86	0.40
tblVehicleEF	HHD	3.00	5.5540e-003
tblVehicleEF	HHD	4,084.29	936.80
tblVehicleEF	HHD	1,499.04	1,254.65
tblVehicleEF	HHD	9.15	0.04
tblVehicleEF	HHD	12.48	5.15
tblVehicleEF	HHD	1.62	2.52
tblVehicleEF	HHD	19.63	2.37
tblVehicleEF	HHD	4.0950e-003	2.1620e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.7220e-003	0.02
tblVehicleEF	HHD	1.0200e-004	0.00
tblVehicleEF	HHD	3.9180e-003	2.0680e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8200e-003	8.8780e-003
tblVehicleEF	HHD	5.4740e-003	0.02
tblVehicleEF	HHD	9.3000e-005	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4840e-003	4.9000e-005
tblVehicleEF	HHD	0.38	0.42
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	3.1000e-004	2.5700e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	HHD	0.04	8.7210e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.4000e-004	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4840e-003	4.9000e-005

tblVehicleEF	HHD	0.44	0.48
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.14	0.07
tblVehicleEF	HHD	3.1000e-004	2.5700e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	LDA	2.1780e-003	1.0580e-003
tblVehicleEF	LDA	2.5830e-003	0.03
tblVehicleEF	LDA	0.36	0.42
tblVehicleEF	LDA	0.71	1.81
tblVehicleEF	LDA	190.67	219.99
tblVehicleEF	LDA	43.71	46.54
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDA	1.2850e-003	1.0090e-003
tblVehicleEF	LDA	1.9580e-003	1.3770e-003
tblVehicleEF	LDA	1.1820e-003	9.2900e-004
tblVehicleEF	LDA	1.8010e-003	1.2660e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.4590e-003	3.6210e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDA	1.9080e-003	9.2000e-005
tblVehicleEF	LDA	4.4900e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	7.9410e-003	5.2600e-003
tblVehicleEF	LDA	0.03	0.18

tblVehicleEF	LDA	0.04	0.15
tblVehicleEF	LDT1	3.9560e-003	1.9530e-003
tblVehicleEF	LDT1	5.9280e-003	0.04
tblVehicleEF	LDT1	0.56	0.57
tblVehicleEF	LDT1	1.37	1.96
tblVehicleEF	LDT1	242.57	266.88
tblVehicleEF	LDT1	56.65	57.04
tblVehicleEF	LDT1	0.05	0.04
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT1	1.5560e-003	1.1740e-003
tblVehicleEF	LDT1	2.3730e-003	1.6150e-003
tblVehicleEF	LDT1	1.4310e-003	1.0800e-003
tblVehicleEF	LDT1	2.1820e-003	1.4850e-003
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.14	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	9.8030e-003	7.7120e-003
tblVehicleEF	LDT1	0.10	0.45
tblVehicleEF	LDT1	0.08	0.19
tblVehicleEF	LDT1	2.4310e-003	2.7800e-003
tblVehicleEF	LDT1	5.9000e-004	0.00
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.14	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.10	0.45
tblVehicleEF	LDT1	0.09	0.21
tblVehicleEF	LDT2	3.0510e-003	1.8020e-003
tblVehicleEF	LDT2	3.5110e-003	0.05
tblVehicleEF	LDT2	0.49	0.55

tblVehicleEF	LDT2	0.95	2.38
tblVehicleEF	LDT2	273.83	276.18
tblVehicleEF	LDT2	63.03	59.45
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.06	0.18
tblVehicleEF	LDT2	1.3880e-003	1.0960e-003
tblVehicleEF	LDT2	2.1140e-003	1.4180e-003
tblVehicleEF	LDT2	1.2770e-003	1.0090e-003
tblVehicleEF	LDT2	1.9440e-003	1.3040e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	7.5760e-003	6.7050e-003
tblVehicleEF	LDT2	0.05	0.37
tblVehicleEF	LDT2	0.05	0.20
tblVehicleEF	LDT2	2.7410e-003	9.9530e-003
tblVehicleEF	LDT2	6.4600e-004	9.3000e-005
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	0.01	9.7460e-003
tblVehicleEF	LDT2	0.05	0.37
tblVehicleEF	LDT2	0.05	0.22
tblVehicleEF	LHD1	4.1140e-003	4.2060e-003
tblVehicleEF	LHD1	0.01	6.1050e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.73	0.57
tblVehicleEF	LHD1	1.79	0.90
tblVehicleEF	LHD1	9.07	8.59

tblVehicleEF	LHD1	650.46	713.81
tblVehicleEF	LHD1	26.97	9.98
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.87	0.53
tblVehicleEF	LHD1	0.75	0.24
tblVehicleEF	LHD1	8.7200e-004	9.5600e-004
tblVehicleEF	LHD1	0.01	9.9530e-003
tblVehicleEF	LHD1	0.01	9.3840e-003
tblVehicleEF	LHD1	6.9400e-004	2.0900e-004
tblVehicleEF	LHD1	8.3500e-004	9.1500e-004
tblVehicleEF	LHD1	2.5990e-003	2.4880e-003
tblVehicleEF	LHD1	0.01	8.9350e-003
tblVehicleEF	LHD1	6.3800e-004	1.9300e-004
tblVehicleEF	LHD1	1.9130e-003	1.4790e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.1460e-003	8.8500e-004
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.17	0.05
tblVehicleEF	LHD1	9.0000e-005	8.3000e-005
tblVehicleEF	LHD1	6.3570e-003	6.9560e-003
tblVehicleEF	LHD1	3.0300e-004	9.9000e-005
tblVehicleEF	LHD1	1.9130e-003	1.4790e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1460e-003	8.8500e-004
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.18	0.05

tblVehicleEF	LHD2	2.5880e-003	2.5310e-003
tblVehicleEF	LHD2	5.5320e-003	5.6610e-003
tblVehicleEF	LHD2	3.4940e-003	5.1200e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.47	0.53
tblVehicleEF	LHD2	0.88	0.47
tblVehicleEF	LHD2	13.79	13.48
tblVehicleEF	LHD2	679.35	693.67
tblVehicleEF	LHD2	21.62	6.33
tblVehicleEF	LHD2	0.08	0.09
tblVehicleEF	LHD2	0.33	0.56
tblVehicleEF	LHD2	0.28	0.13
tblVehicleEF	LHD2	1.0940e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.6000e-004	1.0000e-004
tblVehicleEF	LHD2	1.0470e-003	1.4500e-003
tblVehicleEF	LHD2	2.7100e-003	2.7180e-003
tblVehicleEF	LHD2	9.9300e-003	0.01
tblVehicleEF	LHD2	3.3100e-004	9.2000e-005
tblVehicleEF	LHD2	4.8900e-004	6.0600e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2300e-004	3.9200e-004
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	1.3400e-004	1.2900e-004
tblVehicleEF	LHD2	6.5990e-003	6.6880e-003
tblVehicleEF	LHD2	2.3100e-004	6.3000e-005

tblVehicleEF	LHD2	4.8900e-004	6.0600e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.2300e-004	3.9200e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.05	0.03
tblVehicleEF	MCY	0.47	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.54	18.77
tblVehicleEF	MCY	10.35	9.20
tblVehicleEF	MCY	174.97	212.86
tblVehicleEF	MCY	43.72	60.28
tblVehicleEF	MCY	1.15	1.15
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.1930e-003	2.1550e-003
tblVehicleEF	MCY	3.4180e-003	2.8920e-003
tblVehicleEF	MCY	2.0460e-003	2.0110e-003
tblVehicleEF	MCY	3.2030e-003	2.7110e-003
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.65	0.69
tblVehicleEF	MCY	0.51	1.07
tblVehicleEF	MCY	2.20	2.21
tblVehicleEF	MCY	0.46	1.66
tblVehicleEF	MCY	2.16	1.92
tblVehicleEF	MCY	2.1180e-003	2.1060e-003
tblVehicleEF	MCY	6.7000e-004	5.9700e-004
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.65	0.69
tblVehicleEF	MCY	0.51	1.07

tblVehicleEF	MCY	2.75	2.76
tblVehicleEF	MCY	0.46	1.66
tblVehicleEF	MCY	2.35	2.09
tblVehicleEF	MDV	5.5250e-003	2.2430e-003
tblVehicleEF	MDV	9.1570e-003	0.05
tblVehicleEF	MDV	0.70	0.60
tblVehicleEF	MDV	1.81	2.52
tblVehicleEF	MDV	376.75	340.83
tblVehicleEF	MDV	86.77	72.22
tblVehicleEF	MDV	0.08	0.05
tblVehicleEF	MDV	0.14	0.21
tblVehicleEF	MDV	1.4480e-003	1.1350e-003
tblVehicleEF	MDV	2.1620e-003	1.4460e-003
tblVehicleEF	MDV	1.3340e-003	1.0470e-003
tblVehicleEF	MDV	1.9880e-003	1.3290e-003
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.01	8.8520e-003
tblVehicleEF	MDV	0.09	0.41
tblVehicleEF	MDV	0.12	0.24
tblVehicleEF	MDV	3.7680e-003	3.1690e-003
tblVehicleEF	MDV	8.9900e-004	6.7200e-004
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.09	0.41
tblVehicleEF	MDV	0.14	0.27
tblVehicleEF	MH	0.01	5.9290e-003

tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.66	0.42
tblVehicleEF	MH	3.99	1.65
tblVehicleEF	MH	1,192.04	1,387.27
tblVehicleEF	MH	56.93	15.71
tblVehicleEF	MH	0.99	1.29
tblVehicleEF	MH	0.67	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.7300e-004	2.0000e-004
tblVehicleEF	MH	3.2260e-003	3.3100e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.0200e-004	1.8400e-004
tblVehicleEF	MH	0.51	0.39
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.21	0.17
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	0.01	0.65
tblVehicleEF	MH	0.24	0.08
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3900e-004	1.5600e-004
tblVehicleEF	MH	0.51	0.39
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.21	0.17
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.01	0.65
tblVehicleEF	MH	0.26	0.08
tblVehicleEF	MHD	0.02	4.2060e-003
tblVehicleEF	MHD	3.0370e-003	1.3040e-003
tblVehicleEF	MHD	0.03	9.3890e-003

tblVehicleEF	MHD	0.37	0.46
tblVehicleEF	MHD	0.26	0.18
tblVehicleEF	MHD	3.96	0.99
tblVehicleEF	MHD	132.46	78.35
tblVehicleEF	MHD	1,173.14	1,040.99
tblVehicleEF	MHD	59.60	9.42
tblVehicleEF	MHD	0.35	0.44
tblVehicleEF	MHD	1.04	1.44
tblVehicleEF	MHD	10.02	1.66
tblVehicleEF	MHD	7.2000e-005	2.3800e-004
tblVehicleEF	MHD	3.0730e-003	7.1160e-003
tblVehicleEF	MHD	8.3100e-004	1.2100e-004
tblVehicleEF	MHD	6.9000e-005	2.2800e-004
tblVehicleEF	MHD	2.9330e-003	6.7990e-003
tblVehicleEF	MHD	7.6400e-004	1.1100e-004
tblVehicleEF	MHD	6.2000e-004	3.0700e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.9900e-004	1.9500e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.24	0.05
tblVehicleEF	MHD	1.2760e-003	7.4300e-004
tblVehicleEF	MHD	0.01	9.9530e-003
tblVehicleEF	MHD	6.6500e-004	9.3000e-005
tblVehicleEF	MHD	6.2000e-004	3.0700e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.9900e-004	1.9500e-004
tblVehicleEF	MHD	0.05	0.02

tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.27	0.05
tblVehicleEF	OBUS	0.01	8.6850e-003
tblVehicleEF	OBUS	5.2370e-003	4.7170e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.55
tblVehicleEF	OBUS	0.34	0.50
tblVehicleEF	OBUS	4.59	2.43
tblVehicleEF	OBUS	79.79	71.17
tblVehicleEF	OBUS	1,262.08	1,334.32
tblVehicleEF	OBUS	67.57	19.14
tblVehicleEF	OBUS	0.16	0.28
tblVehicleEF	OBUS	0.71	1.05
tblVehicleEF	OBUS	2.13	0.76
tblVehicleEF	OBUS	1.5000e-005	9.6000e-005
tblVehicleEF	OBUS	2.4970e-003	6.2360e-003
tblVehicleEF	OBUS	9.5900e-004	2.1100e-004
tblVehicleEF	OBUS	1.4000e-005	9.2000e-005
tblVehicleEF	OBUS	2.3600e-003	5.9420e-003
tblVehicleEF	OBUS	8.8200e-004	1.9400e-004
tblVehicleEF	OBUS	1.1340e-003	1.5470e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.6600e-004	7.7000e-004
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.29	0.12
tblVehicleEF	OBUS	7.7300e-004	6.7800e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5600e-004	1.8900e-004

tblVehicleEF	OBUS	1.1340e-003	1.5470e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	5.6600e-004	7.7000e-004
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.32	0.13
tblVehicleEF	SBUS	0.84	0.02
tblVehicleEF	SBUS	4.7360e-003	1.8650e-003
tblVehicleEF	SBUS	0.05	1.4000e-003
tblVehicleEF	SBUS	2.29	1.40
tblVehicleEF	SBUS	0.35	0.17
tblVehicleEF	SBUS	1.50	0.20
tblVehicleEF	SBUS	1,380.95	277.42
tblVehicleEF	SBUS	1,214.36	910.22
tblVehicleEF	SBUS	13.14	1.14
tblVehicleEF	SBUS	8.58	1.81
tblVehicleEF	SBUS	2.84	1.97
tblVehicleEF	SBUS	18.71	1.78
tblVehicleEF	SBUS	4.9450e-003	9.0900e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.4600e-004	1.9000e-005
tblVehicleEF	SBUS	4.7310e-003	8.6900e-004
tblVehicleEF	SBUS	2.9140e-003	2.8940e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.2600e-004	1.7000e-005
tblVehicleEF	SBUS	6.2900e-004	1.1900e-004
tblVehicleEF	SBUS	5.9440e-003	1.1240e-003
tblVehicleEF	SBUS	0.27	0.09

tblVehicleEF	SBUS	3.1700e-004	5.9000e-005
tblVehicleEF	SBUS	0.09	0.03
tblVehicleEF	SBUS	2.6860e-003	7.6530e-003
tblVehicleEF	SBUS	0.08	7.7670e-003
tblVehicleEF	SBUS	0.01	2.6280e-003
tblVehicleEF	SBUS	0.01	8.6350e-003
tblVehicleEF	SBUS	1.5700e-004	1.1000e-005
tblVehicleEF	SBUS	6.2900e-004	1.1900e-004
tblVehicleEF	SBUS	5.9440e-003	1.1240e-003
tblVehicleEF	SBUS	0.38	0.13
tblVehicleEF	SBUS	3.1700e-004	5.9000e-005
tblVehicleEF	SBUS	0.10	0.04
tblVehicleEF	SBUS	2.6860e-003	7.6530e-003
tblVehicleEF	SBUS	0.09	8.5040e-003
tblVehicleEF	UBUS	0.22	1.60
tblVehicleEF	UBUS	0.07	1.4130e-003
tblVehicleEF	UBUS	3.05	12.04
tblVehicleEF	UBUS	10.41	0.21
tblVehicleEF	UBUS	1,893.80	1,536.80
tblVehicleEF	UBUS	152.09	2.68
tblVehicleEF	UBUS	3.39	0.61
tblVehicleEF	UBUS	11.91	0.02
tblVehicleEF	UBUS	0.48	0.08
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.06	4.6730e-003
tblVehicleEF	UBUS	1.4670e-003	4.6000e-005
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	7.1530e-003
tblVehicleEF	UBUS	0.06	4.4630e-003
tblVehicleEF	UBUS	1.3490e-003	4.3000e-005

tblVehicleEF	UBUS	4.5960e-003	2.7300e-004
tblVehicleEF	UBUS	0.08	2.9810e-003
tblVehicleEF	UBUS	2.7110e-003	1.7800e-004
tblVehicleEF	UBUS	0.19	0.02
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.93	4.7540e-003
tblVehicleEF	UBUS	0.02	9.8410e-003
tblVehicleEF	UBUS	1.7120e-003	2.6000e-005
tblVehicleEF	UBUS	4.5960e-003	2.7300e-004
tblVehicleEF	UBUS	0.08	2.9810e-003
tblVehicleEF	UBUS	2.7110e-003	1.7800e-004
tblVehicleEF	UBUS	0.43	1.63
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.01	5.2050e-003
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.14
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	6.10
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	7.32
tblVehicleTrips	WD_TR	9.52	9.44
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	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	0.0508	0.4889	0.6957	1.1200e-003	0.2554	0.0230	0.2784	0.0383	0.0212	0.0595	0.0000	98.5361	98.5361	0.0310	0.0000	99.3117
2024	1.0827	1.5342	2.2282	3.5900e-003	0.0000	0.0768	0.0768	0.0000	0.0750	0.0750	0.0000	309.8469	309.8469	0.0392	0.0000	310.8277
2025	2.0569	2.2622	3.5834	5.8000e-003	0.0000	0.1030	0.1030	0.0000	0.1017	0.1017	0.0000	499.6691	499.6691	0.0449	0.0000	500.7907
2026	2.0569	2.2622	3.5834	5.8000e-003	0.0000	0.1030	0.1030	0.0000	0.1017	0.1017	0.0000	499.6691	499.6691	0.0449	0.0000	500.7907
2027	2.0537	2.2341	3.5232	5.7100e-003	0.0000	0.1018	0.1018	0.0000	0.1006	0.1006	0.0000	491.6847	491.6847	0.0423	0.0000	492.7418
2028	2.0157	1.9530	3.0670	5.0200e-003	0.0000	0.0882	0.0882	0.0000	0.0880	0.0880	0.0000	431.5485	431.5485	0.0265	0.0000	432.2102
Maximum	**2.0569**	**2.2622**	**3.5834**	**5.8000e-003**	**0.2554**	**0.1030**	**0.2784**	**0.0383**	**0.1017**	**0.1017**	**0.0000**	**499.6691**	**499.6691**	**0.0449**	**0.0000**	**500.7907**

Mitigated Construction

Year	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
	tons/yr										MT/yr					
2023	0.0190	0.4663	0.8143	1.1200e-003	0.1149	1.8200e-003	0.1168	8.6200e-003	1.8200e-003	0.0104	0.0000	98.5360	98.5360	0.0310	0.0000	99.3116
2024	0.9441	1.3419	2.3252	3.5900e-003	0.0000	5.0700e-003	5.0700e-003	0.0000	5.0700e-003	5.0700e-003	0.0000	309.8465	309.8465	0.0392	0.0000	310.8273
2025	1.8420	2.1270	3.6782	5.8000e-003	0.0000	7.9600e-003	7.9600e-003	0.0000	7.9600e-003	7.9600e-003	0.0000	499.6685	499.6685	0.0449	0.0000	500.7901
2026	1.8420	2.1270	3.6782	5.8000e-003	0.0000	7.9600e-003	7.9600e-003	0.0000	7.9600e-003	7.9600e-003	0.0000	499.6685	499.6685	0.0449	0.0000	500.7901
2027	1.8405	2.0872	3.6095	5.7100e-003	0.0000	7.8100e-003	7.8100e-003	0.0000	7.8100e-003	7.8100e-003	0.0000	491.6841	491.6841	0.0423	0.0000	492.7412
2028	1.8208	1.7998	3.1123	5.0200e-003	0.0000	6.7300e-003	6.7300e-003	0.0000	6.7300e-003	6.7300e-003	0.0000	431.5480	431.5480	0.0265	0.0000	432.2097
Maximum	**1.8420**	**2.1270**	**3.6782**	**5.8000e-003**	**0.1149**	**7.9600e-003**	**0.1168**	**8.6200e-003**	**7.9600e-003**	**0.0104**	**0.0000**	**499.6685**	**499.6685**	**0.0449**	**0.0000**	**500.7901**

	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	**10.82**	**7.32**	**-3.22**	**0.00**	**55.00**	**92.47**	**79.73**	**77.49**	**92.35**	**91.27**	**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	**1-3-2023**	**4-2-2023**	0.1859	0.1905
2	**4-3-2023**	**7-2-2023**	0.1080	0.0783
3	**7-3-2023**	**10-2-2023**	0.0738	0.0733
4	**10-3-2023**	**1-2-2024**	0.1794	0.1473
5	**1-3-2024**	**4-2-2024**	0.2237	0.1732
6	**4-3-2024**	**7-2-2024**	0.1402	0.1231
7	**7-3-2024**	**10-2-2024**	1.1312	0.9993
8	**10-3-2024**	**1-2-2025**	1.1302	0.9993
9	**1-3-2025**	**4-2-2025**	1.0638	0.9776
10	**4-3-2025**	**7-2-2025**	1.0756	0.9884
11	**7-3-2025**	**10-2-2025**	1.0875	0.9993

12	**10-3-2025**	**1-2-2026**	1.0875	0.9993
13	**1-3-2026**	**4-2-2026**	1.0638	0.9776
14	**4-3-2026**	**7-2-2026**	1.0756	0.9884
15	**7-3-2026**	**10-2-2026**	1.0875	0.9993
16	**10-3-2026**	**1-2-2027**	1.0875	0.9993
17	**1-3-2027**	**4-2-2027**	1.0638	0.9776
18	**4-3-2027**	**7-2-2027**	1.0756	0.9884
19	**7-3-2027**	**10-2-2027**	1.0871	0.9989
20	**10-3-2027**	**1-2-2028**	1.0558	0.9576
21	**1-3-2028**	**4-2-2028**	1.0443	0.9472
22	**4-3-2028**	**7-2-2028**	0.9890	0.9026
23	**7-3-2028**	**9-30-2028**	0.9562	0.8750
		Highest	1.1312	0.9993

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	5.2072	0.0589	3.0083	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2400e-003	5.2000e-004	33.3708
Energy	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	824.0687	824.0687	0.0482	0.0179	830.6074
Mobile	1.1143	1.6574	8.5472	0.0266	2.9878	0.0194	3.0072	0.7996	0.0182	0.8178	0.0000	2,477.6944	2,477.6944	0.1011	0.0000	2,480.2218
Waste						0.0000	0.0000		0.0000	0.0000	78.0399	0.0000	78.0399	4.6120	0.0000	193.3405
Water						0.0000	0.0000		0.0000	0.0000	9.3128	19.8939	29.2068	0.0348	0.0208	36.2814
Total	**6.3772**	**2.1925**	**11.7582**	**0.0299**	**2.9878**	**0.0765**	**3.0643**	**0.7996**	**0.0753**	**0.8749**	**87.3527**	**3,354.7429**	**3,442.0956**	**4.8014**	**0.0392**	**3,573.8219**

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	5.2072	0.0589	3.0083	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2400e-003	5.2000e-004	33.3708
Energy	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	824.0687	824.0687	0.0482	0.0179	830.6074
Mobile	1.1143	1.6574	8.5472	0.0266	2.9878	0.0194	3.0072	0.7996	0.0182	0.8178	0.0000	2,477.6944	2,477.6944	0.1011	0.0000	2,480.2218
Waste						0.0000	0.0000		0.0000	0.0000	78.0399	0.0000	78.0399	4.6120	0.0000	193.3405
Water						0.0000	0.0000		0.0000	0.0000	9.3128	19.8939	29.2068	0.0348	0.0208	36.2814
Total	**6.3772**	**2.1925**	**11.7582**	**0.0299**	**2.9878**	**0.0765**	**3.0643**	**0.7996**	**0.0753**	**0.8749**	**87.3527**	**3,354.7429**	**3,442.0956**	**4.8014**	**0.0392**	**3,573.8219**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/3/2023	3/1/2023	5	42	
2	Grading / Excavation	Grading	3/1/2023	5/1/2023	5	44	
3	Trenching - Underground Utilities	Trenching	5/1/2023	12/1/2023	5	155	
4	Building Foundation	Building Construction	9/1/2023	10/1/2027	5	1066	
5	Building Construction - Exterior	Building Construction	11/3/2023	4/28/2028	5	1171	
6	Fine Grade, Rock, and Pave	Paving	12/1/2023	4/1/2024	5	87	
7	Architectural Coating	Architectural Coating	7/1/2024	12/29/2028	5	1175	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 2,245,725; Residential Outdoor: 748,575; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	15	5.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	0.30	81	0.73
Grading / Excavation	Excavators	1	0.50	158	0.38
Building Construction - Exterior	Cranes	1	0.20	231	0.29
Building Construction - Exterior	Forklifts	3	5.00	89	0.20
Building Construction - Exterior	Generator Sets	2	0.90	84	0.74
Fine Grade, Rock, and Pave	Pavers	1	0.80	130	0.42
Fine Grade, Rock, and Pave	Rollers	4	1.50	80	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Grading / Excavation	Rubber Tired Dozers	0	0.00	247	0.40
Building Construction - Exterior	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Grading / Excavation	Graders	2	3.00	187	0.41
Grading / Excavation	Tractors/Loaders/Backhoes	3	4.00	97	0.37
Fine Grade, Rock, and Pave	Paving Equipment	0	0.00	132	0.36
Building Foundation	Cranes	0	0.00	231	0.29
Building Foundation	Forklifts	0	0.00	89	0.20
Grading / Excavation	Scrapers	0	0.00	367	0.48
Building Construction - Exterior	Welders	0	0.00	46	0.45
Building Foundation	Generator Sets	0	0.00	84	0.74
Building Foundation	Tractors/Loaders/Backhoes	3	0.90	97	0.37
Building Foundation	Welders	0	0.00	46	0.45
Trenching - Underground Utilities	Excavators	3	0.70	158	0.38

Trenching - Underground Utilities	Tractors/Loaders/Backhoes	2	3.30	97	0.37
Building Foundation	Excavators	3	0.90	158	0.38
Fine Grade, Rock, and Pave	Graders	2	1.10	187	0.41
Fine Grade, Rock, and Pave	Tractors/Loaders/Backhoes	2	1.50	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	4	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Foundation	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading / Excavation	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Exterior	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Fine Grade, Rock, and Pave	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	15	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching - Underground Utilities	5	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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					

Category	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
Fugitive Dust					0.2461	0.0000	0.2461	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0122	0.0996	0.2081	3.3000e-004		4.8800e-003	4.8800e-003		4.4900e-003	4.4900e-003	0.0000	29.0058	29.0058	9.2600e-003	0.0000	29.2374
Total	**0.0122**	**0.0996**	**0.2081**	**3.3000e-004**	**0.2461**	**4.8800e-003**	**0.2510**	**0.0373**	**4.4900e-003**	**0.0418**	**0.0000**	**29.0058**	**29.0058**	**9.2600e-003**	**0.0000**	**29.2374**

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					0.1107	0.0000	0.1107	8.3800e-003	0.0000	8.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0900e-003	0.1452	0.2499	3.3000e-004		5.4000e-004	5.4000e-004		5.4000e-004	5.4000e-004	0.0000	29.0057	29.0057	9.2600e-003	0.0000	29.2374
Total	**4.0900e-003**	**0.1452**	**0.2499**	**3.3000e-004**	**0.1107**	**5.4000e-004**	**0.1113**	**8.3800e-003**	**5.4000e-004**	**8.9200e-003**	**0.0000**	**29.0057**	**29.0057**	**9.2600e-003**	**0.0000**	**29.2374**

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 Grading / Excavation - 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					9.3100e-003	0.0000	9.3100e-003	1.0300e-003	0.0000	1.0300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0116	0.1296	0.1060	2.2000e-004		5.0900e-003	5.0900e-003		4.6900e-003	4.6900e-003	0.0000	19.2448	19.2448	6.2200e-003	0.0000	19.4004
Total	**0.0116**	**0.1296**	**0.1060**	**2.2000e-004**	**9.3100e-003**	**5.0900e-003**	**0.0144**	**1.0300e-003**	**4.6900e-003**	**5.7200e-003**	**0.0000**	**19.2448**	**19.2448**	**6.2200e-003**	**0.0000**	**19.4004**

Unmitigated Construction Off-Site

Category	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
	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

Category	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
	tons/yr										MT/yr					
Fugitive Dust					4.1900e-003	0.0000	4.1900e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.1700e-003	0.0766	0.1407	2.2000e-004		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	19.2448	19.2448	6.2200e-003	0.0000	19.4004
Total	**4.1700e-003**	**0.0766**	**0.1407**	**2.2000e-004**	**4.1900e-003**	**3.6000e-004**	**4.5500e-003**	**2.3000e-004**	**3.6000e-004**	**5.9000e-004**	**0.0000**	**19.2448**	**19.2448**	**6.2200e-003**	**0.0000**	**19.4004**

Mitigated Construction Off-Site

Category	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
	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

	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
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 Trenching - Underground Utilities - 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	0.0135	0.1295	0.2087	3.0000e-004		6.3800e-003	6.3800e-003		5.8700e-003	5.8700e-003	0.0000	26.6973	26.6973	8.6300e-003	0.0000	26.9132
Total	**0.0135**	**0.1295**	**0.2087**	**3.0000e-004**		**6.3800e-003**	**6.3800e-003**		**5.8700e-003**	**5.8700e-003**	**0.0000**	**26.6973**	**26.6973**	**8.6300e-003**	**0.0000**	**26.9132**

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	5.7300e-003	0.1328	0.2292	3.0000e-004		5.0000e-004	5.0000e-004		5.0000e-004	5.0000e-004	0.0000	26.6973	26.6973	8.6300e-003	0.0000	26.9132
Total	**5.7300e-003**	**0.1328**	**0.2292**	**3.0000e-004**		**5.0000e-004**	**5.0000e-004**		**5.0000e-004**	**5.0000e-004**	**0.0000**	**26.6973**	**26.6973**	**8.6300e-003**	**0.0000**	**26.9132**

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 Building Foundation - 2023

Unmitigated Construction On-Site

Category	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
	tons/yr										MT/yr					
Off-Road	4.9300e-003	0.0448	0.0797	1.2000e-004		2.2000e-003	2.2000e-003		2.0200e-003	2.0200e-003	0.0000	10.5546	10.5546	3.4100e-003	0.0000	10.6399
Total	**4.9300e-003**	**0.0448**	**0.0797**	**1.2000e-004**		**2.2000e-003**	**2.2000e-003**		**2.0200e-003**	**2.0200e-003**	**0.0000**	**10.5546**	**10.5546**	**3.4100e-003**	**0.0000**	**10.6399**

Unmitigated Construction Off-Site

Category	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
	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

Category	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
	tons/yr										MT/yr					
Off-Road	1.9300e-003	0.0527	0.0909	1.2000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	10.5546	10.5546	3.4100e-003	0.0000	10.6399

Total	1.9300e-003	0.0527	0.0909	1.2000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	10.5546	10.5546	3.4100e-003	0.0000	10.6399

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 Building Foundation - 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	0.0143	0.1261	0.2432	3.7000e-004		5.9900e-003	5.9900e-003		5.5100e-003	5.5100e-003	0.0000	32.1686	32.1686	0.0104	0.0000	32.4287
Total	**0.0143**	**0.1261**	**0.2432**	**3.7000e-004**		**5.9900e-003**	**5.9900e-003**		**5.5100e-003**	**5.5100e-003**	**0.0000**	**32.1686**	**32.1686**	**0.0104**	**0.0000**	**32.4287**

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	5.8900e-003	0.1606	0.2768	3.7000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	32.1686	32.1686	0.0104	0.0000	32.4287
Total	**5.8900e-003**	**0.1606**	**0.2768**	**3.7000e-004**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**32.1686**	**32.1686**	**0.0104**	**0.0000**	**32.4287**

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 Building Foundation - 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	0.0132	0.1126	0.2418	3.7000e-004		5.0200e-003	5.0200e-003		4.6200e-003	4.6200e-003	0.0000	32.0603	32.0603	0.0104	0.0000	32.3195
Total	**0.0132**	**0.1126**	**0.2418**	**3.7000e-004**		**5.0200e-003**	**5.0200e-003**		**4.6200e-003**	**4.6200e-003**	**0.0000**	**32.0603**	**32.0603**	**0.0104**	**0.0000**	**32.3195**

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	5.8700e-003	0.1599	0.2757	3.7000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	32.0603	32.0603	0.0104	0.0000	32.3195
Total	**5.8700e-003**	**0.1599**	**0.2757**	**3.7000e-004**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**32.0603**	**32.0603**	**0.0104**	**0.0000**	**32.3195**

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 Building Foundation - 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	0.0132	0.1126	0.2418	3.7000e-004		5.0200e-003	5.0200e-003		4.6200e-003	4.6200e-003	0.0000	32.0603	32.0603	0.0104	0.0000	32.3195
Total	**0.0132**	**0.1126**	**0.2418**	**3.7000e-004**		**5.0200e-003**	**5.0200e-003**		**4.6200e-003**	**4.6200e-003**	**0.0000**	**32.0603**	**32.0603**	**0.0104**	**0.0000**	**32.3195**

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	5.8700e-003	0.1599	0.2757	3.7000e-004		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004	0.0000	32.0603	32.0603	0.0104	0.0000	32.3195
Total	**5.8700e-003**	**0.1599**	**0.2757**	**3.7000e-004**		**6.0000e-004**	**6.0000e-004**		**6.0000e-004**	**6.0000e-004**	**0.0000**	**32.0603**	**32.0603**	**0.0104**	**0.0000**	**32.3195**

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 Building Foundation - 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	9.9000e-003	0.0846	0.1816	2.7000e-004		3.7700e-003	3.7700e-003		3.4700e-003	3.4700e-003	0.0000	24.0759	24.0759	7.7900e-003	0.0000	24.2706
Total	**9.9000e-003**	**0.0846**	**0.1816**	**2.7000e-004**		**3.7700e-003**	**3.7700e-003**		**3.4700e-003**	**3.4700e-003**	**0.0000**	**24.0759**	**24.0759**	**7.7900e-003**	**0.0000**	**24.2706**

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	4.4000e-003	0.1201	0.2071	2.7000e-004		4.5000e-004	4.5000e-004		4.5000e-004	4.5000e-004	0.0000	24.0759	24.0759	7.7900e-003	0.0000	24.2706
Total	**4.4000e-003**	**0.1201**	**0.2071**	**2.7000e-004**		**4.5000e-004**	**4.5000e-004**		**4.5000e-004**	**4.5000e-004**	**0.0000**	**24.0759**	**24.0759**	**7.7900e-003**	**0.0000**	**24.2706**

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 - Exterior - 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	5.5300e-003	0.0514	0.0619	9.0000e-005		2.9500e-003	2.9500e-003		2.7600e-003	2.7600e-003	0.0000	8.0287	8.0287	1.8700e-003	0.0000	8.0754
Total	**5.5300e-003**	**0.0514**	**0.0619**	**9.0000e-005**		**2.9500e-003**	**2.9500e-003**		**2.7600e-003**	**2.7600e-003**	**0.0000**	**8.0287**	**8.0287**	**1.8700e-003**	**0.0000**	**8.0754**

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	1.9300e-003	0.0374	0.0649	9.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	8.0287	8.0287	1.8700e-003	0.0000	8.0754
Total	**1.9300e-003**	**0.0374**	**0.0649**	**9.0000e-005**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**	**0.0000**	**8.0287**	**8.0287**	**1.8700e-003**	**0.0000**	**8.0754**

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 - Exterior - 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	0.0326	0.3035	0.3937	5.9000e-004		0.0163	0.0163		0.0152	0.0152	0.0000	51.3050	51.3050	0.0119	0.0000	51.6020
Total	**0.0326**	**0.3035**	**0.3937**	**5.9000e-004**		**0.0163**	**0.0163**		**0.0152**	**0.0152**	**0.0000**	**51.3050**	**51.3050**	**0.0119**	**0.0000**	**51.6020**

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	0.0124	0.2392	0.4149	5.9000e-004		9.1000e-004	9.1000e-004		9.1000e-004	9.1000e-004	0.0000	51.3050	51.3050	0.0119	0.0000	51.6020
Total	**0.0124**	**0.2392**	**0.4149**	**5.9000e-004**		**9.1000e-004**	**9.1000e-004**		**9.1000e-004**	**9.1000e-004**	**0.0000**	**51.3050**	**51.3050**	**0.0119**	**0.0000**	**51.6020**

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 - Exterior - 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					

	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
Off-Road	0.0301	0.2810	0.3905	5.9000e-004		0.0140	0.0140		0.0131	0.0131	0.0000	51.1093	51.1093	0.0118	0.0000	51.4037
Total	**0.0301**	**0.2810**	**0.3905**	**5.9000e-004**		**0.0140**	**0.0140**		**0.0131**	**0.0131**	**0.0000**	**51.1093**	**51.1093**	**0.0118**	**0.0000**	**51.4037**

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	0.0123	0.2383	0.4134	5.9000e-004		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	51.1092	51.1092	0.0118	0.0000	51.4036
Total	**0.0123**	**0.2383**	**0.4134**	**5.9000e-004**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**51.1092**	**51.1092**	**0.0118**	**0.0000**	**51.4036**

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 - Exterior - 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	0.0301	0.2810	0.3905	5.9000e-004		0.0140	0.0140		0.0131	0.0131	0.0000	51.1093	51.1093	0.0118	0.0000	51.4037
Total	**0.0301**	**0.2810**	**0.3905**	**5.9000e-004**		**0.0140**	**0.0140**		**0.0131**	**0.0131**	**0.0000**	**51.1093**	**51.1093**	**0.0118**	**0.0000**	**51.4037**

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	0.0123	0.2383	0.4134	5.9000e-004		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	51.1092	51.1092	0.0118	0.0000	51.4036
Total	**0.0123**	**0.2383**	**0.4134**	**5.9000e-004**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**51.1092**	**51.1092**	**0.0118**	**0.0000**	**51.4036**

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

	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
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 - Exterior - 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	0.0301	0.2810	0.3905	5.9000e-004		0.0140	0.0140		0.0131	0.0131	0.0000	51.1093	51.1093	0.0118	0.0000	51.4037
Total	**0.0301**	**0.2810**	**0.3905**	**5.9000e-004**		**0.0140**	**0.0140**		**0.0131**	**0.0131**	**0.0000**	**51.1093**	**51.1093**	**0.0118**	**0.0000**	**51.4037**

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	0.0123	0.2383	0.4134	5.9000e-004		9.0000e-004	9.0000e-004		9.0000e-004	9.0000e-004	0.0000	51.1092	51.1092	0.0118	0.0000	51.4036
Total	**0.0123**	**0.2383**	**0.4134**	**5.9000e-004**		**9.0000e-004**	**9.0000e-004**		**9.0000e-004**	**9.0000e-004**	**0.0000**	**51.1092**	**51.1092**	**0.0118**	**0.0000**	**51.4036**

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 - Exterior - 2028

Unmitigated Construction On-Site

Category	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
	tons/yr										MT/yr					
Off-Road	9.8000e-003	0.0915	0.1272	1.9000e-004		4.5500e-003	4.5500e-003		4.2600e-003	4.2600e-003	0.0000	16.6448	16.6448	3.8300e-003	0.0000	16.7407
Total	**9.8000e-003**	**0.0915**	**0.1272**	**1.9000e-004**		**4.5500e-003**	**4.5500e-003**		**4.2600e-003**	**4.2600e-003**	**0.0000**	**16.6448**	**16.6448**	**3.8300e-003**	**0.0000**	**16.7407**

Unmitigated Construction Off-Site

Category	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
	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

Category	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
	tons/yr										MT/yr					
Off-Road	4.0100e-003	0.0776	0.1346	1.9000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	16.6448	16.6448	3.8300e-003	0.0000	16.7406

Total	4.0100e-003	0.0776	0.1346	1.9000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	16.6448	16.6448	3.8300e-003	0.0000	16.7406

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 Fine Grade, Rock, and Pave - 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	3.1200e-003	0.0341	0.0313	6.0000e-005		1.5200e-003	1.5200e-003		1.4000e-003	1.4000e-003	0.0000	5.0049	5.0049	1.6200e-003	0.0000	5.0454
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.1200e-003**	**0.0341**	**0.0313**	**6.0000e-005**		**1.5200e-003**	**1.5200e-003**		**1.4000e-003**	**1.4000e-003**	**0.0000**	**5.0049**	**5.0049**	**1.6200e-003**	**0.0000**	**5.0454**

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	1.1100e-003	0.0216	0.0387	6.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	5.0049	5.0049	1.6200e-003	0.0000	5.0454
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1100e-003**	**0.0216**	**0.0387**	**6.0000e-005**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**5.0049**	**5.0049**	**1.6200e-003**	**0.0000**	**5.0454**

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 Fine Grade, Rock, and Pave - 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	9.2100e-003	0.0991	0.0980	1.8000e-004		4.3100e-003	4.3100e-003		3.9700e-003	3.9700e-003	0.0000	15.7298	15.7298	5.0900e-003	0.0000	15.8570
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.2100e-003**	**0.0991**	**0.0980**	**1.8000e-004**		**4.3100e-003**	**4.3100e-003**		**3.9700e-003**	**3.9700e-003**	**0.0000**	**15.7298**	**15.7298**	**5.0900e-003**	**0.0000**	**15.8570**

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	3.4900e-003	0.0678	0.1218	1.8000e-004		2.9000e-004	2.9000e-004		2.9000e-004	2.9000e-004	0.0000	15.7298	15.7298	5.0900e-003	0.0000	15.8569
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.4900e-003**	**0.0678**	**0.1218**	**1.8000e-004**		**2.9000e-004**	**2.9000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**15.7298**	**15.7298**	**5.0900e-003**	**0.0000**	**15.8569**

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 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	0.8774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1491	1.0055	1.4934	2.4500e-003		0.0503	0.0503		0.0503	0.0503	0.0000	210.6434	210.6434	0.0119	0.0000	210.9400
Total	**1.0266**	**1.0055**	**1.4934**	**2.4500e-003**		**0.0503**	**0.0503**		**0.0503**	**0.0503**	**0.0000**	**210.6434**	**210.6434**	**0.0119**	**0.0000**	**210.9400**

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	0.8774					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0449	0.8744	1.5117	2.4500e-003		3.2700e-003	3.2700e-003		3.2700e-003	3.2700e-003	0.0000	210.6432	210.6432	0.0119	0.0000	210.9397
Total	**0.9224**	**0.8744**	**1.5117**	**2.4500e-003**		**3.2700e-003**	**3.2700e-003**		**3.2700e-003**	**3.2700e-003**	**0.0000**	**210.6432**	**210.6432**	**0.0119**	**0.0000**	**210.9397**

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 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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2787	1.8686	2.9512	4.8500e-003		0.0840	0.0840		0.0840	0.0840	0.0000	416.4995	416.4995	0.0227	0.0000	417.0675

Total	2.0137	1.8686	2.9512	4.8500e-003		0.0840	0.0840		0.0840	0.0840	0.0000	416.4995	416.4995	0.0227	0.0000	417.0675

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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0889	1.7288	2.9891	4.8500e-003		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	416.4990	416.4990	0.0227	0.0000	417.0670
Total	**1.8238**	**1.7288**	**2.9891**	**4.8500e-003**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**416.4990**	**416.4990**	**0.0227**	**0.0000**	**417.0670**

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 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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2787	1.8686	2.9512	4.8500e-003		0.0840	0.0840		0.0840	0.0840	0.0000	416.4995	416.4995	0.0227	0.0000	417.0675
Total	**2.0137**	**1.8686**	**2.9512**	**4.8500e-003**		**0.0840**	**0.0840**		**0.0840**	**0.0840**	**0.0000**	**416.4995**	**416.4995**	**0.0227**	**0.0000**	**417.0675**

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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0889	1.7288	2.9891	4.8500e-003		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	416.4990	416.4990	0.0227	0.0000	417.0670
Total	**1.8238**	**1.7288**	**2.9891**	**4.8500e-003**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**416.4990**	**416.4990**	**0.0227**	**0.0000**	**417.0670**

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 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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2787	1.8686	2.9512	4.8500e-003		0.0840	0.0840		0.0840	0.0840	0.0000	416.4995	416.4995	0.0227	0.0000	417.0675
Total	**2.0137**	**1.8686**	**2.9512**	**4.8500e-003**		**0.0840**	**0.0840**		**0.0840**	**0.0840**	**0.0000**	**416.4995**	**416.4995**	**0.0227**	**0.0000**	**417.0675**

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	1.7349					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0889	1.7288	2.9891	4.8500e-003		6.4600e-003	6.4600e-003		6.4600e-003	6.4600e-003	0.0000	416.4990	416.4990	0.0227	0.0000	417.0670
Total	**1.8238**	**1.7288**	**2.9891**	**4.8500e-003**		**6.4600e-003**	**6.4600e-003**		**6.4600e-003**	**6.4600e-003**	**0.0000**	**416.4990**	**416.4990**	**0.0227**	**0.0000**	**417.0670**

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 Architectural Coating - 2028

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	1.7283					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2777	1.8615	2.9398	4.8300e-003		0.0837	0.0837		0.0837	0.0837	0.0000	414.9037	414.9037	0.0226	0.0000	415.4696
Total	**2.0059**	**1.8615**	**2.9398**	**4.8300e-003**		**0.0837**	**0.0837**		**0.0837**	**0.0837**	**0.0000**	**414.9037**	**414.9037**	**0.0226**	**0.0000**	**415.4696**

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	1.7283					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0885	1.7222	2.9777	4.8300e-003		6.4400e-003	6.4400e-003		6.4400e-003	6.4400e-003	0.0000	414.9032	414.9032	0.0226	0.0000	415.4691
Total	**1.8168**	**1.7222**	**2.9777**	**4.8300e-003**		**6.4400e-003**	**6.4400e-003**		**6.4400e-003**	**6.4400e-003**	**0.0000**	**414.9032**	**414.9032**	**0.0226**	**0.0000**	**415.4691**

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**

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	1.1143	1.6574	8.5472	0.0266	2.9878	0.0194	3.0072	0.7996	0.0182	0.8178	0.0000	2,477.6944	2,477.6944	0.1011	0.0000	2,480.2218
Unmitigated	1.1143	1.6574	8.5472	0.0266	2.9878	0.0194	3.0072	0.7996	0.0182	0.8178	0.0000	2,477.6944	2,477.6944	0.1011	0.0000	2,480.2218

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Condo/Townhouse	995.52	971.04	829.60	2,236,439	2,236,439
Parking Lot	0.00	0.00	0.00		
Single Family Housing	2,529.92	2,634.44	2291.40	5,798,909	5,798,909
Total	3,525.44	3,605.48	3,121.00	8,035,348	8,035,348

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	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
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769
Condo/Townhouse	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769
Parking Lot	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769
Single Family Housing	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769

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	272.5125	272.5125	0.0376	7.7900e-003	275.7735
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	272.5125	272.5125	0.0376	7.7900e-003	275.7735
NaturalGas Mitigated	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	551.5562	551.5562	0.0106	0.0101	554.8339
NaturalGas Unmitigated	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	551.5562	551.5562	0.0106	0.0101	554.8339

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					
City Park	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
Condo/Townhouse	2.54633e+006	0.0137	0.1173	0.0499	7.5000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	135.8818	135.8818	2.6000e-003	2.4900e-003	136.6893
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
Single Family Housing	7.78944e+006	0.0420	0.3589	0.1527	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.6744	415.6744	7.9700e-003	7.6200e-003	418.1446
Total		**0.0557**	**0.4763**	**0.2027**	**3.0400e-003**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**551.5562**	**551.5562**	**0.0106**	**0.0101**	**554.8339**

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					
City Park	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

Condo/Townhouse	2.54633e+006	0.0137	0.1173	0.0499	7.5000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	135.8818	135.8818	2.6000e-003	2.4900e-003	136.6893
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
Single Family Housing	7.78944e+006	0.0420	0.3589	0.1527	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.6744	415.6744	7.9700e-003	7.6200e-003	418.1446
Total		**0.0557**	**0.4763**	**0.2027**	**3.0400e-003**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**551.5562**	**551.5562**	**0.0106**	**0.0101**	**554.8339**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	686178	65.3615	9.0300e-003	1.8700e-003	66.1437
Parking Lot	6440	0.6134	8.0000e-005	2.0000e-005	0.6208
Single Family Housing	2.16827e+006	206.5375	0.0285	5.9000e-003	209.0091
Total		**272.5125**	**0.0376**	**7.7900e-003**	**275.7735**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	686178	65.3615	9.0300e-003	1.8700e-003	66.1437

Parking Lot	6440	0.6134	8.0000e-005	2.0000e-005	0.6208
Single Family Housing	2.16827e+006	206.5375	0.0285	5.9000e-003	209.0091
Total		**272.5125**	**0.0376**	**7.7900e-003**	**275.7735**

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	5.2072	0.0589	3.0083	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2400e-003	5.2000e-004	33.3708
Unmitigated	5.2072	0.0589	3.0083	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2400e-003	5.2000e-004	33.3708

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	0.7811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1837	28.1837	5.4000e-004	5.2000e-004	28.3512
Landscaping	0.0901	0.0345	2.9980	1.6000e-004		0.0166	0.0166		0.0166	0.0166	0.0000	4.9021	4.9021	4.7000e-003	0.0000	5.0196
Total	**5.2072**	**0.0589**	**3.0083**	**3.2000e-004**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**33.0858**	**33.0858**	**5.2400e-003**	**5.2000e-004**	**33.3708**

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	0.7811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1837	28.1837	5.4000e-004	5.2000e-004	28.3512
Landscaping	0.0901	0.0345	2.9980	1.6000e-004		0.0166	0.0166		0.0166	0.0166	0.0000	4.9021	4.9021	4.7000e-003	0.0000	5.0196
Total	**5.2072**	**0.0589**	**3.0083**	**3.2000e-004**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**33.0858**	**33.0858**	**5.2400e-003**	**5.2000e-004**	**33.3708**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	29.2068	0.0348	0.0208	36.2814

Unmitigated	29.2068	0.0348	0.0208	36.2814

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.38296	0.7945	1.1000e-004	2.0000e-005	0.8040
Condo/Townhouse	8.86095 / 5.58625	9.5645	0.0117	7.0000e-003	11.9429
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.4613 / 11.0082	18.8478	0.0230	0.0138	23.5345
Total		**29.2068**	**0.0348**	**0.0208**	**36.2814**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.38296	0.7945	1.1000e-004	2.0000e-005	0.8040
Condo/Townhouse	8.86095 / 5.58625	9.5645	0.0117	7.0000e-003	11.9429
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.4613 / 11.0082	18.8478	0.0230	0.0138	23.5345

Total		29.2068	0.0348	0.0208	36.2814

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	78.0399	4.6120	0.0000	193.3405
Unmitigated	78.0399	4.6120	0.0000	193.3405

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.17	0.0345	2.0400e-003	0.0000	0.0855
Condo/Townhouse	62.56	12.6991	0.7505	0.0000	31.4615
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	321.72	65.3063	3.8595	0.0000	161.7935

Total		78.0399	4.6120	0.0000	193.3405

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.17	0.0345	2.0400e-003	0.0000	0.0855
Condo/Townhouse	62.56	12.6991	0.7505	0.0000	31.4615
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	321.72	65.3063	3.8595	0.0000	161.7935
Total		**78.0399**	**4.6120**	**0.0000**	**193.3405**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2400-2440 Camino Ramon, San Ramon - 2030

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	136.00	Dwelling Unit	7.00	373,327.00	389
Single Family Housing	268.00	Dwelling Unit	22.05	735,673.00	766
Parking Lot	115.00	Space	0.00	18,400.00	0
City Park	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Co2 Intensity Factor 2017 = 210

Land Use - Provided land uses - plans & const worksheet

Construction Phase - Provided construction schedule

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Off-road Equipment - Provided construction equip & hours

Grading - grading = 10,000cy export

Demolition - existing building demo = 500,000-sf

Trips and VMT - 0 Trips EMFAC2017, 2,500 tons pavement demo, fine grade & pave = 120 cement truck round trips, building foundation = 720 cement truck round trips

Vehicle Trips - Trip rates based on provided traffic data

Vehicle Emission Factors - EMFAC2017 Emissions Contra Costa County 2030

Woodstoves - No wood all gas

Water And Wastewater - WWTP 100% aerobic

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	15.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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
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tblConstructionPhase	NumDays	35.00	1,175.00
tblConstructionPhase	NumDays	500.00	1,171.00
tblConstructionPhase	NumDays	30.00	42.00
tblConstructionPhase	NumDays	45.00	44.00
tblConstructionPhase	NumDays	35.00	87.00
tblConstructionPhase	NumDays	500.00	1,066.00
tblConstructionPhase	PhaseEndDate	7/21/2025	12/29/2028
tblConstructionPhase	PhaseEndDate	4/14/2025	4/28/2028
tblConstructionPhase	PhaseEndDate	2/13/2023	3/1/2023
tblConstructionPhase	PhaseEndDate	5/15/2023	5/1/2023
tblConstructionPhase	PhaseEndDate	6/2/2025	4/1/2024
tblConstructionPhase	PhaseStartDate	6/3/2025	7/1/2024
tblConstructionPhase	PhaseStartDate	5/16/2023	11/3/2023
tblConstructionPhase	PhaseStartDate	3/14/2023	3/1/2023
tblConstructionPhase	PhaseStartDate	4/15/2025	12/1/2023
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	20.40	43.52
tblFireplaces	NumberGas	67.00	182.24
tblFireplaces	NumberWood	23.12	0.00
tblFireplaces	NumberWood	115.24	0.00

tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11

tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	6.5900e-004	7.5879e-004
tblFleetMix	MH	6.5900e-004	7.5879e-004
tblFleetMix	MH	6.5900e-004	7.5879e-004
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tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	1.6620e-003	8.3957e-004
tblFleetMix	OBUS	1.6620e-003	8.3957e-004
tblFleetMix	OBUS	1.6620e-003	8.3957e-004
tblFleetMix	OBUS	1.6620e-003	8.3957e-004
tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblGrading	MaterialExported	0.00	10,000.00
tblLandUse	LandUseSquareFeet	136,000.00	373,327.00
tblLandUse	LandUseSquareFeet	482,400.00	735,673.00
tblLandUse	LandUseSquareFeet	46,000.00	18,400.00
tblLandUse	LotAcreage	8.50	7.00
tblLandUse	LotAcreage	87.01	22.05
tblLandUse	LotAcreage	1.03	0.00
tblOffRoadEquipment	LoadFactor	0.38	0.38

tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	15.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.30
tblOffRoadEquipment	UsageHours	8.00	0.50
tblOffRoadEquipment	UsageHours	7.00	0.20
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	0.90
tblOffRoadEquipment	UsageHours	8.00	0.80

tblOffRoadEquipment	UsageHours	8.00	1.50
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.90
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblTripsAndVMT	HaulingTripNumber	2,274.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,250.00	0.00
tblTripsAndVMT	VendorTripNumber	60.00	0.00
tblTripsAndVMT	VendorTripNumber	60.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	239.00	0.00
tblTripsAndVMT	WorkerTripNumber	23.00	0.00
tblTripsAndVMT	WorkerTripNumber	48.00	0.00
tblTripsAndVMT	WorkerTripNumber	239.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	0.00
tblVehicleEF	HHD	0.34	0.02
tblVehicleEF	HHD	0.05	0.04
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.43	6.20

tblVehicleEF	HHD	0.86	0.40
tblVehicleEF	HHD	3.03	5.6660e-003
tblVehicleEF	HHD	4,047.03	917.03
tblVehicleEF	HHD	1,493.37	1,224.73
tblVehicleEF	HHD	9.23	0.04
tblVehicleEF	HHD	12.27	5.13
tblVehicleEF	HHD	1.58	2.50
tblVehicleEF	HHD	19.62	2.37
tblVehicleEF	HHD	3.6550e-003	2.1040e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.6500e-003	0.02
tblVehicleEF	HHD	1.0300e-004	0.00
tblVehicleEF	HHD	3.4970e-003	2.0130e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8210e-003	8.8800e-003
tblVehicleEF	HHD	5.4050e-003	0.02
tblVehicleEF	HHD	9.5000e-005	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4580e-003	4.7000e-005
tblVehicleEF	HHD	0.37	0.42
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	3.1100e-004	2.4100e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	HHD	0.04	8.5390e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.4200e-004	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4580e-003	4.7000e-005

tblVehicleEF	HHD	0.43	0.48
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.14	0.07
tblVehicleEF	HHD	3.1100e-004	2.4100e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	LDA	2.0250e-003	9.7700e-004
tblVehicleEF	LDA	2.3190e-003	0.03
tblVehicleEF	LDA	0.34	0.41
tblVehicleEF	LDA	0.66	1.76
tblVehicleEF	LDA	185.59	216.71
tblVehicleEF	LDA	42.38	45.75
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.1870e-003	9.4300e-004
tblVehicleEF	LDA	1.8470e-003	1.2990e-003
tblVehicleEF	LDA	1.0930e-003	8.6800e-004
tblVehicleEF	LDA	1.6980e-003	1.1950e-003
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.0700e-003	3.2920e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.8570e-003	9.1000e-005
tblVehicleEF	LDA	4.3400e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	7.3760e-003	4.7810e-003
tblVehicleEF	LDA	0.03	0.18

tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDT1	3.5600e-003	1.7340e-003
tblVehicleEF	LDT1	5.1940e-003	0.04
tblVehicleEF	LDT1	0.52	0.54
tblVehicleEF	LDT1	1.24	1.90
tblVehicleEF	LDT1	236.35	262.99
tblVehicleEF	LDT1	55.01	56.10
tblVehicleEF	LDT1	0.05	0.03
tblVehicleEF	LDT1	0.06	0.16
tblVehicleEF	LDT1	1.4410e-003	1.0910e-003
tblVehicleEF	LDT1	2.2390e-003	1.5120e-003
tblVehicleEF	LDT1	1.3250e-003	1.0040e-003
tblVehicleEF	LDT1	2.0580e-003	1.3910e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	8.8210e-003	6.7240e-003
tblVehicleEF	LDT1	0.09	0.42
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT1	2.3680e-003	2.7620e-003
tblVehicleEF	LDT1	5.7100e-004	0.00
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.01	9.8100e-003
tblVehicleEF	LDT1	0.09	0.42
tblVehicleEF	LDT1	0.08	0.19
tblVehicleEF	LDT2	2.8630e-003	1.6650e-003
tblVehicleEF	LDT2	3.1970e-003	0.04
tblVehicleEF	LDT2	0.47	0.53

tblVehicleEF	LDT2	0.89	2.32
tblVehicleEF	LDT2	267.32	270.64
tblVehicleEF	LDT2	61.31	58.16
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.05	0.17
tblVehicleEF	LDT2	1.3010e-003	1.0360e-003
tblVehicleEF	LDT2	2.0160e-003	1.3480e-003
tblVehicleEF	LDT2	1.1970e-003	9.5400e-004
tblVehicleEF	LDT2	1.8530e-003	1.2390e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	7.1100e-003	6.1330e-003
tblVehicleEF	LDT2	0.05	0.35
tblVehicleEF	LDT2	0.04	0.19
tblVehicleEF	LDT2	2.6760e-003	9.8370e-003
tblVehicleEF	LDT2	6.2700e-004	9.3000e-005
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	8.9100e-003
tblVehicleEF	LDT2	0.05	0.35
tblVehicleEF	LDT2	0.05	0.21
tblVehicleEF	LHD1	3.9790e-003	4.1100e-003
tblVehicleEF	LHD1	9.5680e-003	5.7660e-003
tblVehicleEF	LHD1	0.01	9.4440e-003
tblVehicleEF	LHD1	0.13	0.17
tblVehicleEF	LHD1	0.68	0.53
tblVehicleEF	LHD1	1.70	0.88
tblVehicleEF	LHD1	9.05	8.48

tblVehicleEF	LHD1	645.25	703.35
tblVehicleEF	LHD1	26.43	9.82
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.78	0.46
tblVehicleEF	LHD1	0.71	0.23
tblVehicleEF	LHD1	8.5000e-004	9.5900e-004
tblVehicleEF	LHD1	0.01	9.9600e-003
tblVehicleEF	LHD1	0.01	8.8420e-003
tblVehicleEF	LHD1	6.6500e-004	2.0700e-004
tblVehicleEF	LHD1	8.1300e-004	9.1800e-004
tblVehicleEF	LHD1	2.6070e-003	2.4900e-003
tblVehicleEF	LHD1	0.01	8.4160e-003
tblVehicleEF	LHD1	6.1200e-004	1.9000e-004
tblVehicleEF	LHD1	1.8260e-003	1.4290e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.1030e-003	8.6200e-004
tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.16	0.05
tblVehicleEF	LHD1	9.0000e-005	8.2000e-005
tblVehicleEF	LHD1	6.3030e-003	6.8540e-003
tblVehicleEF	LHD1	2.9600e-004	9.7000e-005
tblVehicleEF	LHD1	1.8260e-003	1.4290e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1030e-003	8.6200e-004
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.17	0.05

tblVehicleEF	LHD2	2.5210e-003	2.4740e-003
tblVehicleEF	LHD2	5.3620e-003	5.5240e-003
tblVehicleEF	LHD2	3.2180e-003	4.8040e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.46	0.52
tblVehicleEF	LHD2	0.87	0.46
tblVehicleEF	LHD2	13.72	13.32
tblVehicleEF	LHD2	676.54	684.04
tblVehicleEF	LHD2	21.50	6.22
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.28	0.50
tblVehicleEF	LHD2	0.26	0.13
tblVehicleEF	LHD2	1.0650e-003	1.5200e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.8780e-003	0.01
tblVehicleEF	LHD2	3.6100e-004	9.9000e-005
tblVehicleEF	LHD2	1.0190e-003	1.4540e-003
tblVehicleEF	LHD2	2.7100e-003	2.7190e-003
tblVehicleEF	LHD2	9.4280e-003	0.01
tblVehicleEF	LHD2	3.3200e-004	9.1000e-005
tblVehicleEF	LHD2	4.7100e-004	5.8000e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1400e-004	3.8000e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	1.3400e-004	1.2700e-004
tblVehicleEF	LHD2	6.5720e-003	6.5940e-003
tblVehicleEF	LHD2	2.3000e-004	6.2000e-005

tblVehicleEF	LHD2	4.7100e-004	5.8000e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.1400e-004	3.8000e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	MCY	0.47	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.40	18.61
tblVehicleEF	MCY	10.37	9.22
tblVehicleEF	MCY	175.15	212.79
tblVehicleEF	MCY	43.39	60.03
tblVehicleEF	MCY	1.15	1.15
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.2020e-003	2.1690e-003
tblVehicleEF	MCY	3.3400e-003	2.8570e-003
tblVehicleEF	MCY	2.0550e-003	2.0240e-003
tblVehicleEF	MCY	3.1270e-003	2.6750e-003
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.63	0.68
tblVehicleEF	MCY	0.51	1.06
tblVehicleEF	MCY	2.19	2.20
tblVehicleEF	MCY	0.44	1.58
tblVehicleEF	MCY	2.14	1.91
tblVehicleEF	MCY	2.1170e-003	2.1060e-003
tblVehicleEF	MCY	6.6600e-004	5.9400e-004
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.63	0.68
tblVehicleEF	MCY	0.51	1.06

tblVehicleEF	MCY	2.74	2.75
tblVehicleEF	MCY	0.44	1.58
tblVehicleEF	MCY	2.34	2.08
tblVehicleEF	MDV	5.1140e-003	2.0500e-003
tblVehicleEF	MDV	8.3520e-003	0.05
tblVehicleEF	MDV	0.66	0.58
tblVehicleEF	MDV	1.69	2.44
tblVehicleEF	MDV	367.14	333.72
tblVehicleEF	MDV	84.34	70.50
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.13	0.20
tblVehicleEF	MDV	1.3670e-003	1.0690e-003
tblVehicleEF	MDV	2.0780e-003	1.3740e-003
tblVehicleEF	MDV	1.2590e-003	9.8500e-004
tblVehicleEF	MDV	1.9110e-003	1.2630e-003
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.01	8.0130e-003
tblVehicleEF	MDV	0.09	0.39
tblVehicleEF	MDV	0.11	0.22
tblVehicleEF	MDV	3.6720e-003	3.0820e-003
tblVehicleEF	MDV	8.7200e-004	6.5200e-004
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.09	0.39
tblVehicleEF	MDV	0.12	0.25
tblVehicleEF	MH	9.2540e-003	5.4430e-003

tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.52	0.36
tblVehicleEF	MH	3.82	1.61
tblVehicleEF	MH	1,188.65	1,366.60
tblVehicleEF	MH	56.76	15.37
tblVehicleEF	MH	0.94	1.24
tblVehicleEF	MH	0.65	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.5600e-004	1.9600e-004
tblVehicleEF	MH	3.2250e-003	3.3120e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	7.8700e-004	1.8000e-004
tblVehicleEF	MH	0.47	0.36
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.20	0.16
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	0.01	0.56
tblVehicleEF	MH	0.23	0.07
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3400e-004	1.5200e-004
tblVehicleEF	MH	0.47	0.36
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.20	0.16
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.01	0.56
tblVehicleEF	MH	0.25	0.08
tblVehicleEF	MHD	0.02	4.2610e-003
tblVehicleEF	MHD	2.8950e-003	1.2290e-003
tblVehicleEF	MHD	0.03	9.3810e-003

tblVehicleEF	MHD	0.37	0.46
tblVehicleEF	MHD	0.25	0.17
tblVehicleEF	MHD	3.80	0.97
tblVehicleEF	MHD	131.63	77.33
tblVehicleEF	MHD	1,170.78	1,028.73
tblVehicleEF	MHD	59.69	9.38
tblVehicleEF	MHD	0.35	0.42
tblVehicleEF	MHD	1.03	1.43
tblVehicleEF	MHD	9.95	1.66
tblVehicleEF	MHD	6.3000e-005	2.0900e-004
tblVehicleEF	MHD	3.0390e-003	7.0780e-003
tblVehicleEF	MHD	8.3200e-004	1.2200e-004
tblVehicleEF	MHD	6.1000e-005	2.0000e-004
tblVehicleEF	MHD	2.9000e-003	6.7630e-003
tblVehicleEF	MHD	7.6500e-004	1.1200e-004
tblVehicleEF	MHD	6.0600e-004	3.0000e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.9500e-004	1.9400e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.24	0.05
tblVehicleEF	MHD	1.2680e-003	7.3400e-004
tblVehicleEF	MHD	0.01	9.8370e-003
tblVehicleEF	MHD	6.6300e-004	9.3000e-005
tblVehicleEF	MHD	6.0600e-004	3.0000e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.9500e-004	1.9400e-004
tblVehicleEF	MHD	0.05	0.02

tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.26	0.05
tblVehicleEF	OBUS	0.01	8.6630e-003
tblVehicleEF	OBUS	4.9120e-003	4.2740e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.55
tblVehicleEF	OBUS	0.32	0.45
tblVehicleEF	OBUS	4.48	2.37
tblVehicleEF	OBUS	79.22	71.40
tblVehicleEF	OBUS	1,258.86	1,312.44
tblVehicleEF	OBUS	67.42	18.77
tblVehicleEF	OBUS	0.16	0.29
tblVehicleEF	OBUS	0.68	1.05
tblVehicleEF	OBUS	2.12	0.77
tblVehicleEF	OBUS	1.5000e-005	9.7000e-005
tblVehicleEF	OBUS	2.4590e-003	6.3080e-003
tblVehicleEF	OBUS	9.7400e-004	2.1300e-004
tblVehicleEF	OBUS	1.4000e-005	9.3000e-005
tblVehicleEF	OBUS	2.3230e-003	6.0110e-003
tblVehicleEF	OBUS	8.9600e-004	1.9600e-004
tblVehicleEF	OBUS	1.1400e-003	1.5430e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.7000e-004	7.6900e-004
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.28	0.11
tblVehicleEF	OBUS	7.6800e-004	6.8100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5300e-004	1.8600e-004

tblVehicleEF	OBUS	1.1400e-003	1.5430e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	5.7000e-004	7.6900e-004
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.31	0.12
tblVehicleEF	SBUS	0.84	0.02
tblVehicleEF	SBUS	4.4490e-003	1.7320e-003
tblVehicleEF	SBUS	0.05	1.4050e-003
tblVehicleEF	SBUS	2.33	1.41
tblVehicleEF	SBUS	0.34	0.17
tblVehicleEF	SBUS	1.52	0.20
tblVehicleEF	SBUS	1,368.51	273.69
tblVehicleEF	SBUS	1,209.42	897.42
tblVehicleEF	SBUS	13.60	1.14
tblVehicleEF	SBUS	7.74	1.74
tblVehicleEF	SBUS	2.53	1.84
tblVehicleEF	SBUS	18.62	1.82
tblVehicleEF	SBUS	3.9600e-003	8.1100e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.5900e-004	1.9000e-005
tblVehicleEF	SBUS	3.7880e-003	7.7600e-004
tblVehicleEF	SBUS	2.9120e-003	2.8940e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.3800e-004	1.7000e-005
tblVehicleEF	SBUS	6.7200e-004	1.2700e-004
tblVehicleEF	SBUS	6.3100e-003	1.1990e-003
tblVehicleEF	SBUS	0.28	0.09

tblVehicleEF	SBUS	3.4000e-004	6.3000e-005
tblVehicleEF	SBUS	0.08	0.03
tblVehicleEF	SBUS	2.8730e-003	8.1830e-003
tblVehicleEF	SBUS	0.08	7.7860e-003
tblVehicleEF	SBUS	0.01	2.5930e-003
tblVehicleEF	SBUS	0.01	8.5140e-003
tblVehicleEF	SBUS	1.6200e-004	1.1000e-005
tblVehicleEF	SBUS	6.7200e-004	1.2700e-004
tblVehicleEF	SBUS	6.3100e-003	1.1990e-003
tblVehicleEF	SBUS	0.39	0.13
tblVehicleEF	SBUS	3.4000e-004	6.3000e-005
tblVehicleEF	SBUS	0.09	0.03
tblVehicleEF	SBUS	2.8730e-003	8.1830e-003
tblVehicleEF	SBUS	0.09	8.5240e-003
tblVehicleEF	UBUS	0.22	1.60
tblVehicleEF	UBUS	0.07	1.4580e-003
tblVehicleEF	UBUS	2.98	12.04
tblVehicleEF	UBUS	10.32	0.21
tblVehicleEF	UBUS	1,885.93	1,536.63
tblVehicleEF	UBUS	151.48	2.68
tblVehicleEF	UBUS	3.12	0.61
tblVehicleEF	UBUS	11.91	0.02
tblVehicleEF	UBUS	0.48	0.08
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.05	4.6730e-003
tblVehicleEF	UBUS	1.5000e-003	4.6000e-005
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	7.1530e-003
tblVehicleEF	UBUS	0.05	4.4630e-003
tblVehicleEF	UBUS	1.3790e-003	4.3000e-005

tblVehicleEF	UBUS	4.5120e-003	3.2600e-004
tblVehicleEF	UBUS	0.08	3.6920e-003
tblVehicleEF	UBUS	2.6730e-003	2.1700e-004
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.92	4.9160e-003
tblVehicleEF	UBUS	0.02	9.8390e-003
tblVehicleEF	UBUS	1.7050e-003	2.7000e-005
tblVehicleEF	UBUS	4.5120e-003	3.2600e-004
tblVehicleEF	UBUS	0.08	3.6920e-003
tblVehicleEF	UBUS	2.6730e-003	2.1700e-004
tblVehicleEF	UBUS	0.42	1.63
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.01	5.3830e-003
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	ST_TR	5.67	7.14
tblVehicleTrips	ST_TR	9.91	9.83
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	6.10
tblVehicleTrips	SU_TR	8.62	8.55
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	7.32
tblVehicleTrips	WD_TR	9.52	9.44
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	956.80	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	5.2067	0.0588	3.0032	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2100e-003	5.2000e-004	33.3702
Energy	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	824.0687	824.0687	0.0482	0.0179	830.6074
Mobile	1.0660	1.6153	8.3056	0.0261	2.9884	0.0186	3.0070	0.7999	0.0174	0.8173	0.0000	2,434.9966	2,434.9966	0.0967	0.0000	2,437.42
Waste						0.0000	0.0000		0.0000	0.0000	78.0399	0.0000	78.0399	4.6120	0.0000	193.3405
Water						0.0000	0.0000		0.0000	0.0000	9.3128	19.8939	29.2068	0.0348	0.0208	36.2814
Total	**6.3284**	**2.1504**	**11.5115**	**0.0295**	**2.9884**	**0.0757**	**3.0641**	**0.7999**	**0.0745**	**0.8744**	**87.3527**	**3,312.0451**	**3,399.3978**	**4.7970**	**0.0392**	**3,531.0147**

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	5.2067	0.0588	3.0032	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2100e-003	5.2000e-004	33.3702
Energy	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	824.0687	824.0687	0.0482	0.0179	830.6074
Mobile	1.0660	1.6153	8.3056	0.0261	2.9884	0.0186	3.0070	0.7999	0.0174	0.8173	0.0000	2,434.9966	2,434.9966	0.0967	0.0000	2,437.4152
Waste						0.0000	0.0000		0.0000	0.0000	78.0399	0.0000	78.0399	4.6120	0.0000	193.3405
Water						0.0000	0.0000		0.0000	0.0000	9.3128	19.8939	29.2068	0.0348	0.0208	36.2814
Total	**6.3284**	**2.1504**	**11.5115**	**0.0295**	**2.9884**	**0.0757**	**3.0641**	**0.7999**	**0.0745**	**0.8744**	**87.3527**	**3,312.0451**	**3,399.3978**	**4.7970**	**0.0392**	**3,531.0147**

	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	1.0660	1.6153	8.3056	0.0261	2.9884	0.0186	3.0070	0.7999	0.0174	0.8173	0.0000	2,434.9966	2,434.9966	0.0967	0.0000	2,437.4152
Unmitigated	1.0660	1.6153	8.3056	0.0261	2.9884	0.0186	3.0070	0.7999	0.0174	0.8173	0.0000	2,434.9966	2,434.9966	0.0967	0.0000	2,437.4152

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Condo/Townhouse	995.52	971.04	829.60	2,236,439	2,236,439
Parking Lot	0.00	0.00	0.00		
Single Family Housing	2,529.92	2,634.44	2291.40	5,798,909	5,798,909
Total	3,525.44	3,605.48	3,121.00	8,035,348	8,035,348

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Condo/Townhouse	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
Single Family Housing	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759
Condo/Townhouse	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759
Parking Lot	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759
Single Family Housing	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759

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	272.5125	272.5125	0.0376	7.7900e-003	275.7735
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	272.5125	272.5125	0.0376	7.7900e-003	275.7735
NaturalGas Mitigated	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	551.5562	551.5562	0.0106	0.0101	554.8339
NaturalGas Unmitigated	0.0557	0.4763	0.2027	3.0400e-003		0.0385	0.0385		0.0385	0.0385	0.0000	551.5562	551.5562	0.0106	0.0101	554.8339

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					
City Park	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
Condo/Townhouse	2.54633e+006	0.0137	0.1173	0.0499	7.5000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	135.8818	135.8818	2.6000e-003	2.4900e-003	136.6893
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
Single Family Housing	7.78944e+006	0.0420	0.3589	0.1527	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.6744	415.6744	7.9700e-003	7.6200e-003	418.1446
Total		**0.0557**	**0.4763**	**0.2027**	**3.0400e-003**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**551.5562**	**551.5562**	**0.0106**	**0.0101**	**554.8339**

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					
City Park	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
Condo/Townhouse	2.54633e+006	0.0137	0.1173	0.0499	7.5000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	135.8818	135.8818	2.6000e-003	2.4900e-003	136.6893
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
Single Family Housing	7.78944e+006	0.0420	0.3589	0.1527	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.6744	415.6744	7.9700e-003	7.6200e-003	418.1446
Total		**0.0557**	**0.4763**	**0.2027**	**3.0400e-003**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**551.5562**	**551.5562**	**0.0106**	**0.0101**	**554.8339**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	686178	65.3615	9.0300e-003	1.8700e-003	66.1437
Parking Lot	6440	0.6134	8.0000e-005	2.0000e-005	0.6208
Single Family Housing	2.16827e+006	206.5375	0.0285	5.9000e-003	209.0091
Total		**272.5125**	**0.0376**	**7.7900e-003**	**275.7735**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	686178	65.3615	9.0300e-003	1.8700e-003	66.1437
Parking Lot	6440	0.6134	8.0000e-005	2.0000e-005	0.6208
Single Family Housing	2.16827e+006	206.5375	0.0285	5.9000e-003	209.0091
Total		**272.5125**	**0.0376**	**7.7900e-003**	**275.7735**

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	5.2067	0.0588	3.0032	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2100e-003	5.2000e-004	33.3702
Unmitigated	5.2067	0.0588	3.0032	3.1000e-004		0.0186	0.0186		0.0186	0.0186	0.0000	33.0858	33.0858	5.2100e-003	5.2000e-004	33.3702

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	0.7811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1837	28.1837	5.4000e-004	5.2000e-004	28.3512
Landscaping	0.0896	0.0345	2.9929	1.6000e-004		0.0166	0.0166		0.0166	0.0166	0.0000	4.9021	4.9021	4.6700e-003	0.0000	5.0190
Total	**5.2067**	**0.0588**	**3.0033**	**3.2000e-004**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**33.0858**	**33.0858**	**5.2100e-003**	**5.2000e-004**	**33.3702**

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	0.7811					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.3332					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.8500e-003	0.0243	0.0104	1.6000e-004		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	28.1837	28.1837	5.4000e-004	5.2000e-004	28.3512
Landscaping	0.0896	0.0345	2.9929	1.6000e-004		0.0166	0.0166		0.0166	0.0166	0.0000	4.9021	4.9021	4.6700e-003	0.0000	5.0190
Total	**5.2067**	**0.0588**	**3.0033**	**3.2000e-004**		**0.0186**	**0.0186**		**0.0186**	**0.0186**	**0.0000**	**33.0858**	**33.0858**	**5.2100e-003**	**5.2000e-004**	**33.3702**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	29.2068	0.0348	0.0208	36.2814
Unmitigated	29.2068	0.0348	0.0208	36.2814

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.38296	0.7945	1.1000e-004	2.0000e-005	0.8040
Condo/Townhouse	8.86095 / 5.58625	9.5645	0.0117	7.0000e-003	11.9429
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.4613 / 11.0082	18.8478	0.0230	0.0138	23.5345
Total		**29.2068**	**0.0348**	**0.0208**	**36.2814**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

City Park	0 / 2.38296	0.7945	1.1000e-004	2.0000e-005	0.8040
Condo/Townhouse	8.86095 / 5.58625	9.5645	0.0117	7.0000e-003	11.9429
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	17.4613 / 11.0082	18.8478	0.0230	0.0138	23.5345
Total		**29.2068**	**0.0348**	**0.0208**	**36.2814**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	78.0399	4.6120	0.0000	193.3405
Unmitigated	78.0399	4.6120	0.0000	193.3405

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

City Park	0.17	0.0345	2.0400e-003	0.0000	0.0855
Condo/Townhouse	62.56	12.6991	0.7505	0.0000	31.4615
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	321.72	65.3063	3.8595	0.0000	161.7935
Total		**78.0399**	**4.6120**	**0.0000**	**193.3405**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.17	0.0345	2.0400e-003	0.0000	0.0855
Condo/Townhouse	62.56	12.6991	0.7505	0.0000	31.4615
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	321.72	65.3063	3.8595	0.0000	161.7935
Total		**78.0399**	**4.6120**	**0.0000**	**193.3405**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2400-2440 Camino Ramon, San Ramon - Existing
Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	563.80	1000sqft	12.94	563,800.00	0
Parking Lot	18.11	Acre	18.11	788,871.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2029
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 2017 rate = 210

Land Use - Existing land uses - office sf from traffic

Construction Phase - Existing use - no construction

Off-road Equipment - Existing use - no construction

Trips and VMT - Existing use - no construction

Vehicle Trips - Trip generation from traffic existing rates

Vehicle Emission Factors - EMFAC2017 Emissions Factors Contra Costa County 2029

Vehicle Emission Factors -

Energy Use - Historical Energy Use

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	3/13/2023	2/14/2023
tblEnergyUse	LightingElect	4.72	3.88
tblEnergyUse	LightingElect	0.88	0.35
tblEnergyUse	T24E	8.01	6.11
tblEnergyUse	T24NG	19.90	16.31
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT1	0.04	0.06
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	LHD2	4.8470e-003	5.5201e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MCY	5.1280e-003	8.0546e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MH	6.7200e-004	7.6878e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	1.6590e-003	8.4053e-004
tblFleetMix	OBUS	1.6590e-003	8.4053e-004

tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	SBUS	2.6640e-003	1.6374e-003
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblFleetMix	UBUS	1.5580e-003	8.6525e-004
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblVehicleEF	HHD	0.35	0.02
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.45	6.21
tblVehicleEF	HHD	0.86	0.40
tblVehicleEF	HHD	3.00	5.5540e-003
tblVehicleEF	HHD	4,084.29	936.80
tblVehicleEF	HHD	1,499.04	1,254.65
tblVehicleEF	HHD	9.15	0.04
tblVehicleEF	HHD	12.48	5.15
tblVehicleEF	HHD	1.62	2.52
tblVehicleEF	HHD	19.63	2.37
tblVehicleEF	HHD	4.0950e-003	2.1620e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.7220e-003	0.02
tblVehicleEF	HHD	1.0200e-004	0.00
tblVehicleEF	HHD	3.9180e-003	2.0680e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8200e-003	8.8780e-003
tblVehicleEF	HHD	5.4740e-003	0.02

tblVehicleEF	HHD	9.3000e-005	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4840e-003	4.9000e-005
tblVehicleEF	HHD	0.38	0.42
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	3.1000e-004	2.5700e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	HHD	0.04	8.7210e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.4000e-004	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4840e-003	4.9000e-005
tblVehicleEF	HHD	0.44	0.48
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.14	0.07
tblVehicleEF	HHD	3.1000e-004	2.5700e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	LDA	2.1780e-003	1.0580e-003
tblVehicleEF	LDA	2.5830e-003	0.03
tblVehicleEF	LDA	0.36	0.42
tblVehicleEF	LDA	0.71	1.81
tblVehicleEF	LDA	190.67	219.99
tblVehicleEF	LDA	43.71	46.54
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDA	1.2850e-003	1.0090e-003
tblVehicleEF	LDA	1.9580e-003	1.3770e-003
tblVehicleEF	LDA	1.1820e-003	9.2900e-004
tblVehicleEF	LDA	1.8010e-003	1.2660e-003

tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.4590e-003	3.6210e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDA	1.9080e-003	9.2000e-005
tblVehicleEF	LDA	4.4900e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	7.9410e-003	5.2600e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.04	0.15
tblVehicleEF	LDT1	3.9560e-003	1.9530e-003
tblVehicleEF	LDT1	5.9280e-003	0.04
tblVehicleEF	LDT1	0.56	0.57
tblVehicleEF	LDT1	1.37	1.96
tblVehicleEF	LDT1	242.57	266.88
tblVehicleEF	LDT1	56.65	57.04
tblVehicleEF	LDT1	0.05	0.04
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT1	1.5560e-003	1.1740e-003
tblVehicleEF	LDT1	2.3730e-003	1.6150e-003
tblVehicleEF	LDT1	1.4310e-003	1.0800e-003
tblVehicleEF	LDT1	2.1820e-003	1.4850e-003
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.14	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	9.8030e-003	7.7120e-003

tblVehicleEF	LDT1	0.10	0.45
tblVehicleEF	LDT1	0.08	0.19
tblVehicleEF	LDT1	2.4310e-003	2.7800e-003
tblVehicleEF	LDT1	5.9000e-004	0.00
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.14	0.12
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.01	0.01
tblVehicleEF	LDT1	0.10	0.45
tblVehicleEF	LDT1	0.09	0.21
tblVehicleEF	LDT2	3.0510e-003	1.8020e-003
tblVehicleEF	LDT2	3.5110e-003	0.05
tblVehicleEF	LDT2	0.49	0.55
tblVehicleEF	LDT2	0.95	2.38
tblVehicleEF	LDT2	273.83	276.18
tblVehicleEF	LDT2	63.03	59.45
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.06	0.18
tblVehicleEF	LDT2	1.3880e-003	1.0960e-003
tblVehicleEF	LDT2	2.1140e-003	1.4180e-003
tblVehicleEF	LDT2	1.2770e-003	1.0090e-003
tblVehicleEF	LDT2	1.9440e-003	1.3040e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	7.5760e-003	6.7050e-003
tblVehicleEF	LDT2	0.05	0.37
tblVehicleEF	LDT2	0.05	0.20
tblVehicleEF	LDT2	2.7410e-003	9.9530e-003
tblVehicleEF	LDT2	6.4600e-004	9.3000e-005

tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.10
tblVehicleEF	LDT2	0.03	0.06
tblVehicleEF	LDT2	0.01	9.7460e-003
tblVehicleEF	LDT2	0.05	0.37
tblVehicleEF	LDT2	0.05	0.22
tblVehicleEF	LHD1	4.1140e-003	4.2060e-003
tblVehicleEF	LHD1	0.01	6.1050e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.73	0.57
tblVehicleEF	LHD1	1.79	0.90
tblVehicleEF	LHD1	9.07	8.59
tblVehicleEF	LHD1	650.46	713.81
tblVehicleEF	LHD1	26.97	9.98
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.87	0.53
tblVehicleEF	LHD1	0.75	0.24
tblVehicleEF	LHD1	8.7200e-004	9.5600e-004
tblVehicleEF	LHD1	0.01	9.9530e-003
tblVehicleEF	LHD1	0.01	9.3840e-003
tblVehicleEF	LHD1	6.9400e-004	2.0900e-004
tblVehicleEF	LHD1	8.3500e-004	9.1500e-004
tblVehicleEF	LHD1	2.5990e-003	2.4880e-003
tblVehicleEF	LHD1	0.01	8.9350e-003
tblVehicleEF	LHD1	6.3800e-004	1.9300e-004
tblVehicleEF	LHD1	1.9130e-003	1.4790e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.1460e-003	8.8500e-004

tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.17	0.05
tblVehicleEF	LHD1	9.0000e-005	8.3000e-005
tblVehicleEF	LHD1	6.3570e-003	6.9560e-003
tblVehicleEF	LHD1	3.0300e-004	9.9000e-005
tblVehicleEF	LHD1	1.9130e-003	1.4790e-003
tblVehicleEF	LHD1	0.09	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1460e-003	8.8500e-004
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.18	0.05
tblVehicleEF	LHD2	2.5880e-003	2.5310e-003
tblVehicleEF	LHD2	5.5320e-003	5.6610e-003
tblVehicleEF	LHD2	3.4940e-003	5.1200e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.47	0.53
tblVehicleEF	LHD2	0.88	0.47
tblVehicleEF	LHD2	13.79	13.48
tblVehicleEF	LHD2	679.35	693.67
tblVehicleEF	LHD2	21.62	6.33
tblVehicleEF	LHD2	0.08	0.09
tblVehicleEF	LHD2	0.33	0.56
tblVehicleEF	LHD2	0.28	0.13
tblVehicleEF	LHD2	1.0940e-003	1.5160e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.6000e-004	1.0000e-004
tblVehicleEF	LHD2	1.0470e-003	1.4500e-003

tblVehicleEF	LHD2	2.7100e-003	2.7180e-003
tblVehicleEF	LHD2	9.9300e-003	0.01
tblVehicleEF	LHD2	3.3100e-004	9.2000e-005
tblVehicleEF	LHD2	4.8900e-004	6.0600e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.2300e-004	3.9200e-004
tblVehicleEF	LHD2	0.10	0.10
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	LHD2	1.3400e-004	1.2900e-004
tblVehicleEF	LHD2	6.5990e-003	6.6880e-003
tblVehicleEF	LHD2	2.3100e-004	6.3000e-005
tblVehicleEF	LHD2	4.8900e-004	6.0600e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.2300e-004	3.9200e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.04	0.15
tblVehicleEF	LHD2	0.05	0.03
tblVehicleEF	MCY	0.47	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.54	18.77
tblVehicleEF	MCY	10.35	9.20
tblVehicleEF	MCY	174.97	212.86
tblVehicleEF	MCY	43.72	60.28
tblVehicleEF	MCY	1.15	1.15
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.1930e-003	2.1550e-003
tblVehicleEF	MCY	3.4180e-003	2.8920e-003

tblVehicleEF	MCY	2.0460e-003	2.0110e-003
tblVehicleEF	MCY	3.2030e-003	2.7110e-003
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.65	0.69
tblVehicleEF	MCY	0.51	1.07
tblVehicleEF	MCY	2.20	2.21
tblVehicleEF	MCY	0.46	1.66
tblVehicleEF	MCY	2.16	1.92
tblVehicleEF	MCY	2.1180e-003	2.1060e-003
tblVehicleEF	MCY	6.7000e-004	5.9700e-004
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.65	0.69
tblVehicleEF	MCY	0.51	1.07
tblVehicleEF	MCY	2.75	2.76
tblVehicleEF	MCY	0.46	1.66
tblVehicleEF	MCY	2.35	2.09
tblVehicleEF	MDV	5.5250e-003	2.2430e-003
tblVehicleEF	MDV	9.1570e-003	0.05
tblVehicleEF	MDV	0.70	0.60
tblVehicleEF	MDV	1.81	2.52
tblVehicleEF	MDV	376.75	340.83
tblVehicleEF	MDV	86.77	72.22
tblVehicleEF	MDV	0.08	0.05
tblVehicleEF	MDV	0.14	0.21
tblVehicleEF	MDV	1.4480e-003	1.1350e-003
tblVehicleEF	MDV	2.1620e-003	1.4460e-003
tblVehicleEF	MDV	1.3340e-003	1.0470e-003
tblVehicleEF	MDV	1.9880e-003	1.3290e-003
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12

tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.01	8.8520e-003
tblVehicleEF	MDV	0.09	0.41
tblVehicleEF	MDV	0.12	0.24
tblVehicleEF	MDV	3.7680e-003	3.1690e-003
tblVehicleEF	MDV	8.9900e-004	6.7200e-004
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.15	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.09	0.41
tblVehicleEF	MDV	0.14	0.27
tblVehicleEF	MH	0.01	5.9290e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.66	0.42
tblVehicleEF	MH	3.99	1.65
tblVehicleEF	MH	1,192.04	1,387.27
tblVehicleEF	MH	56.93	15.71
tblVehicleEF	MH	0.99	1.29
tblVehicleEF	MH	0.67	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.7300e-004	2.0000e-004
tblVehicleEF	MH	3.2260e-003	3.3100e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.0200e-004	1.8400e-004
tblVehicleEF	MH	0.51	0.39
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.21	0.17
tblVehicleEF	MH	0.05	0.05

tblVehicleEF	MH	0.01	0.65
tblVehicleEF	MH	0.24	0.08
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3900e-004	1.5600e-004
tblVehicleEF	MH	0.51	0.39
tblVehicleEF	MH	0.05	0.04
tblVehicleEF	MH	0.21	0.17
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.01	0.65
tblVehicleEF	MH	0.26	0.08
tblVehicleEF	MHD	0.02	4.2060e-003
tblVehicleEF	MHD	3.0370e-003	1.3040e-003
tblVehicleEF	MHD	0.03	9.3890e-003
tblVehicleEF	MHD	0.37	0.46
tblVehicleEF	MHD	0.26	0.18
tblVehicleEF	MHD	3.96	0.99
tblVehicleEF	MHD	132.46	78.35
tblVehicleEF	MHD	1,173.14	1,040.99
tblVehicleEF	MHD	59.60	9.42
tblVehicleEF	MHD	0.35	0.44
tblVehicleEF	MHD	1.04	1.44
tblVehicleEF	MHD	10.02	1.66
tblVehicleEF	MHD	7.2000e-005	2.3800e-004
tblVehicleEF	MHD	3.0730e-003	7.1160e-003
tblVehicleEF	MHD	8.3100e-004	1.2100e-004
tblVehicleEF	MHD	6.9000e-005	2.2800e-004
tblVehicleEF	MHD	2.9330e-003	6.7990e-003
tblVehicleEF	MHD	7.6400e-004	1.1100e-004
tblVehicleEF	MHD	6.2000e-004	3.0700e-004
tblVehicleEF	MHD	0.03	0.02

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.9900e-004	1.9500e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.24	0.05
tblVehicleEF	MHD	1.2760e-003	7.4300e-004
tblVehicleEF	MHD	0.01	9.9530e-003
tblVehicleEF	MHD	6.6500e-004	9.3000e-005
tblVehicleEF	MHD	6.2000e-004	3.0700e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.9900e-004	1.9500e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.27	0.05
tblVehicleEF	OBUS	0.01	8.6850e-003
tblVehicleEF	OBUS	5.2370e-003	4.7170e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.55
tblVehicleEF	OBUS	0.34	0.50
tblVehicleEF	OBUS	4.59	2.43
tblVehicleEF	OBUS	79.79	71.17
tblVehicleEF	OBUS	1,262.08	1,334.32
tblVehicleEF	OBUS	67.57	19.14
tblVehicleEF	OBUS	0.16	0.28
tblVehicleEF	OBUS	0.71	1.05
tblVehicleEF	OBUS	2.13	0.76
tblVehicleEF	OBUS	1.5000e-005	9.6000e-005
tblVehicleEF	OBUS	2.4970e-003	6.2360e-003
tblVehicleEF	OBUS	9.5900e-004	2.1100e-004

tblVehicleEF	OBUS	1.4000e-005	9.2000e-005
tblVehicleEF	OBUS	2.3600e-003	5.9420e-003
tblVehicleEF	OBUS	8.8200e-004	1.9400e-004
tblVehicleEF	OBUS	1.1340e-003	1.5470e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.6600e-004	7.7000e-004
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.29	0.12
tblVehicleEF	OBUS	7.7300e-004	6.7800e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5600e-004	1.8900e-004
tblVehicleEF	OBUS	1.1340e-003	1.5470e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	5.6600e-004	7.7000e-004
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.32	0.13
tblVehicleEF	SBUS	0.84	0.02
tblVehicleEF	SBUS	4.7360e-003	1.8650e-003
tblVehicleEF	SBUS	0.05	1.4000e-003
tblVehicleEF	SBUS	2.29	1.40
tblVehicleEF	SBUS	0.35	0.17
tblVehicleEF	SBUS	1.50	0.20
tblVehicleEF	SBUS	1,380.95	277.42
tblVehicleEF	SBUS	1,214.36	910.22
tblVehicleEF	SBUS	13.14	1.14
tblVehicleEF	SBUS	8.58	1.81

tblVehicleEF	SBUS	2.84	1.97
tblVehicleEF	SBUS	18.71	1.78
tblVehicleEF	SBUS	4.9450e-003	9.0900e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.4600e-004	1.9000e-005
tblVehicleEF	SBUS	4.7310e-003	8.6900e-004
tblVehicleEF	SBUS	2.9140e-003	2.8940e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.2600e-004	1.7000e-005
tblVehicleEF	SBUS	6.2900e-004	1.1900e-004
tblVehicleEF	SBUS	5.9440e-003	1.1240e-003
tblVehicleEF	SBUS	0.27	0.09
tblVehicleEF	SBUS	3.1700e-004	5.9000e-005
tblVehicleEF	SBUS	0.09	0.03
tblVehicleEF	SBUS	2.6860e-003	7.6530e-003
tblVehicleEF	SBUS	0.08	7.7670e-003
tblVehicleEF	SBUS	0.01	2.6280e-003
tblVehicleEF	SBUS	0.01	8.6350e-003
tblVehicleEF	SBUS	1.5700e-004	1.1000e-005
tblVehicleEF	SBUS	6.2900e-004	1.1900e-004
tblVehicleEF	SBUS	5.9440e-003	1.1240e-003
tblVehicleEF	SBUS	0.38	0.13
tblVehicleEF	SBUS	3.1700e-004	5.9000e-005
tblVehicleEF	SBUS	0.10	0.04
tblVehicleEF	SBUS	2.6860e-003	7.6530e-003
tblVehicleEF	SBUS	0.09	8.5040e-003
tblVehicleEF	UBUS	0.22	1.60
tblVehicleEF	UBUS	0.07	1.4130e-003
tblVehicleEF	UBUS	3.05	12.04

tblVehicleEF	UBUS	10.41	0.21
tblVehicleEF	UBUS	1,893.80	1,536.80
tblVehicleEF	UBUS	152.09	2.68
tblVehicleEF	UBUS	3.39	0.61
tblVehicleEF	UBUS	11.91	0.02
tblVehicleEF	UBUS	0.48	0.08
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.06	4.6730e-003
tblVehicleEF	UBUS	1.4670e-003	4.6000e-005
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	7.1530e-003
tblVehicleEF	UBUS	0.06	4.4630e-003
tblVehicleEF	UBUS	1.3490e-003	4.3000e-005
tblVehicleEF	UBUS	4.5960e-003	2.7300e-004
tblVehicleEF	UBUS	0.08	2.9810e-003
tblVehicleEF	UBUS	2.7110e-003	1.7800e-004
tblVehicleEF	UBUS	0.19	0.02
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.93	4.7540e-003
tblVehicleEF	UBUS	0.02	9.8410e-003
tblVehicleEF	UBUS	1.7120e-003	2.6000e-005
tblVehicleEF	UBUS	4.5960e-003	2.7300e-004
tblVehicleEF	UBUS	0.08	2.9810e-003
tblVehicleEF	UBUS	2.7110e-003	1.7800e-004
tblVehicleEF	UBUS	0.43	1.63
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.01	5.2050e-003
tblVehicleTrips	ST_TR	2.46	2.25
tblVehicleTrips	SU_TR	1.05	0.96
tblVehicleTrips	WD_TR	11.03	10.07

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	2.5639	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Energy	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	1,476.3665	1,476.3665	0.1453	0.0371	1,491.07
Mobile	1.3914	2.1046	10.8378	0.0341	3.8332	0.0248	3.8580	1.0259	0.0232	1.0491	0.0000	3,174.7942	3,174.7942	0.1276	0.0000	3,177.98
Waste						0.0000	0.0000		0.0000	0.0000	106.4343	0.0000	106.4343	6.2901	0.0000	263.6864
Water						0.0000	0.0000		0.0000	0.0000	31.7908	72.1242	103.9151	3.2752	0.0792	209.3842
Total	**4.0051**	**2.5571**	**11.2232**	**0.0368**	**3.8332**	**0.0592**	**3.8924**	**1.0259**	**0.0576**	**1.0835**	**138.2251**	**4,723.2953**	**4,861.5203**	**9.8382**	**0.1163**	**5,142.1328**

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	2.5639	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Energy	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	1,476.3665	1,476.3665	0.1453	0.0371	1,491.0666
Mobile	1.3914	2.1046	10.8378	0.0341	3.8332	0.0248	3.8580	1.0259	0.0232	1.0491	0.0000	3,174.7942	3,174.7942	0.1276	0.0000	3,177.9845

Waste						0.0000	0.0000		0.0000	0.0000	106.4343	0.0000	106.4343	6.2901	0.0000	263.6864
Water						0.0000	0.0000		0.0000	0.0000	31.7908	72.1242	103.9151	3.2752	0.0792	209.3842
Total	**4.0051**	**2.5571**	**11.2232**	**0.0368**	**3.8332**	**0.0592**	**3.8924**	**1.0259**	**0.0576**	**1.0835**	**138.2251**	**4,723.2953**	**4,861.5203**	**9.8382**	**0.1163**	**5,142.1328**

	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	1.3914	2.1046	10.8378	0.0341	3.8332	0.0248	3.8580	1.0259	0.0232	1.0491	0.0000	3,174.7942	3,174.7942	0.1276	0.0000	3,177.9845
Unmitigated	1.3914	2.1046	10.8378	0.0341	3.8332	0.0248	3.8580	1.0259	0.0232	1.0491	0.0000	3,174.7942	3,174.7942	0.1276	0.0000	3,177.9845

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	5,677.47	1,268.55	541.25	10,309,096	10,309,096
Parking Lot	0.00	0.00	0.00		
Total	5,677.47	1,268.55	541.25	10,309,096	10,309,096

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
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
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
General Office Building	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769
Parking Lot	0.580106	0.055675	0.176212	0.114053	0.021743	0.005520	0.010736	0.023789	0.000841	0.000865	0.008055	0.001637	0.000769

5.0 Energy Detail

Historical Energy Use: Y

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	983.8502	983.8502	0.1359	0.0281	995.6236
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	983.8502	983.8502	0.1359	0.0281	995.6236
NaturalGas Mitigated	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
NaturalGas Unmitigated	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9.22941e+006	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
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		**0.0498**	**0.4524**	**0.3800**	**2.7100e-003**		**0.0344**	**0.0344**		**0.0344**	**0.0344**	**0.0000**	**492.5163**	**492.5163**	**9.4400e-003**	**9.0300e-003**	**495.4430**

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					
General Office Building	9.22941e+006	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
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		**0.0498**	**0.4524**	**0.3800**	**2.7100e-003**		**0.0344**	**0.0344**		**0.0344**	**0.0344**	**0.0000**	**492.5163**	**492.5163**	**9.4400e-003**	**9.0300e-003**	**495.4430**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.00526e+007	957.5500	0.1322	0.0274	969.0087

Parking Lot	276105	26.3002	3.6300e-003	7.5000e-004	26.6150
Total		**983.8502**	**0.1359**	**0.0281**	**995.6236**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.00526e+007	957.5500	0.1322	0.0274	969.0087
Parking Lot	276105	26.3002	3.6300e-003	7.5000e-004	26.6150
Total		**983.8502**	**0.1359**	**0.0281**	**995.6236**

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	2.5639	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Unmitigated	2.5639	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111

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	0.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2529					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Total	**2.5638**	**5.0000e-005**	**5.3300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0104**	**0.0104**	**3.0000e-005**	**0.0000**	**0.0111**

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	0.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2529					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3300e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Total	**2.5638**	**5.0000e-005**	**5.3300e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0104**	**0.0104**	**3.0000e-005**	**0.0000**	**0.0111**

7.0 Water Detail

7.1 Mitigation Measures Water

Category	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	103.9151	3.2752	0.0792	209.3842
Unmitigated	103.9151	3.2752	0.0792	209.3842

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
General Office Building	100.206 / 61.4168	103.9151	3.2752	0.0792	209.3842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**103.9151**	**3.2752**	**0.0792**	**209.3842**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
General Office Building	100.206 / 61.4168	103.9151	3.2752	0.0792	209.3842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**103.9151**	**3.2752**	**0.0792**	**209.3842**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	106.4343	6.2901	0.0000	263.6864
Unmitigated	106.4343	6.2901	0.0000	263.6864

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	524.33	106.4343	6.2901	0.0000	263.6864

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**106.4343**	**6.2901**	**0.0000**	**263.6864**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	524.33	106.4343	6.2901	0.0000	263.6864
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**106.4343**	**6.2901**	**0.0000**	**263.6864**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2400-2440 Camino Ramon, San Ramon - Existing 2030

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	563.80	1000sqft	12.94	563,800.00	0
Parking Lot	18.11	Acre	18.11	788,871.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	210	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E CO2 2017 rate = 210

Land Use - Existing land uses - office sf from traffic

Construction Phase - Existing use - no construction

Off-road Equipment - Existing use - no construction

Trips and VMT - Existing use - no construction

Vehicle Trips - Trip generation from traffic existing rates

Vehicle Emission Factors - EMFAC2017 Emissions Factors Contra Costa County 2030

Vehicle Emission Factors -

Energy Use - Historical Energy Use

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	1.00
tblConstructionPhase	PhaseEndDate	3/13/2023	2/14/2023
tblEnergyUse	LightingElect	4.72	3.88
tblEnergyUse	LightingElect	0.88	0.35
tblEnergyUse	T24E	8.01	6.11
tblEnergyUse	T24NG	19.90	16.31
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDA	0.61	0.58
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT1	0.03	0.06
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LDT2	0.18	0.18
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD1	0.01	0.02
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	LHD2	4.8360e-003	5.5268e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MCY	5.1050e-003	7.9743e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	6.5900e-004	7.5879e-004
tblFleetMix	MH	6.5900e-004	7.5879e-004
tblFleetMix	MHD	0.01	0.01
tblFleetMix	MHD	0.01	0.01
tblFleetMix	OBUS	1.6620e-003	8.3957e-004
tblFleetMix	OBUS	1.6620e-003	8.3957e-004

tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	SBUS	2.6520e-003	1.7258e-003
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblFleetMix	UBUS	1.5380e-003	8.5702e-004
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblVehicleEF	HHD	0.34	0.02
tblVehicleEF	HHD	0.05	0.04
tblVehicleEF	HHD	0.06	0.00
tblVehicleEF	HHD	1.43	6.20
tblVehicleEF	HHD	0.86	0.40
tblVehicleEF	HHD	3.03	5.6660e-003
tblVehicleEF	HHD	4,047.03	917.03
tblVehicleEF	HHD	1,493.37	1,224.73
tblVehicleEF	HHD	9.23	0.04
tblVehicleEF	HHD	12.27	5.13
tblVehicleEF	HHD	1.58	2.50
tblVehicleEF	HHD	19.62	2.37
tblVehicleEF	HHD	3.6550e-003	2.1040e-003
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	5.6500e-003	0.02
tblVehicleEF	HHD	1.0300e-004	0.00
tblVehicleEF	HHD	3.4970e-003	2.0130e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8210e-003	8.8800e-003
tblVehicleEF	HHD	5.4050e-003	0.02

tblVehicleEF	HHD	9.5000e-005	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4580e-003	4.7000e-005
tblVehicleEF	HHD	0.37	0.42
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.08	0.02
tblVehicleEF	HHD	3.1100e-004	2.4100e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	HHD	0.04	8.5390e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.4200e-004	0.00
tblVehicleEF	HHD	7.1000e-005	1.0000e-006
tblVehicleEF	HHD	3.4580e-003	4.7000e-005
tblVehicleEF	HHD	0.43	0.48
tblVehicleEF	HHD	4.9000e-005	1.0000e-006
tblVehicleEF	HHD	0.14	0.07
tblVehicleEF	HHD	3.1100e-004	2.4100e-004
tblVehicleEF	HHD	0.06	2.0000e-006
tblVehicleEF	LDA	2.0250e-003	9.7700e-004
tblVehicleEF	LDA	2.3190e-003	0.03
tblVehicleEF	LDA	0.34	0.41
tblVehicleEF	LDA	0.66	1.76
tblVehicleEF	LDA	185.59	216.71
tblVehicleEF	LDA	42.38	45.75
tblVehicleEF	LDA	0.03	0.02
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.1870e-003	9.4300e-004
tblVehicleEF	LDA	1.8470e-003	1.2990e-003
tblVehicleEF	LDA	1.0930e-003	8.6800e-004
tblVehicleEF	LDA	1.6980e-003	1.1950e-003

tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	5.0700e-003	3.2920e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.13
tblVehicleEF	LDA	1.8570e-003	9.1000e-005
tblVehicleEF	LDA	4.3400e-004	0.00
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	7.3760e-003	4.7810e-003
tblVehicleEF	LDA	0.03	0.18
tblVehicleEF	LDA	0.03	0.14
tblVehicleEF	LDT1	3.5600e-003	1.7340e-003
tblVehicleEF	LDT1	5.1940e-003	0.04
tblVehicleEF	LDT1	0.52	0.54
tblVehicleEF	LDT1	1.24	1.90
tblVehicleEF	LDT1	236.35	262.99
tblVehicleEF	LDT1	55.01	56.10
tblVehicleEF	LDT1	0.05	0.03
tblVehicleEF	LDT1	0.06	0.16
tblVehicleEF	LDT1	1.4410e-003	1.0910e-003
tblVehicleEF	LDT1	2.2390e-003	1.5120e-003
tblVehicleEF	LDT1	1.3250e-003	1.0040e-003
tblVehicleEF	LDT1	2.0580e-003	1.3910e-003
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	8.8210e-003	6.7240e-003

tblVehicleEF	LDT1	0.09	0.42
tblVehicleEF	LDT1	0.07	0.17
tblVehicleEF	LDT1	2.3680e-003	2.7620e-003
tblVehicleEF	LDT1	5.7100e-004	0.00
tblVehicleEF	LDT1	0.05	0.05
tblVehicleEF	LDT1	0.13	0.11
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.01	9.8100e-003
tblVehicleEF	LDT1	0.09	0.42
tblVehicleEF	LDT1	0.08	0.19
tblVehicleEF	LDT2	2.8630e-003	1.6650e-003
tblVehicleEF	LDT2	3.1970e-003	0.04
tblVehicleEF	LDT2	0.47	0.53
tblVehicleEF	LDT2	0.89	2.32
tblVehicleEF	LDT2	267.32	270.64
tblVehicleEF	LDT2	61.31	58.16
tblVehicleEF	LDT2	0.04	0.03
tblVehicleEF	LDT2	0.05	0.17
tblVehicleEF	LDT2	1.3010e-003	1.0360e-003
tblVehicleEF	LDT2	2.0160e-003	1.3480e-003
tblVehicleEF	LDT2	1.1970e-003	9.5400e-004
tblVehicleEF	LDT2	1.8530e-003	1.2390e-003
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	7.1100e-003	6.1330e-003
tblVehicleEF	LDT2	0.05	0.35
tblVehicleEF	LDT2	0.04	0.19
tblVehicleEF	LDT2	2.6760e-003	9.8370e-003
tblVehicleEF	LDT2	6.2700e-004	9.3000e-005

tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.07	0.09
tblVehicleEF	LDT2	0.03	0.05
tblVehicleEF	LDT2	0.01	8.9100e-003
tblVehicleEF	LDT2	0.05	0.35
tblVehicleEF	LDT2	0.05	0.21
tblVehicleEF	LHD1	3.9790e-003	4.1100e-003
tblVehicleEF	LHD1	9.5680e-003	5.7660e-003
tblVehicleEF	LHD1	0.01	9.4440e-003
tblVehicleEF	LHD1	0.13	0.17
tblVehicleEF	LHD1	0.68	0.53
tblVehicleEF	LHD1	1.70	0.88
tblVehicleEF	LHD1	9.05	8.48
tblVehicleEF	LHD1	645.25	703.35
tblVehicleEF	LHD1	26.43	9.82
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.78	0.46
tblVehicleEF	LHD1	0.71	0.23
tblVehicleEF	LHD1	8.5000e-004	9.5900e-004
tblVehicleEF	LHD1	0.01	9.9600e-003
tblVehicleEF	LHD1	0.01	8.8420e-003
tblVehicleEF	LHD1	6.6500e-004	2.0700e-004
tblVehicleEF	LHD1	8.1300e-004	9.1800e-004
tblVehicleEF	LHD1	2.6070e-003	2.4900e-003
tblVehicleEF	LHD1	0.01	8.4160e-003
tblVehicleEF	LHD1	6.1200e-004	1.9000e-004
tblVehicleEF	LHD1	1.8260e-003	1.4290e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.01	0.02
tblVehicleEF	LHD1	1.1030e-003	8.6200e-004

tblVehicleEF	LHD1	0.11	0.08
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.16	0.05
tblVehicleEF	LHD1	9.0000e-005	8.2000e-005
tblVehicleEF	LHD1	6.3030e-003	6.8540e-003
tblVehicleEF	LHD1	2.9600e-004	9.7000e-005
tblVehicleEF	LHD1	1.8260e-003	1.4290e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.1030e-003	8.6200e-004
tblVehicleEF	LHD1	0.12	0.10
tblVehicleEF	LHD1	0.28	0.49
tblVehicleEF	LHD1	0.17	0.05
tblVehicleEF	LHD2	2.5210e-003	2.4740e-003
tblVehicleEF	LHD2	5.3620e-003	5.5240e-003
tblVehicleEF	LHD2	3.2180e-003	4.8040e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.46	0.52
tblVehicleEF	LHD2	0.87	0.46
tblVehicleEF	LHD2	13.72	13.32
tblVehicleEF	LHD2	676.54	684.04
tblVehicleEF	LHD2	21.50	6.22
tblVehicleEF	LHD2	0.07	0.08
tblVehicleEF	LHD2	0.28	0.50
tblVehicleEF	LHD2	0.26	0.13
tblVehicleEF	LHD2	1.0650e-003	1.5200e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	9.8780e-003	0.01
tblVehicleEF	LHD2	3.6100e-004	9.9000e-005
tblVehicleEF	LHD2	1.0190e-003	1.4540e-003

tblVehicleEF	LHD2	2.7100e-003	2.7190e-003
tblVehicleEF	LHD2	9.4280e-003	0.01
tblVehicleEF	LHD2	3.3200e-004	9.1000e-005
tblVehicleEF	LHD2	4.7100e-004	5.8000e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1400e-004	3.8000e-004
tblVehicleEF	LHD2	0.09	0.10
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.04	0.02
tblVehicleEF	LHD2	1.3400e-004	1.2700e-004
tblVehicleEF	LHD2	6.5720e-003	6.5940e-003
tblVehicleEF	LHD2	2.3000e-004	6.2000e-005
tblVehicleEF	LHD2	4.7100e-004	5.8000e-004
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.1400e-004	3.8000e-004
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	0.04	0.14
tblVehicleEF	LHD2	0.05	0.02
tblVehicleEF	MCY	0.47	0.33
tblVehicleEF	MCY	0.16	0.25
tblVehicleEF	MCY	18.40	18.61
tblVehicleEF	MCY	10.37	9.22
tblVehicleEF	MCY	175.15	212.79
tblVehicleEF	MCY	43.39	60.03
tblVehicleEF	MCY	1.15	1.15
tblVehicleEF	MCY	0.32	0.27
tblVehicleEF	MCY	2.2020e-003	2.1690e-003
tblVehicleEF	MCY	3.3400e-003	2.8570e-003

tblVehicleEF	MCY	2.0550e-003	2.0240e-003
tblVehicleEF	MCY	3.1270e-003	2.6750e-003
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.63	0.68
tblVehicleEF	MCY	0.51	1.06
tblVehicleEF	MCY	2.19	2.20
tblVehicleEF	MCY	0.44	1.58
tblVehicleEF	MCY	2.14	1.91
tblVehicleEF	MCY	2.1170e-003	2.1060e-003
tblVehicleEF	MCY	6.6600e-004	5.9400e-004
tblVehicleEF	MCY	0.84	1.75
tblVehicleEF	MCY	0.63	0.68
tblVehicleEF	MCY	0.51	1.06
tblVehicleEF	MCY	2.74	2.75
tblVehicleEF	MCY	0.44	1.58
tblVehicleEF	MCY	2.34	2.08
tblVehicleEF	MDV	5.1140e-003	2.0500e-003
tblVehicleEF	MDV	8.3520e-003	0.05
tblVehicleEF	MDV	0.66	0.58
tblVehicleEF	MDV	1.69	2.44
tblVehicleEF	MDV	367.14	333.72
tblVehicleEF	MDV	84.34	70.50
tblVehicleEF	MDV	0.07	0.04
tblVehicleEF	MDV	0.13	0.20
tblVehicleEF	MDV	1.3670e-003	1.0690e-003
tblVehicleEF	MDV	2.0780e-003	1.3740e-003
tblVehicleEF	MDV	1.2590e-003	9.8500e-004
tblVehicleEF	MDV	1.9110e-003	1.2630e-003
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.12

tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.01	8.0130e-003
tblVehicleEF	MDV	0.09	0.39
tblVehicleEF	MDV	0.11	0.22
tblVehicleEF	MDV	3.6720e-003	3.0820e-003
tblVehicleEF	MDV	8.7200e-004	6.5200e-004
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.12
tblVehicleEF	MDV	0.06	0.07
tblVehicleEF	MDV	0.02	0.01
tblVehicleEF	MDV	0.09	0.39
tblVehicleEF	MDV	0.12	0.25
tblVehicleEF	MH	9.2540e-003	5.4430e-003
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	0.52	0.36
tblVehicleEF	MH	3.82	1.61
tblVehicleEF	MH	1,188.65	1,366.60
tblVehicleEF	MH	56.76	15.37
tblVehicleEF	MH	0.94	1.24
tblVehicleEF	MH	0.65	0.24
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.02	0.02
tblVehicleEF	MH	8.5600e-004	1.9600e-004
tblVehicleEF	MH	3.2250e-003	3.3120e-003
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	7.8700e-004	1.8000e-004
tblVehicleEF	MH	0.47	0.36
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.20	0.16
tblVehicleEF	MH	0.04	0.04

tblVehicleEF	MH	0.01	0.56
tblVehicleEF	MH	0.23	0.07
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	6.3400e-004	1.5200e-004
tblVehicleEF	MH	0.47	0.36
tblVehicleEF	MH	0.04	0.03
tblVehicleEF	MH	0.20	0.16
tblVehicleEF	MH	0.05	0.06
tblVehicleEF	MH	0.01	0.56
tblVehicleEF	MH	0.25	0.08
tblVehicleEF	MHD	0.02	4.2610e-003
tblVehicleEF	MHD	2.8950e-003	1.2290e-003
tblVehicleEF	MHD	0.03	9.3810e-003
tblVehicleEF	MHD	0.37	0.46
tblVehicleEF	MHD	0.25	0.17
tblVehicleEF	MHD	3.80	0.97
tblVehicleEF	MHD	131.63	77.33
tblVehicleEF	MHD	1,170.78	1,028.73
tblVehicleEF	MHD	59.69	9.38
tblVehicleEF	MHD	0.35	0.42
tblVehicleEF	MHD	1.03	1.43
tblVehicleEF	MHD	9.95	1.66
tblVehicleEF	MHD	6.3000e-005	2.0900e-004
tblVehicleEF	MHD	3.0390e-003	7.0780e-003
tblVehicleEF	MHD	8.3200e-004	1.2200e-004
tblVehicleEF	MHD	6.1000e-005	2.0000e-004
tblVehicleEF	MHD	2.9000e-003	6.7630e-003
tblVehicleEF	MHD	7.6500e-004	1.1200e-004
tblVehicleEF	MHD	6.0600e-004	3.0000e-004
tblVehicleEF	MHD	0.03	0.02

tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	3.9500e-004	1.9400e-004
tblVehicleEF	MHD	0.04	0.01
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.24	0.05
tblVehicleEF	MHD	1.2680e-003	7.3400e-004
tblVehicleEF	MHD	0.01	9.8370e-003
tblVehicleEF	MHD	6.6300e-004	9.3000e-005
tblVehicleEF	MHD	6.0600e-004	3.0000e-004
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	0.03	0.03
tblVehicleEF	MHD	3.9500e-004	1.9400e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.08
tblVehicleEF	MHD	0.26	0.05
tblVehicleEF	OBUS	0.01	8.6630e-003
tblVehicleEF	OBUS	4.9120e-003	4.2740e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.24	0.55
tblVehicleEF	OBUS	0.32	0.45
tblVehicleEF	OBUS	4.48	2.37
tblVehicleEF	OBUS	79.22	71.40
tblVehicleEF	OBUS	1,258.86	1,312.44
tblVehicleEF	OBUS	67.42	18.77
tblVehicleEF	OBUS	0.16	0.29
tblVehicleEF	OBUS	0.68	1.05
tblVehicleEF	OBUS	2.12	0.77
tblVehicleEF	OBUS	1.5000e-005	9.7000e-005
tblVehicleEF	OBUS	2.4590e-003	6.3080e-003
tblVehicleEF	OBUS	9.7400e-004	2.1300e-004

tblVehicleEF	OBUS	1.4000e-005	9.3000e-005
tblVehicleEF	OBUS	2.3230e-003	6.0110e-003
tblVehicleEF	OBUS	8.9600e-004	1.9600e-004
tblVehicleEF	OBUS	1.1400e-003	1.5430e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.7000e-004	7.6900e-004
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.28	0.11
tblVehicleEF	OBUS	7.6800e-004	6.8100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.5300e-004	1.8600e-004
tblVehicleEF	OBUS	1.1400e-003	1.5430e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.07
tblVehicleEF	OBUS	5.7000e-004	7.6900e-004
tblVehicleEF	OBUS	0.04	0.03
tblVehicleEF	OBUS	0.04	0.29
tblVehicleEF	OBUS	0.31	0.12
tblVehicleEF	SBUS	0.84	0.02
tblVehicleEF	SBUS	4.4490e-003	1.7320e-003
tblVehicleEF	SBUS	0.05	1.4050e-003
tblVehicleEF	SBUS	2.33	1.41
tblVehicleEF	SBUS	0.34	0.17
tblVehicleEF	SBUS	1.52	0.20
tblVehicleEF	SBUS	1,368.51	273.69
tblVehicleEF	SBUS	1,209.42	897.42
tblVehicleEF	SBUS	13.60	1.14
tblVehicleEF	SBUS	7.74	1.74

tblVehicleEF	SBUS	2.53	1.84
tblVehicleEF	SBUS	18.62	1.82
tblVehicleEF	SBUS	3.9600e-003	8.1100e-004
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.5900e-004	1.9000e-005
tblVehicleEF	SBUS	3.7880e-003	7.7600e-004
tblVehicleEF	SBUS	2.9120e-003	2.8940e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	2.3800e-004	1.7000e-005
tblVehicleEF	SBUS	6.7200e-004	1.2700e-004
tblVehicleEF	SBUS	6.3100e-003	1.1990e-003
tblVehicleEF	SBUS	0.28	0.09
tblVehicleEF	SBUS	3.4000e-004	6.3000e-005
tblVehicleEF	SBUS	0.08	0.03
tblVehicleEF	SBUS	2.8730e-003	8.1830e-003
tblVehicleEF	SBUS	0.08	7.7860e-003
tblVehicleEF	SBUS	0.01	2.5930e-003
tblVehicleEF	SBUS	0.01	8.5140e-003
tblVehicleEF	SBUS	1.6200e-004	1.1000e-005
tblVehicleEF	SBUS	6.7200e-004	1.2700e-004
tblVehicleEF	SBUS	6.3100e-003	1.1990e-003
tblVehicleEF	SBUS	0.39	0.13
tblVehicleEF	SBUS	3.4000e-004	6.3000e-005
tblVehicleEF	SBUS	0.09	0.03
tblVehicleEF	SBUS	2.8730e-003	8.1830e-003
tblVehicleEF	SBUS	0.09	8.5240e-003
tblVehicleEF	UBUS	0.22	1.60
tblVehicleEF	UBUS	0.07	1.4580e-003
tblVehicleEF	UBUS	2.98	12.04

tblVehicleEF	UBUS	10.32	0.21
tblVehicleEF	UBUS	1,885.93	1,536.63
tblVehicleEF	UBUS	151.48	2.68
tblVehicleEF	UBUS	3.12	0.61
tblVehicleEF	UBUS	11.91	0.02
tblVehicleEF	UBUS	0.48	0.08
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.05	4.6730e-003
tblVehicleEF	UBUS	1.5000e-003	4.6000e-005
tblVehicleEF	UBUS	0.21	0.03
tblVehicleEF	UBUS	3.0000e-003	7.1530e-003
tblVehicleEF	UBUS	0.05	4.4630e-003
tblVehicleEF	UBUS	1.3790e-003	4.3000e-005
tblVehicleEF	UBUS	4.5120e-003	3.2600e-004
tblVehicleEF	UBUS	0.08	3.6920e-003
tblVehicleEF	UBUS	2.6730e-003	2.1700e-004
tblVehicleEF	UBUS	0.18	0.02
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	0.92	4.9160e-003
tblVehicleEF	UBUS	0.02	9.8390e-003
tblVehicleEF	UBUS	1.7050e-003	2.7000e-005
tblVehicleEF	UBUS	4.5120e-003	3.2600e-004
tblVehicleEF	UBUS	0.08	3.6920e-003
tblVehicleEF	UBUS	2.6730e-003	2.1700e-004
tblVehicleEF	UBUS	0.42	1.63
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.01	5.3830e-003
tblVehicleTrips	ST_TR	2.46	2.25
tblVehicleTrips	SU_TR	1.05	0.96
tblVehicleTrips	WD_TR	11.03	10.07

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

Category	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
	tons/yr										MT/yr					
Area	2.5638	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Energy	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	1,476.3665	1,476.3665	0.1453	0.0371	1,491.07
Mobile	1.3313	2.0510	10.5310	0.0335	3.8340	0.0238	3.8577	1.0262	0.0223	1.0485	0.0000	3,120.0852	3,120.0852	0.1222	0.0000	3,123.14
Waste						0.0000	0.0000		0.0000	0.0000	106.4343	0.0000	106.4343	6.2901	0.0000	263.6864
Water						0.0000	0.0000		0.0000	0.0000	31.7908	72.1242	103.9151	3.2752	0.0792	209.3842
Total	**3.9449**	**2.5035**	**10.9163**	**0.0362**	**3.8340**	**0.0582**	**3.8921**	**1.0262**	**0.0567**	**1.0829**	**138.2251**	**4,668.5863**	**4,806.8114**	**9.8327**	**0.1163**	**5,087.2871**

Mitigated Operational

Category	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
	tons/yr										MT/yr					
Area	2.5638	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Energy	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	1,476.3665	1,476.3665	0.1453	0.0371	1,491.0666
Mobile	1.3313	2.0510	10.5310	0.0335	3.8340	0.0238	3.8577	1.0262	0.0223	1.0485	0.0000	3,120.0852	3,120.0852	0.1222	0.0000	3,123.1389

Waste						0.0000	0.0000		0.0000	0.0000	106.4343	0.0000	106.4343	6.2901	0.0000	263.6864
Water						0.0000	0.0000		0.0000	0.0000	31.7908	72.1242	103.9151	3.2752	0.0792	209.3842
Total	**3.9449**	**2.5035**	**10.9163**	**0.0362**	**3.8340**	**0.0582**	**3.8921**	**1.0262**	**0.0567**	**1.0829**	**138.2251**	**4,668.5863**	**4,806.8114**	**9.8327**	**0.1163**	**5,087.2871**

	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	1.3313	2.0510	10.5310	0.0335	3.8340	0.0238	3.8577	1.0262	0.0223	1.0485	0.0000	3,120.0852	3,120.0852	0.1222	0.0000	3,123.1389
Unmitigated	1.3313	2.0510	10.5310	0.0335	3.8340	0.0238	3.8577	1.0262	0.0223	1.0485	0.0000	3,120.0852	3,120.0852	0.1222	0.0000	3,123.1389

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	5,677.47	1,268.55	541.25	10,309,096	10,309,096
Parking Lot	0.00	0.00	0.00		
Total	5,677.47	1,268.55	541.25	10,309,096	10,309,096

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
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
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
General Office Building	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759
Parking Lot	0.581584	0.055711	0.175538	0.113247	0.021576	0.005527	0.010721	0.023941	0.000840	0.000857	0.007974	0.001726	0.000759

5.0 Energy Detail

Historical Energy Use: Y

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	983.8502	983.8502	0.1359	0.0281	995.6236
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	983.8502	983.8502	0.1359	0.0281	995.6236
NaturalGas Mitigated	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
NaturalGas Unmitigated	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	9.22941e+006	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
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		**0.0498**	**0.4524**	**0.3800**	**2.7100e-003**		**0.0344**	**0.0344**		**0.0344**	**0.0344**	**0.0000**	**492.5163**	**492.5163**	**9.4400e-003**	**9.0300e-003**	**495.4430**

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					
General Office Building	9.22941e+006	0.0498	0.4524	0.3800	2.7100e-003		0.0344	0.0344		0.0344	0.0344	0.0000	492.5163	492.5163	9.4400e-003	9.0300e-003	495.4430
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		**0.0498**	**0.4524**	**0.3800**	**2.7100e-003**		**0.0344**	**0.0344**		**0.0344**	**0.0344**	**0.0000**	**492.5163**	**492.5163**	**9.4400e-003**	**9.0300e-003**	**495.4430**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.00526e+007	957.5500	0.1322	0.0274	969.0087

Parking Lot	276105	26.3002	3.6300e-003	7.5000e-004	26.6150
Total		**983.8502**	**0.1359**	**0.0281**	**995.6236**

<u>**Mitigated**</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	1.00526e+007	957.5500	0.1322	0.0274	969.0087
Parking Lot	276105	26.3002	3.6300e-003	7.5000e-004	26.6150
Total		**983.8502**	**0.1359**	**0.0281**	**995.6236**

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	2.5638	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Unmitigated	2.5638	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111

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	0.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2529					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Total	**2.5638**	**5.0000e-005**	**5.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0104**	**0.0104**	**3.0000e-005**	**0.0000**	**0.0111**

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	0.3104					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.2529					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.9000e-004	5.0000e-005	5.3200e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.0104	0.0104	3.0000e-005	0.0000	0.0111
Total	**2.5638**	**5.0000e-005**	**5.3200e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0104**	**0.0104**	**3.0000e-005**	**0.0000**	**0.0111**

7.0 Water Detail

7.1 Mitigation Measures Water

Category	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	103.9151	3.2752	0.0792	209.3842
Unmitigated	103.9151	3.2752	0.0792	209.3842

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
General Office Building	100.206 / 61.4168	103.9151	3.2752	0.0792	209.3842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**103.9151**	**3.2752**	**0.0792**	**209.3842**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
General Office Building	100.206 / 61.4168	103.9151	3.2752	0.0792	209.3842
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**103.9151**	**3.2752**	**0.0792**	**209.3842**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	106.4343	6.2901	0.0000	263.6864
Unmitigated	106.4343	6.2901	0.0000	263.6864

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	524.33	106.4343	6.2901	0.0000	263.6864

Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**106.4343**	**6.2901**	**0.0000**	**263.6864**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	524.33	106.4343	6.2901	0.0000	263.6864
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**106.4343**	**6.2901**	**0.0000**	**263.6864**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2017 Calculations

CalEEMod Construction Inputs

Phase							Worker VMT	Vendor VMT	Hauling VMT
	1			1 .	.3		3		
	1		1	1 .	.3				
	13	1		1 .	.3		3		
	3	33	1	1 .	.3	.3	1		1 1
	3			1 .	.3	.3	3 3	1	
	3	1		1 .	.3	.3	1		1
				1 .	.3				

Number of Days Per Year					
3	1 3 3	1 31 3	3 3	**259**	
	1 1	1 31	3	**262**	
	1 1	1 31	3	**261**	
	1 1	1 31	3	**261**	
	1 1	1 31	3	**261**	
	1 1	1 31	3	**260**	
			1	**1564**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
	1 3 3	3 1 3		
	3 1 3	1 3		
	1 3	1 1 3		1
	1 3	1 1		
	11 1 3	3		11
	1 1 3	1		
	1	1 31		11

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	.1	. 1	1.11	.	.3	. 1	.	. 3	. 3	. 3	. 1
2024	.	. 1	1.	. 3	.3 1	.	.	.	. 3 3	.	3.3
2025	.	. 1	1. 13	.	.3 3	.	.	.	. 3 1	.	1.3
2026	.	. 1	.	. 1	.3 3	. 3	. 3	.	. 3	.	.
2027	.	. 3	. 33	.	.3 3	.	.	.	. 31	.	.
2028	.	.	.	.	.3 1	. 3	. 3	.	. 31	.	.

Toxic Air Contaminants (1 Mile Trip Length)											
2023	.	. 3	.	.	. 3 3	.	. 3	.	. 3	.	. 3
2024	. 3	. 1	. 1	.	. 3	.	.	.	. 3	. 3	. 3
2025	.	. 1	.	.	. 3	.	.	.	. 3	.	.
2026	.	. 1	.3 3	.	. 3	.	.	.	. 3	.	1.1 3
2027	. 1	. 1	.3 3	.	. 3	.	.	.	. 3	.	. 3
2028	. 3	. 13	.3	.	. 3	.	.	.	. 3	.	. 3

1 1
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. 3 . 1 1 . 1 . . 1 3 . 1 . 3 3. . . 1 13 . 3 . 1 . 1
.1 3 11 .1 . . 33 . 3 3 1.3
. 1 . 3 . 31 . 3 3 . 3 . 3 .1 3 .3 1 3 . 1 1 . 3 1 1 . 1 .1 3 . 1
1. 1. 31 .3 3 . 1 3 . 3 . 1 1 . . 13 . 3 . 11 . .1 1 1.
. 3 13. 1 .3 3 3 . 1 3 1.1 . 1
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. . . 3 3 .1 33 . 1. 1
. . 3 . 3 . 1 . 31 . 1. 3 . 1 11 1. . 1 1.1 3 3 1. 3 1.
.13 3 1 .1 1 .1 33 . 13 . 1 .131 1. 3 .3 1 33 . . 1 11 . 1 3 1. 1 1 . 3 3
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. 3 .11 . .1 . 1 . . 1 1 . . . 1 . . 11 . 3
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.13 .1 . 1 3 . . 3 . . 1. 3 1 .11 13 . 1. 1 . . 1
.31 . 1 . 3 . 3 . .
.1 . . 3 . 31 . . . 3 . 11 3 . 1 3 . 1 . 1 . 3 . 13
.33 . . . .33 . 1 . 1 . . 1.13 . 1
. 3 . 1 . 3 . . 1 . . 3 1. . 1 . 3 1. 3 . 11 .3
. 3 .11 . .1 . 1 . . 1 1 . . . 1 . . 11 . 3
. . 1 13 . 11 . . 3 .1
. . 3 . 1 . 1 . . 3 . 1 .1 . . 1 1. 1 . .1 1
. . 11 1 . . 1 . .11 3 . 1 3 3 . 1 . 3 11 1. 3 . 1 . 3 . 3
.1 . 13 .3 . 1 3 . 13 .1 1 . . . . 1 1. 3 . 3 . 13
.1 31 . 1 . 11 . . 3 . . . .1 1 . . 1 . . 3 1

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.	1	.		.1	1	.11	3	.		1	3	.	.	1	3	.	3	.	1	.	.	.	1	3	.
.	1	.		.1	1	.11	3	.		1	3	.	.	1	3	.	3	.	1	.	.	.	1	3	.
.	1	.		.1	1	.11	3	.		1	3	.	.	1	3	.	3	.	1	.	.	.	1	3	.
.	1	.		.1	1	.11	3	.		1	3	.	.	1	3	.	3	.	1	.	.	.	1	3	.

1 1
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. 31 . 3 . 3 . . 33 . 1 1 .1 3 .3 1 . 3 1 . 3 1 . 3 .1 1 .3 3
1. 3 1. 1 1 .3 . 3 1 . 3 3 . 3313 . 3 . 33 .3 3 . 13 . 3 .1 1. 3
. 13.3 13 .33 1 . 1.3 1 3.
1 . . . 333. 1 3 3.3 . 1 . 3 1 . 131 . 1 3 . 3 1 . . 1 13 .
. .1 1 .1 . . 1 . 1 .3 3 . 331 1 1 . 3 . . 3 1.13 1 .3
. . 1 . 1 .1 1 . 3 1. 3
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1 . . 1 . . 1 3 . . 11
1 . 3 . 3 . 3 . 3 . . 1 .13 3 . 3 3 .13 3 . 1 . 11 . .13 3
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1 . 3 . 1 1 . 1 3 . 1 . . 1 . . 3 . 3 . 3 . 1 . 11 3 . 3
1 . 1 . 1 1 . 13 . 13 . . . 1 . 3 . 13 . . 1. . 1
. 1 . 1 . . 1 .33 .
. 1 . 1 . 1 . 1 . 3 . 3 . . 11 . . 333 . .31 .
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. . 1 . . . 1 . 1 3 . 3 . 3 . 11 . 3 . . 1 3 .
. 11 . 13 1 . 1 3 . 1 3 . 1 . . 11 . . 1 . . 1. . 1
. . 3 . . 3 . 1 . . 3 1. . 1 3 . 3 1. 3 . 1 .3 1
. 1 .11 . 3 1 .11 1 . 3 . 3 . 1 . 1 . 3 . 3 . . 11 . 3
. 1 . 13 . . 1 11 . 3 .
. 1 3 . 1 . 33 . 3 . . 3 . 1 . . . 1 1. 3 .3 .1 3
. 3 . . 133 . 13 . .1 . 1 3 . 3 1 . 3 . 331 . 1 . . 3
.1 . 1 .3 .3 . 313 .13 . . 13 . . 1 1. 1 . 1 3 .
.1 3 .1 .1 . . . . 1 1. .113 1 . 1 1. 13 . . 3
. 1 . 1 . 3 . 3 . 1 . 3
.11 . . 3 . 3 . . . 3 . 11 1 3 . 1 . 3 . 1 . 1 . 133
. . . .1 . . . 1 . . 1.13 . 1
. . 3 . . 3 . 1 . . 3 1. . 1 3 . 3 1. 3 . 1 .3 1
. 1 .11 . 3 1 .11 1 . 3 . 3 . 1 . 1 . 3 . 3 . . 11 . 3
. 1 . 1 . 1 . 1 13 . .13
. 1 3 . 1 . 33 . 3 . . 3 . 1 . . . 1 1. 3 .3 .1 3
. 1 . 1 . 1 . 11 . 1 .11 13 . 1 . . 33 1. 3 . . 331 1 . 1
.1 . 1 .3 .3 . 313 .13 . . 13 . . 1 1. 1 . 1 3 .
.13 1 .1 1 . . . 3 1 . . 1 . 3 .1 . 3 3 . 31 . . 1

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. 1	.		11	.1	3	.113	. 1	.	. 1	1	.	3	1	.	.	.	. 1	.
. 1	.		11	.1	3	.113	. 1	.	. 1	1	.	3	1	.	.	.	. 1	.
. 1	.		11	.1	3	.113	. 1	.	. 1	1	.	3	1	.	.	.	. 1	.
. 1	.		11	.1	3	.113	. 1	.	. 1	1	.	3	1	.	.	.	. 1	.

		1					1																	
.	1	.	.1	1	.11	3	.	1	3	.	. 1	3	.	3	.	1	.	.	.	1	3	.		
.	1	.	.1	1	.11	3	.	1	3	.	. 1	3	.	3	.	1	.	.	.	1	3	.		

CalEEMod EMFAC2017 Fleet Mix Input - Existing

Year **2030**

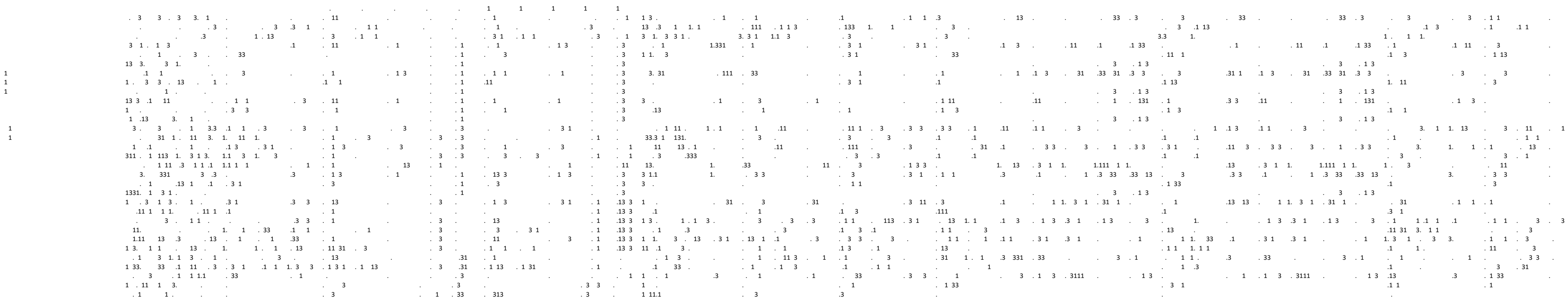
		1						1													
.	1	.	11	.1	3	.113	.	1	.	.	1	1	.	3	1	.	.	.	.	1	.
.	1	.	11	.1	3	.113	.	1	.	.	1	1	.	3	1	.	.	.	.	1	.

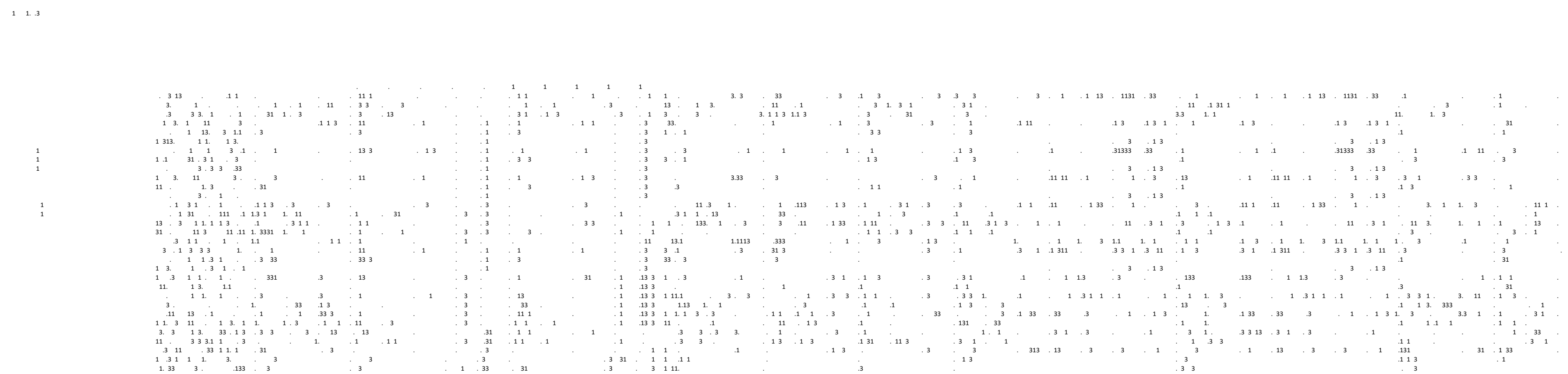
Adjustment Factors for EMFAC2017 Gasoline Light Duty Vehicles						
Year	NOx Exhaust	TOG Evaporative	TOG Exhaust	PM Exhaust	CO Exhaust	CO2 Exhaust
NA	1	1	1	1	1	1
2021	1.0002	1.0001	1.0002	1.0009	1.0005	1.0023
2022	1.0004	1.0003	1.0004	1.0018	1.0014	1.0065
2023	1.0007	1.0006	1.0007	1.0032	1.0027	1.0126
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**

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.

1 1. .3

1 1. .3





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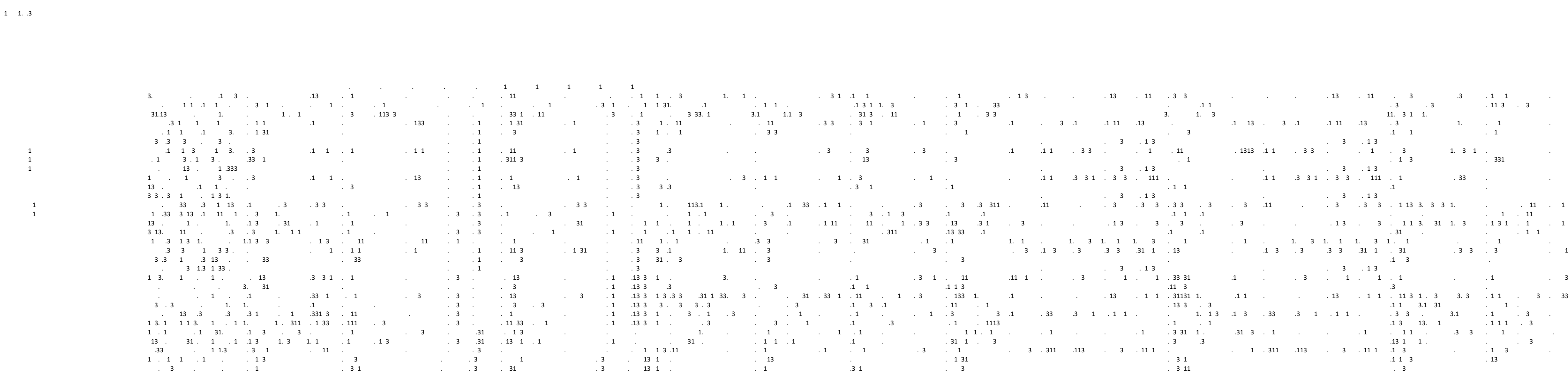

Attachment 4: Project Construction Emissions and Health Risk Calculations

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA

DPM Emissions and Modeling Emission Rates - Unmitigated

Construction Year	Activity	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	Construction	0.0310	CON_DPM	62.0	0.01698	2.14E-03	124283	1.72E-08
2024	Construction	0.0848	CON_DPM	169.7	0.04649	5.86E-03	124283	4.71E-08
2025	Construction	0.1110	CON_DPM	222.0	0.06082	7.66E-03	124283	6.17E-08
2026	Construction	0.1110	CON_DPM	222.0	0.06081	7.66E-03	124283	6.17E-08
2027	Construction	0.1098	CON_DPM	219.5	0.06014	7.58E-03	124283	6.10E-08
2028	Construction	0.0962	CON_DPM	192.3	0.05269	6.64E-03	124283	5.34E-08
Total		***0.5437***		***1087.4***	***0.2979***	***0.0375***		

Construction Hours

hr/day =	10	(7am - 5pm)
days/yr =	365	
hours/year =	3650	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA

PM2.5 Fugitive Dust Emissions for Modeling - Unmitigated

Construction Year	Activity	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	Construction	CON_FUG	0.0439	87.8	0.02406	3.03E-03	124,283	2.44E-08
2024	Construction	CON_FUG	0.0057	11.3	0.00310	3.91E-04	124,283	3.15E-09
2025	Construction	CON_FUG	0.0056	11.3	0.00310	3.90E-04	124,283	3.14E-09
2026	Construction	CON_FUG	0.0056	11.3	0.00310	3.90E-04	124,283	3.14E-09
2027	Construction	CON_FUG	0.0056	11.3	0.00310	3.90E-04	124,283	3.14E-09
2028	Construction	CON_FUG	0.0057	11.3	0.00310	3.91E-04	124,283	3.15E-09
Total			***0.0722***	***144.4***	***0.0396***	***0.0050***		

Construction Hours

hr/day =	10	(7am - 5pm)
days/yr =	365	
hours/year =	3650	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA
Construction Health Impact Summary

Maximum Impacts at Cancer Risk MEI Residential Location - Without Mitigatio

Emissions Year	Maximum Concentrations Exhaust PM10/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million) Infant/Child	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.0017	0.0025	0.31	0.0003	0.004
2024	0.0047	0.0003	0.77	0.001	0.01
2025	0.0062	0.0003	0.16	0.001	0.01
2026	0.0062	0.0003	0.16	0.001	0.01
2027	0.0061	0.0003	0.16	0.001	0.01
2028	0.0053	0.0003	0.14	0.001	0.01
Total	-	-	**1.7**	-	-
Maximum	0.0062	0.0025	**-**	**0.001**	**0.01**

Maximum Impacts at Iron Horse Middle School

Construction Year	Unmitigated Emissions Maximum Concentrations Exhaust PM2.5/DPM ($\mu g/m^3$)	Fugitive PM2.5 ($\mu g/m^3$)	Child Cancer Risk (per million)	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2023	0.0029	0.0042	0.18	0.001	0.01
2024	0.0078	0.0005	0.49	0.002	0.01
2025	0.0102	0.0005	0.64	0.002	0.01
2026	0.0102	0.0005	0.64	0.002	0.01
2027	0.0101	0.0005	0.63	0.002	0.01
2028	0.0089	0.0005	0.55	0.002	0.01
Total	-	-	**3.1**	-	-
Maximum	0.0102	0.0042	**-**	**0.002**	**0.01**

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 1.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
	Exposure				Age	Cancer	Modeled		Age	Cancer			
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2023	0.0018	10	0.02	2023	0.0018	-	-			
1	1	0 - 1	2023	0.0018	10	0.29	2023	0.0018	1	0.01	0.0004	0.0026	0.0044
2	1	1 - 2	2024	0.0049	10	0.80	2024	0.0049	1	0.01	0.0010	0.0003	0.0052
3	1	2 - 3	2025	0.0064	3	0.17	2025	0.0064	1	0.02	0.0013	0.0003	0.0068
4	1	3 - 4	2026	0.0064	3	0.17	2026	0.0064	1	0.02	0.0013	0.0003	0.0068
5	1	4 - 5	2027	0.0064	3	0.16	2027	0.0064	1	0.02	0.0013	0.0003	0.0067
6	1	5 - 6	2028	0.0056	3	0.14	2028	0.0056	1	0.02	0.0011	0.0003	0.0059
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**1.8**				**0.09**			

* Third trimester of pregnancy

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Off-Site MEI Location - 4.5 meter receptor height

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

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

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

			Infant/Child - Exposure Information			Infant/Child	Adult - Exposure Information			Adult	Maximum		
	Exposure				Age	Cancer	Modeled		Age	Cancer			
Exposure	Duration		DPM Conc (ug/m3)		Sensitivity	Risk	DPM Conc (ug/m3)		Sensitivity	Risk	Hazard	Fugitive	Total
Year	(years)	Age	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	Index	PM2.5	PM2.5
0	0.25	-0.25 - 0*	2023	0.0017	10	0.02	2023	0.0017	-	-			
1	1	0 - 1	2023	0.0017	10	0.28	2023	0.0017	1	0.00	0.0003	0.0025	0.0042
2	1	1 - 2	2024	0.0047	10	0.77	2024	0.0047	1	0.01	0.0009	0.0003	0.0050
3	1	2 - 3	2025	0.0062	3	0.16	2025	0.0062	1	0.02	0.0012	0.0003	0.0065
4	1	3 - 4	2026	0.0062	3	0.16	2026	0.0062	1	0.02	0.0012	0.0003	0.0065
5	1	4 - 5	2027	0.0061	3	0.16	2027	0.0061	1	0.02	0.0012	0.0003	0.0064
6	1	5 - 6	2028	0.0053	3	0.14	2028	0.0053	1	0.02	0.0011	0.0003	0.0057
7	1	6 - 7		0.0000	3	0.00		0.0000	1	0.00			
8	1	7 - 8		0.0000	3	0.00		0.0000	1	0.00			
9	1	8 - 9		0.0000	3	0.00		0.0000	1	0.00			
10	1	9 - 10		0.0000	3	0.00		0.0000	1	0.00			
11	1	10 - 11		0.0000	3	0.00		0.0000	1	0.00			
12	1	11 - 12		0.0000	3	0.00		0.0000	1	0.00			
13	1	12 - 13		0.0000	3	0.00		0.0000	1	0.00			
14	1	13 - 14		0.0000	3	0.00		0.0000	1	0.00			
15	1	14 - 15		0.0000	3	0.00		0.0000	1	0.00			
16	1	15 - 16		0.0000	3	0.00		0.0000	1	0.00			
17	1	16-17		0.0000	1	0.00		0.0000	1	0.00			
18	1	17-18		0.0000	1	0.00		0.0000	1	0.00			
19	1	18-19		0.0000	1	0.00		0.0000	1	0.00			
20	1	19-20		0.0000	1	0.00		0.0000	1	0.00			
21	1	20-21		0.0000	1	0.00		0.0000	1	0.00			
22	1	21-22		0.0000	1	0.00		0.0000	1	0.00			
23	1	22-23		0.0000	1	0.00		0.0000	1	0.00			
24	1	23-24		0.0000	1	0.00		0.0000	1	0.00			
25	1	24-25		0.0000	1	0.00		0.0000	1	0.00			
26	1	25-26		0.0000	1	0.00		0.0000	1	0.00			
27	1	26-27		0.0000	1	0.00		0.0000	1	0.00			
28	1	27-28		0.0000	1	0.00		0.0000	1	0.00			
29	1	28-29		0.0000	1	0.00		0.0000	1	0.00			
30	1	29-30		0.0000	1	0.00		0.0000	1	0.00			
Total Increased Cancer Risk						**1.7**				**0.09**			

* Third trimester of pregnancy

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Iron Horse Middle School (+2 years old) - 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)	Age	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 Fugitive PM2.5	Maximum Total PM2.5
1	1	11 - 12	2023	0.0029	3	0.2	0.0006	0.0042	0.0070
2	1	12 - 13	2024	0.0078	3	0.5	0.0016	0.0005	0.0084
3	1	13 - 14	2025	0.0102	3	0.6	0.0020	0.0005	0.0108
4	1	14 - 15	2026	0.0102	3	0.6	0.0020	0.0005	0.0108
5	1	15 - 16	2027	0.0101	3	0.6	0.0020	0.0005	0.0106
6	1	16 - 17	2028	0.0089	3	0.6	0.0018	0.0005	0.0094
Total Increased Cancer Risk						**3.14**			

* Children assumed to be 2 years of age or older with 6 years of Construction Exposure

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Construction Impacts - Without Mitigation
Maximum DPM Cancer Risk and PM2.5 Calculations From Construction
Impacts at Iron Horse Middle School (+2 years old) - 4.0 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)	Age	Child - Exposure Information: DPM Conc (ug/m3) Year	Annual	Age* Sensitivity Factor	Child Cancer Risk (per million)
1	1	11 - 12	2023	0.0028	3	0.2
2	1	12 - 13	2024	0.0076	3	0.5
3	1	13 - 14	2025	0.0100	3	0.6
4	1	14 - 15	2026	0.0100	3	0.6
5	1	15 - 16	2027	0.0099	3	0.6
6	1	16 - 17	2028	0.0086	3	0.5
Total Increased Cancer Risk						**3.06**

* Children assumed to be 2 years of age or older with 6 years of Construction Exposure

	Maximum	
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.0006	0.0041	0.0068
0.0015	0.0005	0.0081
0.0020	0.0005	0.0105
0.0020	0.0005	0.0105
0.0020	0.0005	0.0104
0.0017	0.0005	0.0092

Attachment 5: Community Risk Modeling Information and Calculations

CT-EMFAC2017 Emissions Factors for Camino Ramon & Norris Canyon Road

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Camino Ramon Traffic Emissions and Health Risk Calculations

Analysis Year = *2023*

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**10,545**	**10,756**

Increase From 2021	1.02
Vehicles/Direction	**5,378**
Avg Vehicles/Hour/Direction	224

Traffic Data Year = *2021*

Caltrans AADT (2017) & Truck %s (2018)	AADT Total
Exsting + Project Camino Ramon	10,545

Percent of Total Vehicles

Traffic Increase per Year (%) = *1.00%*

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Camino Ramon
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_NB_CAM	Camino Ramon Northbound	NB	2	1155.9	0.72	13.3	43.7	3.4	40	5,378
DPM_SB_CAM	Camino Ramon Southbound	SB	2	1156.4	0.72	13.3	43.7	3.4	40	5,378
									Total	10,756

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00041			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_NB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.56%	192	1.58E-05	9	7.35%	395	3.26E-05	17	6.52%	350	2.89E-05
2	2.53%	136	1.13E-05	10	6.58%	354	2.92E-05	18	4.73%	255	2.10E-05
3	3.00%	161	1.33E-05	11	5.75%	309	2.55E-05	19	2.37%	128	1.05E-05
4	3.00%	161	1.33E-05	12	6.13%	329	2.72E-05	20	1.06%	57	4.71E-06
5	2.06%	111	9.17E-06	13	5.47%	294	2.43E-05	21	2.73%	147	1.21E-05
6	2.91%	156	1.29E-05	14	5.47%	294	2.43E-05	22	3.58%	192	1.59E-05
7	6.67%	359	2.96E-05	15	4.53%	244	2.01E-05	23	2.27%	122	1.01E-05
8	5.76%	310	2.56E-05	16	5.00%	269	2.22E-05	24	0.95%	51	4.23E-06
								Total		5,378	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_SB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.56%	192	1.58E-05	9	7.35%	395	3.26E-05	17	6.52%	350	2.90E-05
2	2.53%	136	1.13E-05	10	6.58%	354	2.92E-05	18	4.73%	255	2.10E-05
3	3.00%	161	1.33E-05	11	5.75%	309	2.56E-05	19	2.37%	128	1.05E-05
4	3.00%	161	1.33E-05	12	6.13%	329	2.72E-05	20	1.06%	57	4.71E-06
5	2.06%	111	9.17E-06	13	5.47%	294	2.43E-05	21	2.73%	147	1.22E-05
6	2.91%	156	1.29E-05	14	5.47%	294	2.43E-05	22	3.58%	192	1.59E-05
7	6.67%	359	2.97E-05	15	4.53%	244	2.01E-05	23	2.27%	122	1.01E-05
8	5.76%	310	2.56E-05	16	5.00%	269	2.22E-05	24	0.95%	51	4.23E-06
								Total		5,378	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Camino Ramon
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_NB_CAM	Camino Ramon Northbound	NB	2	1155.9	0.72	13.3	44	1.3	40	5,378
PM2.5_SB_CAM	Camino Ramon Southbound	SB	2	1156.4	0.72	13.3	44	1.3	40	5,378
									Total	10,756

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001421			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_NB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	61	1.74E-05	9	7.15%	384	1.09E-04	17	7.43%	400	1.13E-04
2	0.42%	22	6.36E-06	10	4.36%	235	6.65E-05	18	8.22%	442	1.25E-04
3	0.43%	23	6.56E-06	11	4.65%	250	7.09E-05	19	5.69%	306	8.67E-05
4	0.26%	14	3.94E-06	12	5.86%	315	8.94E-05	20	4.26%	229	6.50E-05
5	0.50%	27	7.62E-06	13	6.12%	329	9.33E-05	21	3.24%	174	4.94E-05
6	0.90%	49	1.38E-05	14	6.02%	324	9.17E-05	22	3.27%	176	4.99E-05
7	3.81%	205	5.81E-05	15	6.98%	375	1.06E-04	23	2.45%	132	3.73E-05
8	7.79%	419	1.19E-04	16	7.18%	386	1.09E-04	24	1.87%	101	2.85E-05
								Total		5,378	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_SB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	61	1.74E-05	9	7.15%	384	1.09E-04	17	7.43%	400	1.13E-04
2	0.42%	22	6.36E-06	10	4.36%	235	6.65E-05	18	8.22%	442	1.25E-04
3	0.43%	23	6.56E-06	11	4.65%	250	7.09E-05	19	5.69%	306	8.67E-05
4	0.26%	14	3.94E-06	12	5.86%	315	8.94E-05	20	4.26%	229	6.50E-05
5	0.50%	27	7.62E-06	13	6.12%	329	9.34E-05	21	3.24%	174	4.94E-05
6	0.90%	49	1.38E-05	14	6.02%	324	9.18E-05	22	3.27%	176	4.99E-05
7	3.81%	205	5.82E-05	15	6.98%	375	1.06E-04	23	2.45%	132	3.74E-05
8	7.79%	419	1.19E-04	16	7.18%	386	1.10E-04	24	1.87%	101	2.85E-05
								Total		5,378	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Camino Ramon
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_NB_CAM	Camino Ramon Northbound	NB	2	1155.9	0.72	13.3	44	1.3	40	5,378
TEXH_SB_CAM	Camino Ramon Southbound	SB	2	1156.4	0.72	13.3	44	1.3	40	5,378
									Total	10,756

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.02777			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_NB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	61	3.40E-04	9	7.15%	384	2.13E-03	17	7.43%	400	2.22E-03
2	0.42%	22	1.24E-04	10	4.36%	235	1.30E-03	18	8.22%	442	2.45E-03
3	0.43%	23	1.28E-04	11	4.65%	250	1.39E-03	19	5.69%	306	1.69E-03
4	0.26%	14	7.69E-05	12	5.86%	315	1.75E-03	20	4.26%	229	1.27E-03
5	0.50%	27	1.49E-04	13	6.12%	329	1.82E-03	21	3.24%	174	9.65E-04
6	0.90%	49	2.69E-04	14	6.02%	324	1.79E-03	22	3.27%	176	9.75E-04
7	3.81%	205	1.14E-03	15	6.98%	375	2.08E-03	23	2.45%	132	7.30E-04
8	7.79%	419	2.32E-03	16	7.18%	386	2.14E-03	24	1.87%	101	5.57E-04
								Total		5,378	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_SB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	61	3.40E-04	9	7.15%	384	2.13E-03	17	7.43%	400	2.22E-03
2	0.42%	22	1.24E-04	10	4.36%	235	1.30E-03	18	8.22%	442	2.45E-03
3	0.43%	23	1.28E-04	11	4.65%	250	1.39E-03	19	5.69%	306	1.70E-03
4	0.26%	14	7.70E-05	12	5.86%	315	1.75E-03	20	4.26%	229	1.27E-03
5	0.50%	27	1.49E-04	13	6.12%	329	1.82E-03	21	3.24%	174	9.65E-04
6	0.90%	49	2.69E-04	14	6.02%	324	1.79E-03	22	3.27%	176	9.76E-04
7	3.81%	205	1.14E-03	15	6.98%	375	2.08E-03	23	2.45%	132	7.30E-04
8	7.79%	419	2.32E-03	16	7.18%	386	2.14E-03	24	1.87%	101	5.58E-04
								Total		5,378	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Camino Ramon
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_NB_CAM	Camino Ramon Northbound	NB	2	1155.9	0.72	13.3	44	1.3	40	5,378
TEVAP_SB_CAM	Camino Ramon Southbound	SB	2	1156.4	0.72	13.3	44	1.3	40	5,378
									Total	10,756

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.49578			
Emissions per Vehicle per Mile (g/VMT)	0.03739			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_NB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	61	4.58E-04	9	7.15%	384	2.87E-03	17	7.43%	400	2.98E-03
2	0.42%	22	1.67E-04	10	4.36%	235	1.75E-03	18	8.22%	442	3.30E-03
3	0.43%	23	1.73E-04	11	4.65%	250	1.87E-03	19	5.69%	306	2.28E-03
4	0.26%	14	1.04E-04	12	5.86%	315	2.35E-03	20	4.26%	229	1.71E-03
5	0.50%	27	2.01E-04	13	6.12%	329	2.46E-03	21	3.24%	174	1.30E-03
6	0.90%	49	3.63E-04	14	6.02%	324	2.41E-03	22	3.27%	176	1.31E-03
7	3.81%	205	1.53E-03	15	6.98%	375	2.80E-03	23	2.45%	132	9.83E-04
8	7.79%	419	3.12E-03	16	7.18%	386	2.88E-03	24	1.87%	101	7.50E-04
								Total		5,378	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_SB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	61	4.58E-04	9	7.15%	384	2.87E-03	17	7.43%	400	2.98E-03
2	0.42%	22	1.67E-04	10	4.36%	235	1.75E-03	18	8.22%	442	3.30E-03
3	0.43%	23	1.73E-04	11	4.65%	250	1.87E-03	19	5.69%	306	2.28E-03
4	0.26%	14	1.04E-04	12	5.86%	315	2.35E-03	20	4.26%	229	1.71E-03
5	0.50%	27	2.01E-04	13	6.12%	329	2.46E-03	21	3.24%	174	1.30E-03
6	0.90%	49	3.63E-04	14	6.02%	324	2.42E-03	22	3.27%	176	1.31E-03
7	3.81%	205	1.53E-03	15	6.98%	375	2.80E-03	23	2.45%	132	9.83E-04
8	7.79%	419	3.13E-03	16	7.18%	386	2.88E-03	24	1.87%	101	7.51E-04
								Total		5,378	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Camino Ramon
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_NB_CAM	Camino Ramon Northbound	NB	2	1155.9	0.72	13.3	44	1.3	40	5,378
FUG_SB_CAM	Camino Ramon Southbound	SB	2	1156.4	0.72	13.3	44	1.3	40	5,378
									Total	10,756

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01683			
Road Dust - Emissions per Vehicle (g/VMT)	0.01505			
otal Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03399			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_NB_CAM

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	61	4.16E-04	9	7.15%	384	2.61E-03	17	7.43%	400	2.71E-03
2	0.42%	22	1.52E-04	10	4.36%	235	1.59E-03	18	8.22%	442	3.00E-03
3	0.43%	23	1.57E-04	11	4.65%	250	1.70E-03	19	5.69%	306	2.07E-03
4	0.26%	14	9.41E-05	12	5.86%	315	2.14E-03	20	4.26%	229	1.55E-03
5	0.50%	27	1.82E-04	13	6.12%	329	2.23E-03	21	3.24%	174	1.18E-03
6	0.90%	49	3.30E-04	14	6.02%	324	2.19E-03	22	3.27%	176	1.19E-03
7	3.81%	205	1.39E-03	15	6.98%	375	2.54E-03	23	2.45%	132	8.93E-04
8	7.79%	419	2.84E-03	16	7.18%	386	2.62E-03	24	1.87%	101	6.82E-04
								Total		5,378	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_SB_CAM

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	61	4.17E-04	9	7.15%	384	2.61E-03	17	7.43%	400	2.71E-03
2	0.42%	22	1.52E-04	10	4.36%	235	1.59E-03	18	8.22%	442	3.00E-03
3	0.43%	23	1.57E-04	11	4.65%	250	1.70E-03	19	5.69%	306	2.07E-03
4	0.26%	14	9.42E-05	12	5.86%	315	2.14E-03	20	4.26%	229	1.56E-03
5	0.50%	27	1.82E-04	13	6.12%	329	2.23E-03	21	3.24%	174	1.18E-03
6	0.90%	49	3.30E-04	14	6.02%	324	2.20E-03	22	3.27%	176	1.19E-03
7	3.81%	205	1.39E-03	15	6.98%	375	2.55E-03	23	2.45%	132	8.94E-04
8	7.79%	419	2.84E-03	16	7.18%	386	2.62E-03	24	1.87%	101	6.82E-04
								Total		5,378	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptor (1.5 meter receptor height)

Emission Year	2023
Receptor Information	Construction Residential MEI receptor
Number of Receptors	1
Receptor Height	1.5 meters
Receptor Distances	At Construction Residential MEI location
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2009-2017	0.00032	0.01957	0.02636

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2009-2017	0.02499	0.02399	0.001

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic Cancer Risk
Impacts at Construction Residential MEI - 1.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

Where: CPF = Cancer potency factor (mg/kg-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 (μg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2021	10	0.0003	0.0196	0.0264	0.004	0.002	0.0001	0.01
1	1	0 - 1	2021	10	0.0003	0.0196	0.0264	0.053	0.018	0.0015	0.07
2	1	1 - 2	2022	10	0.0003	0.0196	0.0264	0.053	0.018	0.0015	0.07
3	1	2 - 3	2023	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
4	1	3 - 4	2024	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
5	1	4 - 5	2025	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
6	1	5 - 6	2026	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
7	1	6 - 7	2027	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
8	1	7 - 8	2028	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
9	1	8 - 9	2029	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
10	1	9 - 10	2030	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
11	1	10 - 11	2031	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
12	1	11 - 12	2032	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
13	1	12 - 13	2033	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
14	1	13 - 14	2034	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
15	1	14 - 15	2035	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
16	1	15 - 16	2036	3	0.0003	0.0196	0.0264	0.008	0.003	0.0002	0.01
17	1	16-17	2037	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
18	1	17-18	2038	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
19	1	18-19	2039	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
20	1	19-20	2040	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
21	1	20-21	2041	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
22	1	21-22	2042	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
23	1	22-23	2043	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
24	1	23-24	2044	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
25	1	24-25	2045	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
26	1	25-26	2046	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
27	1	26-27	2047	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
28	1	27-28	2048	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
29	1	28-29	2049	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
30	1	29-30	2050	1	0.0003	0.0196	0.0264	0.001	0.000	0.0000	0.00
Total Increased Cancer Risk								0.24	0.083	0.007	**0.3**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0001	0.02	0.02

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction School MEI Receptor (1 meter receptor height)

Emission Year	2023
Receptor Information	Construction School MEI receptor
Number of Receptors	1
Receptor Height	1 meters
Receptor Distances	At Construction School MEI location
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2009-2017	0.00026	0.01606	0.02163

Construction School MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2009-2017	0.02051	0.01969	0.00082

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic Cancer Risk
Impacts at Construction School MEI - 1 meter receptor height
3 Year Middle School (6th - 8th Grade) Exposure

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air ($\mu g/m^3$)
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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
8-Hr BR* =	361	1200	520	240
A =	1	1	1	1
EF =	250	250	250	250
AT =	70	70	70	70
FAH =	1.00	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

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG		Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0	1	11 - 12	2032	3	0.0003	0.0161	0.0216	0.016	0.006	0.0005	0.02	0.0001	0.02	0.02
1	1	12 - 13	2033	3	0.0003	0.0161	0.0216	0.016	0.006	0.0005	0.02			
2	1	13 - 14	2034	3	0.0003	0.0161	0.0216	0.016	0.006	0.0005	0.02			
Total Increased Cancer Risk								0.05	0.017	0.001	**0.1**			

* Children assumed to be 2 years of age or older with 3 years of Middle School (6th-8th Grade) Exposure

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic - TACs & PM2.
AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
On-Site 1st Floor Residential Receptors (1.5 meter receptor height)

Emission Year	2023
Receptor Information	Maximum On-Site Receptor
Number of Receptors	560
Receptor Height	1.5 meters
Receptor Distances	7 meter grid spacing
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological	Concentration (μg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00163	0.13205	0.17784

1st Floor Project PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (μg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.16863	0.16187	0.00676

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic Cancer Risk
Impacts at On-Site 1st Floor Residential Receptors - 1.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration

Cancer Risk Calculation Method

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

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

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

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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2021	10	0.0016	0.1321	0.1778	0.022	0.010	0.0008	0.03
1	1	0 - 1	2021	10	0.0016	0.1321	0.1778	0.268	0.124	0.0098	0.40
2	1	1 - 2	2022	10	0.0016	0.1321	0.1778	0.268	0.124	0.0098	0.40
3	1	2 - 3	2023	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
4	1	3 - 4	2024	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
5	1	4 - 5	2025	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
6	1	5 - 6	2026	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
7	1	6 - 7	2027	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
8	1	7 - 8	2028	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
9	1	8 - 9	2029	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
10	1	9 - 10	2030	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
11	1	10 - 11	2031	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
12	1	11 - 12	2032	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
13	1	12 - 13	2033	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
14	1	13 - 14	2034	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
15	1	14 - 15	2035	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
16	1	15 - 16	2036	3	0.0016	0.1321	0.1778	0.042	0.019	0.0015	0.06
17	1	16-17	2037	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
18	1	17-18	2038	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
19	1	18-19	2039	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
20	1	19-20	2040	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
21	1	20-21	2041	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
22	1	21-22	2042	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
23	1	22-23	2043	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
24	1	23-24	2044	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
25	1	24-25	2045	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
26	1	25-26	2046	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
27	1	26-27	2047	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
28	1	27-28	2048	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
29	1	28-29	2049	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
30	1	29-30	2050	1	0.0016	0.1321	0.1778	0.005	0.002	0.0002	0.01
Total Increased Cancer Risk								1.21	0.561	0.045	**1.8**

* Third trimester of pregnancy

	Maximum	
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.0003	0.16	0.17

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic - TACs & PM2.
AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
On-Site 2nd Floor Residential Receptors (4.5 meter receptor height)

Emission Year	2023
Receptor Information	Maximum On-Site Receptor
Number of Receptors	560
Receptor Height	4.5 meters
Receptor Distances	7 meter grid spacing

Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00136	0.07178	0.09667

1st Floor Project PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.09167	0.08799	0.00368

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Camino Ramon Traffic Cancer Risk
Impacts at On-Site 2nd Floor Residential Receptors - 4.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration

Cancer Risk Calculation Method

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

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

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

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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	
0	0.25	-0.25 - 0*	2021	10	0.0014	0.0718	0.0967	0.018	0.006	0.0004	0.02
1	1	0 - 1	2021	10	0.0014	0.0718	0.0967	0.223	0.067	0.0053	0.30
2	1	1 - 2	2022	10	0.0014	0.0718	0.0967	0.223	0.067	0.0053	0.30
3	1	2 - 3	2023	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
4	1	3 - 4	2024	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
5	1	4 - 5	2025	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
6	1	5 - 6	2026	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
7	1	6 - 7	2027	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
8	1	7 - 8	2028	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
9	1	8 - 9	2029	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
10	1	9 - 10	2030	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
11	1	10 - 11	2031	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
12	1	11 - 12	2032	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
13	1	12 - 13	2033	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
14	1	13 - 14	2034	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
15	1	14 - 15	2035	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
16	1	15 - 16	2036	3	0.0014	0.0718	0.0967	0.035	0.011	0.0008	0.05
17	1	16-17	2037	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
18	1	17-18	2038	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
19	1	18-19	2039	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
20	1	19-20	2040	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
21	1	20-21	2041	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
22	1	21-22	2042	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
23	1	22-23	2043	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
24	1	23-24	2044	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
25	1	24-25	2045	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
26	1	25-26	2046	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
27	1	26-27	2047	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
28	1	27-28	2048	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
29	1	28-29	2049	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
30	1	29-30	2050	1	0.0014	0.0718	0.0967	0.004	0.001	0.0001	0.01
Total Increased Cancer Risk								1.01	0.305	0.024	**1.3**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.0003	0.09	0.09

Norris Canyon Traffic Emissions and Health Risk Calculations

Analysis Year = ***2023***

Vehicle Type	2021 Caltrans Vehicles (veh/day)	2023 Vehicles (veh/day)
Total	**11,885**	**12,123**

Increase From 2021	1.02
Vehicles/Direction	**6,061**
Avg Vehicles/Hour/Direction	253

Traffic Data Year = ***2021***

Caltrans AADT (2017) & Truck %s (2018)	AADT Total
Existing + Project Norris Canton Road	11,885

Percent of Total Vehicles

Traffic Increase per Year (%) = *1.00%*

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Norris Canyon Road
DPM Modeling - Roadway Links, Traffic Volumes, and DPM Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
DPM_EB_NOR	Norris Canyon Road Eastbound	EB	2	833.6	0.52	13.3	43.7	3.4	40	6,061
DPM_WB_NOR	Norris Canyon Road Westbound	WB	2	826.9	0.51	13.3	43.7	3.4	40	6,061
									Total	12,123

Emission Factors

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.00041			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and DPM Emissions - DPM_EB_NOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	3.56%	216	1.29E-05	9	7.35%	445	2.65E-05	17	6.52%	395	2.35E-05
2	2.53%	154	9.14E-06	10	6.58%	399	2.38E-05	18	4.73%	287	1.71E-05
3	3.00%	182	1.08E-05	11	5.75%	349	2.08E-05	19	2.37%	144	8.57E-06
4	3.00%	182	1.08E-05	12	6.13%	371	2.21E-05	20	1.06%	64	3.83E-06
5	2.06%	125	7.45E-06	13	5.47%	332	1.97E-05	21	2.73%	166	9.87E-06
6	2.91%	176	1.05E-05	14	5.47%	332	1.97E-05	22	3.58%	217	1.29E-05
7	6.67%	405	2.41E-05	15	4.53%	275	1.64E-05	23	2.27%	137	8.18E-06
8	5.76%	349	2.08E-05	16	5.00%	303	1.81E-05	24	0.95%	58	3.44E-06
								Total		6,061	

2023 Hourly Traffic Volumes Per Direction and DPM Emissions - DPM_WB_NOR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	3.56%	216	1.28E-05	9	7.35%	445	2.63E-05	17	6.52%	395	2.33E-05
2	2.53%	154	9.07E-06	10	6.58%	399	2.36E-05	18	4.73%	287	1.70E-05
3	3.00%	182	1.08E-05	11	5.75%	349	2.06E-05	19	2.37%	144	8.50E-06
4	3.00%	182	1.08E-05	12	6.13%	371	2.19E-05	20	1.06%	64	3.80E-06
5	2.06%	125	7.39E-06	13	5.47%	332	1.96E-05	21	2.73%	166	9.79E-06
6	2.91%	176	1.04E-05	14	5.47%	332	1.96E-05	22	3.58%	217	1.28E-05
7	6.67%	405	2.39E-05	15	4.53%	275	1.62E-05	23	2.27%	137	8.11E-06
8	5.76%	349	2.06E-05	16	5.00%	303	1.79E-05	24	0.95%	58	3.41E-06
								Total		6,061	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Norris Canyon Road
PM2.5 Modeling - Roadway Links, Traffic Volumes, and PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
PM2.5_EB_NOR	Norris Canyon Road Eastbound	EB	2	833.6	0.52	13.3	44	1.3	40	6,061
PM2.5_WB_NOR	Norris Canyon Road Westbound	WB	2	826.9	0.51	13.3	44	1.3	40	6,061
									Total	12,123

Emission Factors - PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.001421			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and PM2.5 Emissions - PM2.5_EB_NOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	69	1.42E-05	9	7.15%	433	8.86E-05	17	7.43%	451	9.21E-05
2	0.42%	25	5.17E-06	10	4.36%	264	5.41E-05	18	8.22%	498	1.02E-04
3	0.43%	26	5.33E-06	11	4.65%	282	5.76E-05	19	5.69%	345	7.05E-05
4	0.26%	16	3.20E-06	12	5.86%	355	7.26E-05	20	4.26%	258	5.28E-05
5	0.50%	30	6.19E-06	13	6.12%	371	7.58E-05	21	3.24%	196	4.01E-05
6	0.90%	55	1.12E-05	14	6.02%	365	7.46E-05	22	3.27%	198	4.06E-05
7	3.81%	231	4.73E-05	15	6.98%	423	8.65E-05	23	2.45%	148	3.04E-05
8	7.79%	472	9.65E-05	16	7.18%	435	8.90E-05	24	1.87%	113	2.32E-05
								Total		6,061	

2023 Hourly Traffic Volumes Per Direction and PM2.5 Emissions - PM2.5_WB_NOR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	69	1.40E-05	9	7.15%	433	8.78E-05	17	7.43%	451	9.14E-05
2	0.42%	25	5.13E-06	10	4.36%	264	5.36E-05	18	8.22%	498	1.01E-04
3	0.43%	26	5.29E-06	11	4.65%	282	5.72E-05	19	5.69%	345	6.99E-05
4	0.26%	16	3.17E-06	12	5.86%	355	7.21E-05	20	4.26%	258	5.24E-05
5	0.50%	30	6.14E-06	13	6.12%	371	7.52E-05	21	3.24%	196	3.98E-05
6	0.90%	55	1.11E-05	14	6.02%	365	7.40E-05	22	3.27%	198	4.02E-05
7	3.81%	231	4.69E-05	15	6.98%	423	8.58E-05	23	2.45%	148	3.01E-05
8	7.79%	472	9.57E-05	16	7.18%	435	8.83E-05	24	1.87%	113	2.30E-05
								Total		6,061	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Norris Canyon Road
TOG Exhaust Modeling - Roadway Links, Traffic Volumes, and TOG Exhaust Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEXH_EB_NOR	Norris Canyon Road Eastbound	EB	2	833.6	0.52	13.3	44	1.3	40	6,061
TEXH_WB_NOR	Norris Canyon Road Westbound	WB	2	826.9	0.51	13.3	44	1.3	40	6,061
									Total	12,123

Emission Factors - TOG Exhaust

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle (g/VMT)	0.02777			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Exhaust Emissions - TEXH_EB_NOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	69	2.77E-04	9	7.15%	433	1.73E-03	17	7.43%	451	1.80E-03
2	0.42%	25	1.01E-04	10	4.36%	264	1.06E-03	18	8.22%	498	1.99E-03
3	0.43%	26	1.04E-04	11	4.65%	282	1.13E-03	19	5.69%	345	1.38E-03
4	0.26%	16	6.25E-05	12	5.86%	355	1.42E-03	20	4.26%	258	1.03E-03
5	0.50%	30	1.21E-04	13	6.12%	371	1.48E-03	21	3.24%	196	7.84E-04
6	0.90%	55	2.19E-04	14	6.02%	365	1.46E-03	22	3.27%	198	7.93E-04
7	3.81%	231	9.24E-04	15	6.98%	423	1.69E-03	23	2.45%	148	5.93E-04
8	7.79%	472	1.89E-03	16	7.18%	435	1.74E-03	24	1.87%	113	4.53E-04
								Total		6,061	

2023 Hourly Traffic Volumes Per Direction and TOG Exhaust Emissions - TEXH_WB_NOR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	69	2.74E-04	9	7.15%	433	1.72E-03	17	7.43%	451	1.79E-03
2	0.42%	25	1.00E-04	10	4.36%	264	1.05E-03	18	8.22%	498	1.97E-03
3	0.43%	26	1.03E-04	11	4.65%	282	1.12E-03	19	5.69%	345	1.37E-03
4	0.26%	16	6.20E-05	12	5.86%	355	1.41E-03	20	4.26%	258	1.02E-03
5	0.50%	30	1.20E-04	13	6.12%	371	1.47E-03	21	3.24%	196	7.78E-04
6	0.90%	55	2.17E-04	14	6.02%	365	1.45E-03	22	3.27%	198	7.86E-04
7	3.81%	231	9.16E-04	15	6.98%	423	1.68E-03	23	2.45%	148	5.88E-04
8	7.79%	472	1.87E-03	16	7.18%	435	1.72E-03	24	1.87%	113	4.49E-04
								Total		6,061	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Norris Canyon Road
TOG Evaporative Emissions Modeling - Roadway Links, Traffic Volumes, and TOG Evaporative Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
TEVAP_EB_NOR	Norris Canyon Road Eastbound	EB	2	833.6	0.52	13.3	44	1.3	40	6,061
TEVAP_WB_NOR	Norris Canyon Road Westbound	WB	2	826.9	0.51	13.3	44	1.3	40	6,061
									Total	12,123

Emission Factors - PM2.5 - Evaporative TOG

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Emissions per Vehicle per Hour (g/hour)	1.49578			
Emissions per Vehicle per Mile (g/VMT)	0.03739			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and TOG Evaporative Emissions - TEVAP_EB_NOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	69	3.72E-04	9	7.15%	433	2.33E-03	17	7.43%	451	2.42E-03
2	0.42%	25	1.36E-04	10	4.36%	264	1.42E-03	18	8.22%	498	2.68E-03
3	0.43%	26	1.40E-04	11	4.65%	282	1.52E-03	19	5.69%	345	1.85E-03
4	0.26%	16	8.42E-05	12	5.86%	355	1.91E-03	20	4.26%	258	1.39E-03
5	0.50%	30	1.63E-04	13	6.12%	371	2.00E-03	21	3.24%	196	1.06E-03
6	0.90%	55	2.95E-04	14	6.02%	365	1.96E-03	22	3.27%	198	1.07E-03
7	3.81%	231	1.24E-03	15	6.98%	423	2.28E-03	23	2.45%	148	7.99E-04
8	7.79%	472	2.54E-03	16	7.18%	435	2.34E-03	24	1.87%	113	6.10E-04
								Total		6,061	

2023 Hourly Traffic Volumes Per Direction and TOG Evaporative Emissions - TEVAP_WB_NOR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	69	3.69E-04	9	7.15%	433	2.31E-03	17	7.43%	451	2.40E-03
2	0.42%	25	1.35E-04	10	4.36%	264	1.41E-03	18	8.22%	498	2.66E-03
3	0.43%	26	1.39E-04	11	4.65%	282	1.50E-03	19	5.69%	345	1.84E-03
4	0.26%	16	8.35E-05	12	5.86%	355	1.90E-03	20	4.26%	258	1.38E-03
5	0.50%	30	1.62E-04	13	6.12%	371	1.98E-03	21	3.24%	196	1.05E-03
6	0.90%	55	2.92E-04	14	6.02%	365	1.95E-03	22	3.27%	198	1.06E-03
7	3.81%	231	1.23E-03	15	6.98%	423	2.26E-03	23	2.45%	148	7.92E-04
8	7.79%	472	2.52E-03	16	7.18%	435	2.32E-03	24	1.87%	113	6.05E-04
								Total		6,061	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - On- and Off-Site Residential
Cumulative Operation - Norris Canyon Road
Fugitive Road PM2.5 Modeling - Roadway Links, Traffic Volumes, and Fugitive Road PM2.5 Emissions
Year = 2023

Road Link	Description	Direction	No. Lanes	Link Length (m)	Link Length (mi)	Link Width (m)	Link Width (ft)	Release Height (m)	Average Speed (mph)	Average Vehicles per Day
FUG_EB_NOR	Norris Canyon Road Eastbound	EB	2	833.6	0.52	13.3	44	1.3	40	6,061
FUG_WB_NOR	Norris Canyon Road Westbound	WB	2	826.9	0.51	13.3	44	1.3	40	6,061
									Total	12,123

Emission Factors - Fugitive PM2.5

Speed Category	1	2	3	4
Travel Speed (mph)	40			
Tire Wear - Emissions per Vehicle (g/VMT)	0.00211			
Brake Wear - Emissions per Vehicle (g/VMT)	0.01683			
Road Dust - Emissions per Vehicle (g/VMT)	0.01505			
Total Fugitive PM2.5 - Emissions per Vehicle (g/VMT)	0.03399			

Emisson Factors from CT-EMFAC2017

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emissions - FUG_EB_NOR

Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s	Hour	% Per Hour	VPH	g/s
1	1.14%	69	3.38E-04	9	7.15%	433	2.12E-03	17	7.43%	451	2.20E-03
2	0.42%	25	1.24E-04	10	4.36%	264	1.29E-03	18	8.22%	498	2.44E-03
3	0.43%	26	1.28E-04	11	4.65%	282	1.38E-03	19	5.69%	345	1.69E-03
4	0.26%	16	7.65E-05	12	5.86%	355	1.74E-03	20	4.26%	258	1.26E-03
5	0.50%	30	1.48E-04	13	6.12%	371	1.81E-03	21	3.24%	196	9.59E-04
6	0.90%	55	2.68E-04	14	6.02%	365	1.78E-03	22	3.27%	198	9.70E-04
7	3.81%	231	1.13E-03	15	6.98%	423	2.07E-03	23	2.45%	148	7.26E-04
8	7.79%	472	2.31E-03	16	7.18%	435	2.13E-03	24	1.87%	113	5.54E-04
								Total		6,061	

2023 Hourly Traffic Volumes Per Direction and Fugitive PM2.5 Emissions - FUG_WB_NOR

Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile	Hour	% Per Hour	VPH	g/mile
1	1.14%	69	3.36E-04	9	7.15%	433	2.10E-03	17	7.43%	451	2.19E-03
2	0.42%	25	1.23E-04	10	4.36%	264	1.28E-03	18	8.22%	498	2.42E-03
3	0.43%	26	1.27E-04	11	4.65%	282	1.37E-03	19	5.69%	345	1.67E-03
4	0.26%	16	7.59E-05	12	5.86%	355	1.72E-03	20	4.26%	258	1.25E-03
5	0.50%	30	1.47E-04	13	6.12%	371	1.80E-03	21	3.24%	196	9.52E-04
6	0.90%	55	2.66E-04	14	6.02%	365	1.77E-03	22	3.27%	198	9.62E-04
7	3.81%	231	1.12E-03	15	6.98%	423	2.05E-03	23	2.45%	148	7.20E-04
8	7.79%	472	2.29E-03	16	7.18%	435	2.11E-03	24	1.87%	113	5.50E-04
								Total		6,061	

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction Residential MEI Receptor (1.5 meter receptor height)

Emission Year	2023
Receptor Information	Construction Residential MEI receptor
Number of Receptors	1
Receptor Height	1.5 meters
Receptor Distances	At Construction Residential MEI location

Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

Construction Residential MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2009-2017	0.00201	0.15629	0.21342

Construction Residential MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2009-2017	0.20182	0.19372	0.0081

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic Cancer Risk
Impacts at Construction Residential MEI - 1.5 meter receptor height
30 Year Residential Exposure

Cancer Risk Calculation Method

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

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

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

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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	**Exposure Duration (years)**	**Age**	**Year**	**Age Sensitivity Factor**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**DPM**	**Exhaust TOG**	**Evaporative TOG**	**TOTAL**
0	0.25	-0.25 - 0*	2021	10	0.0020	0.1563	0.2134	0.027	0.012	0.0010	0.04
1	1	0 - 1	2021	10	0.0020	0.1563	0.2134	0.330	0.147	0.0118	0.49
2	1	1 - 2	2022	10	0.0020	0.1563	0.2134	0.330	0.147	0.0118	0.49
3	1	2 - 3	2023	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
4	1	3 - 4	2024	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
5	1	4 - 5	2025	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
6	1	5 - 6	2026	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
7	1	6 - 7	2027	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
8	1	7 - 8	2028	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
9	1	8 - 9	2029	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
10	1	9 - 10	2030	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
11	1	10 - 11	2031	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
12	1	11 - 12	2032	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
13	1	12 - 13	2033	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
14	1	13 - 14	2034	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
15	1	14 - 15	2035	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
16	1	15 - 16	2036	3	0.0020	0.1563	0.2134	0.052	0.023	0.0019	0.08
17	1	16-17	2037	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
18	1	17-18	2038	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
19	1	18-19	2039	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
20	1	19-20	2040	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
21	1	20-21	2041	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
22	1	21-22	2042	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
23	1	22-23	2043	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
24	1	23-24	2044	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
25	1	24-25	2045	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
26	1	25-26	2046	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
27	1	26-27	2047	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
28	1	27-28	2048	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
29	1	28-29	2049	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
30	1	29-30	2050	1	0.0020	0.1563	0.2134	0.006	0.003	0.0002	0.01
Total Increased Cancer Risk								1.50	0.664	0.053	**2.2**

* Third trimester of pregnancy

	Maximum	
Hazard Index	**Fugitive PM2.5**	**Total PM2.5**
0.0004	0.19	0.20

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
at Construction School MEI Receptor (1 meter receptor height)

Emission Year	2023
Receptor Information	Construction School MEI receptor
Number of Receptors	1
Receptor Height	1 meters
Receptor Distances	At Construction School MEI location
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

Construction School MEI Cancer Risk Maximum Concentrations

Meteorological	Concentration (µg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2009-2017	0.00009	0.00523	0.00705

Construction School MEI PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (µg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2009-2017	0.00667	0.0064	0.00027

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic Cancer Risk
Impacts at Construction School MEI - 1 meter receptor height
3 Year Middle School (6th - 8th Grade) Exposure

Cancer Risk Calculation Method

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

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

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

Where: C_{air} = concentration in air $(\mu g/m^3)$
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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
ASF =	10	10	3	1
8-Hr BR* =	361	1200	520	240
A =	1	1	1	1
EF =	250	250	250	250
AT =	70	70	70	70
FAH =	1.00	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

Maximum - Exposure Information					Concentration (ug/m3)			Cancer Risk (per million)			TOTAL			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG		Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0	1	11 - 12	2032	3	0.0001	0.0052	0.0071	0.006	0.002	0.0001	0.01	0.00002	0.01	0.01
1	1	12 - 13	2033	3	0.0001	0.0052	0.0071	0.006	0.002	0.0001	0.01			
2	1	13 - 14	2034	3	0.0001	0.0052	0.0071	0.006	0.002	0.0001	0.01			
Total Increased Cancer Risk								0.02	0.006	0.000	**0.02**			

* Children assumed to be 2 years of age or older with 3 years of Middle School (6th-8th Grade) Exposure

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
On-Site 1st Floor Residential Receptors (1.5 meter receptor height)

Emission Year	2023
Receptor Information	Maximum On-Site Receptor
Number of Receptors	560
Receptor Height	1.5 meters
Receptor Distances	7 meter grid spacing
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological Data Years	Concentration (µg/m3)*		
	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00279	0.2342	0.31572

1st Floor Project PM2.5 Maximum Concentrations

Meteorological Data Years	PM2.5 Concentration (µg/m3)*		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.29443	0.28646	0.00797

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic Cancer Risk
Impacts at On-Site 1st Floor Residential Receptors - 1.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration

Cancer Risk Calculation Method

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

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

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

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

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	**3rd Trimester**	**0 - 2**	**2 - 16**	**16 - 30**
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2021	10	0.0028	0.2342	0.3157	0.038	0.018	0.0014	0.06
1	1	0 - 1	2021	10	0.0028	0.2342	0.3157	0.458	0.220	0.0174	0.70
2	1	1 - 2	2022	10	0.0028	0.2342	0.3157	0.458	0.220	0.0174	0.70
3	1	2 - 3	2023	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
4	1	3 - 4	2024	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
5	1	4 - 5	2025	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
6	1	5 - 6	2026	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
7	1	6 - 7	2027	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
8	1	7 - 8	2028	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
9	1	8 - 9	2029	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
10	1	9 - 10	2030	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
11	1	10 - 11	2031	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
12	1	11 - 12	2032	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
13	1	12 - 13	2033	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
14	1	13 - 14	2034	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
15	1	14 - 15	2035	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
16	1	15 - 16	2036	3	0.0028	0.2342	0.3157	0.072	0.035	0.0027	0.11
17	1	16-17	2037	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
18	1	17-18	2038	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
19	1	18-19	2039	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
20	1	19-20	2040	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
21	1	20-21	2041	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
22	1	21-22	2042	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
23	1	22-23	2043	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
24	1	23-24	2044	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
25	1	24-25	2045	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
26	1	25-26	2046	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
27	1	26-27	2047	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
28	1	27-28	2048	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
29	1	28-29	2049	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
30	1	29-30	2050	1	0.0028	0.2342	0.3157	0.008	0.004	0.0003	0.01
Total Increased Cancer Risk								2.08	0.995	0.079	**3.2**

* Third trimester of pregnancy

Hazard Index	Maximum Fugitive PM2.5	Total PM2.5
0.001	0.29	0.29

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic - TACs & PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations - Without MERV13 Filtration
On-Site 2nd Floor Residential Receptors (4.5 meter receptor height)

Emission Year	2023
Receptor Information	Maximum On-Site Receptor
Number of Receptors	560
Receptor Height	4.5 meters
Receptor Distances	7 meter grid spacing
Meteorological Conditions	
BAQMD Livermore Airport Met Data	2013-2017
Land Use Classification	Urban
Wind Speed	Variable
Winf Direction	Variable

1st Floor Project Cancer Risk Maximum Concentrations

Meteorological	Concentration (μg/m3)*		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2013-2017	0.00238	0.14466	0.19503

1st Floor Project PM2.5 Maximum Concentrations

Meteorological	PM2.5 Concentration (μg/m3)*		
Data Years	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2013-2017	0.18441	0.17701	0.0074

Bishop Ranch 6, 2400-2440 Camino Ramon, San Ramon, CA - Norris Canyon Road Traffic Cancer Risk
Impacts at On-Site 2nd Floor Residential Receptors - 4.5 meter receptor height
30 Year Residential Exposure - Without MERV13 Filtration

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-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 (μg/m^3)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
10^{-6} = Conversion factor

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

TAC	CPF
DPM	1.10E+00
Vehicle TOG Exhaust	6.28E-03
Vehicle TOG Evaporative	3.70E-04

Values

	Infant/Child			Adult
Age -->	3rd Trimester	0 - 2	2 - 16	16 - 30
Parameter				
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					Concentration (ug/m3)			Cancer Risk (per million)			
Exposure Year	Exposure Duration (years)	Age	Year	Age Sensitivity Factor	DPM	Exhaust TOG	Evaporative TOG	DPM	Exhaust TOG	Evaporative TOG	TOTAL
0	0.25	-0.25 - 0*	2021	10	0.0024	0.1447	0.1950	0.032	0.011	0.0009	0.04
1	1	0 - 1	2021	10	0.0024	0.1447	0.1950	0.391	0.136	0.0108	0.54
2	1	1 - 2	2022	10	0.0024	0.1447	0.1950	0.391	0.136	0.0108	0.54
3	1	2 - 3	2023	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
4	1	3 - 4	2024	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
5	1	4 - 5	2025	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
6	1	5 - 6	2026	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
7	1	6 - 7	2027	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
8	1	7 - 8	2028	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
9	1	8 - 9	2029	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
10	1	9 - 10	2030	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
11	1	10 - 11	2031	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
12	1	11 - 12	2032	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
13	1	12 - 13	2033	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
14	1	13 - 14	2034	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
15	1	14 - 15	2035	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
16	1	15 - 16	2036	3	0.0024	0.1447	0.1950	0.062	0.021	0.0017	0.08
17	1	16-17	2037	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
18	1	17-18	2038	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
19	1	18-19	2039	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
20	1	19-20	2040	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
21	1	20-21	2041	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
22	1	21-22	2042	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
23	1	22-23	2043	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
24	1	23-24	2044	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
25	1	24-25	2045	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
26	1	25-26	2046	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
27	1	26-27	2047	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
28	1	27-28	2048	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
29	1	28-29	2049	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
30	1	29-30	2050	1	0.0024	0.1447	0.1950	0.007	0.002	0.0002	0.01
Total Increased Cancer Risk								1.77	0.615	0.049	**2.4**

* Third trimester of pregnancy

Maximum		
Hazard Index	Fugitive PM2.5	Total PM2.5
0.0005	0.18	0.18

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	1/5/2021
Contact Name	
Affiliation	.
Phone	1 3
Email	
Project Name	
Address	
City	
County	
Type (residential, commercial, mixed use, industrial, etc.)	
Project Size (# of units or building square feet)	
Comments:	

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

1. Table A

http://www.google.com/earth/download/ge/, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx.

3.

Table B

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

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
1 1	3									1
1 1			1							1
1 1	1			3.3	.1	.1				1
1			1	.	. 1	. 1				1
				.	. 1	. 1				1
1 1	1			.		1.		1 1		1
1 1	3 1		1	.						1
1	1 3		3	.1						1

School MEI

Distance Adjustment Multiplier				.
.13				
.13				
.	3.	. 1	.	
.1	.	. 1	. 1	
.13	.		.13	
.13	.3			
. 1	.			

Residential MEI

Distance Adjustment Multiplier				.
.13				
.13				
.	3.	. 1	.	
.	.3	.	.	
.13	.		.13	
.13	.3			
. 3	. 3			

Project Site

Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)				.
1	3	.			
3		.			
1	1	.	3.	. 1	.
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3	1	.	1.		.
3	3 1	.1	.3		
1	1 3	.	. 3		

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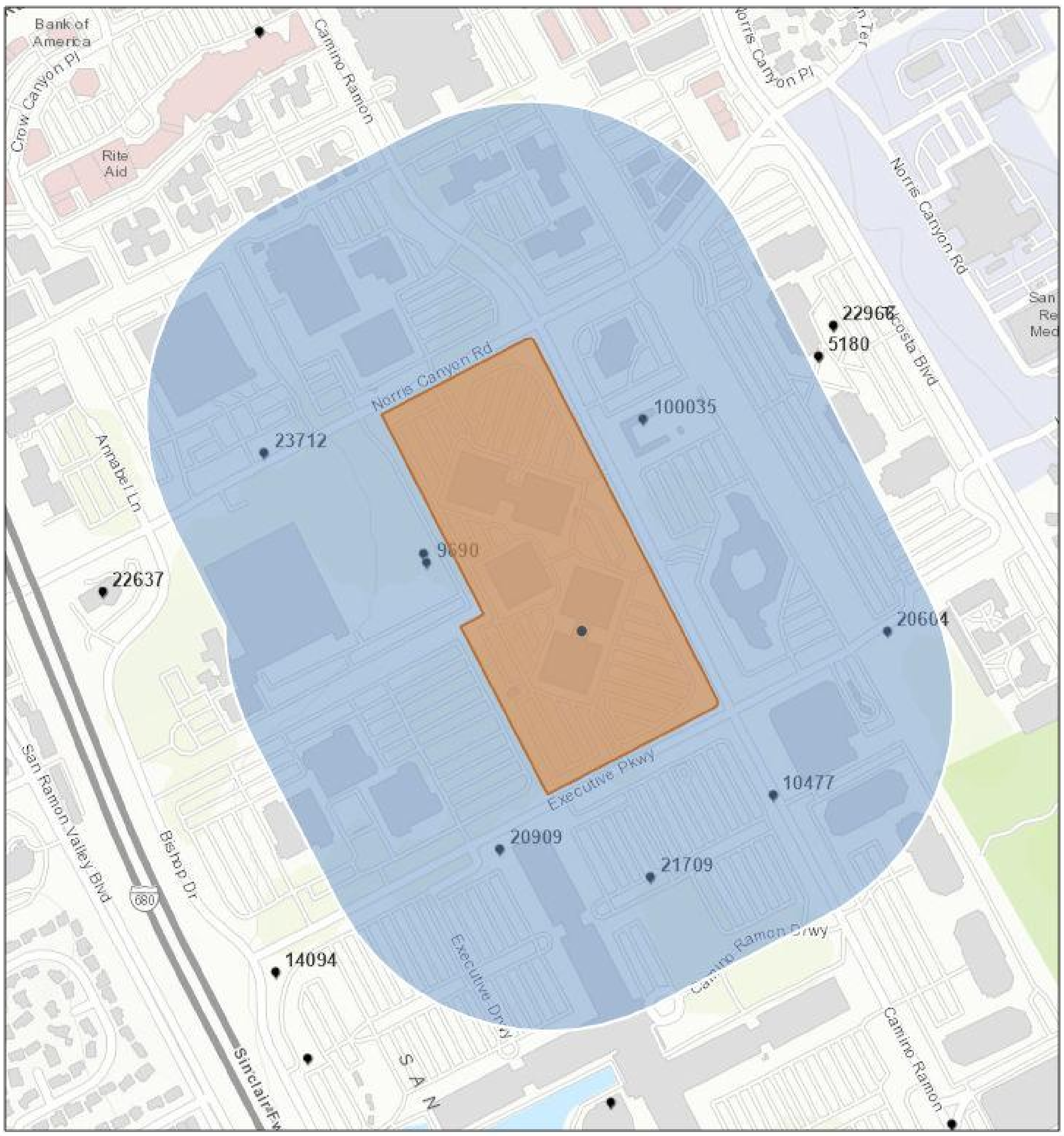
3 13 1

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 9,522,150.6 ft²

Jan 5 2021 11:21:15 Pacific Standard Time



Permitted Facilities 2018

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	8	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	7523	BioGenex Laboratories, Inc	4600 Norris Canyon Rd, #200	San Ramon	CA
2	9690	The Solaris Group	4550 Norris Canyon Rd, Suite 140	San Ramon	CA
3	10477	Pacific Bell	2600 Camino Ramon	San Ramon	CA
4	20604	Paycheck Inc	12647 Alcosta Blvd, Ste 200	San Ramon	CA
5	20909	Safe Security	2440 Camino Ramon, Bldg 8 parking lot	San Ramon	CA
6	21709	Sunset Development Company	4000 Executive Pkwy	San Ramon	CA
7	23712	Canyon Corporate Park	4550 Norris Canyon Rd, Ste 150	San Ramon	CA
8	100035	Sunset Development	2453 Camino Ramon	San Ramon	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94583	Contra Costa	0.000	0.000	0.000	Contact BAAQMD	1
2	94583	Contra Costa	0.000	0.000	0.000	Contact BAAQMD	1
3	94583	Contra Costa	93.370	0.140	0.120	Generators	1
4	94583	Contra Costa	6.550	0.010	0.010	Generators	1
5	94583	Contra Costa	6.580	0.010	0.010	Generators	1
6	94583	Contra Costa	5.670	0.000	1.060	Contact BAAQMD	1
7	94583	Contra Costa	2.070	0.000	0.000	Generators	1
8	94583	Contra Costa	0.120	0.000	0.000	Gas Dispensing Facility	1

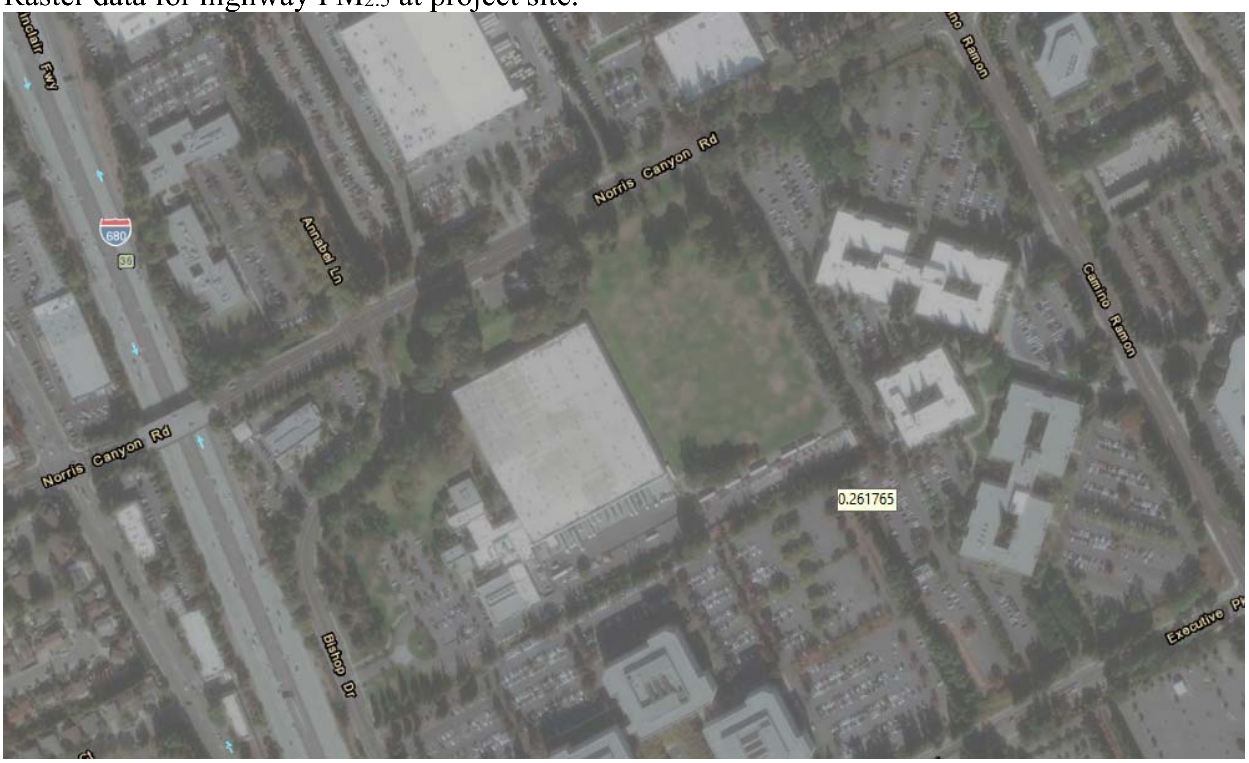
Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.

BAAQMD Raster Screening Data for I-680

Raster data for highway cancer risk at project site.

Raster data for highway $PM_{2.5}$ at project site.



Raster data for highway cancer risk at school MEI.

Raster data for highway $PM_{2.5}$ at school MEI.

Raster data for highway cancer risk at residential MEI

Raster data for highway $PM_{2.5}$ at residential MEI

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
429 East Cotati Avenue
Cotati, California 94931
Tel: 707-794-0400 *Fax: 707-794-0405*
www.illingworthrodkin.com *illro@illingworthrodkin.com*

M E M O

Date: June 11, 2021

To: Justin Hu
SummerHill Homes
JHu@shhomes.com

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

RE: City Village Project in San Ramon, CA
I&R Job #20-196

SUBJECT: Response to Comments on Bishop Ranch 6 Air Quality and Greenhouse Gas Assessment Made by First Carbon Solutions

This memo addresses comments regarding air quality and greenhouse gas emissions for the Bishop Ranch 6 (i.e., City Village) residential project in San Ramon, California made by First Carbon Solutions, dated May 25, 2021. Illingworth & Rodkin, Inc.(I&R) prepared the air quality and greenhouse gas (GHG) assessment[1] for this project and was asked by the applicant to respond to the air quality comments.

Comment 1: Impacts to On-Site Sensitive Receptors

The reviewer recommends that construction health risks also be assessed to project on-site sensitive receptors that may occupy portions of the project site

Response:

As required by CEQA, the air quality analysis addressed impacts caused by the project upon the environment. This included off-site sensitive receptors. Since some portions of the project could be occupied prior to completion of construction activity, there is the potential that some new residents could be exposed to elevated levels of pollutants and contaminants during the completion of project construction. Since the exact phasing and occupancy of the project is not established,

[1] Illingworth & Rodkin, Inc, *Bishop Ranch 6 Air Quality and Greenhouse Gas Assessment,* February 9, 2021.

SMHH-57277\2455665.1

any modeling assessment would be speculative. It should be noted that much of the earthwork, trenching, and infrastructure work, which involves the most intensive use of diesel heavy-duty construction equipment, would be completed prior to occupancy of any new residents.

Rather than attempting to quantify impacts from this activity, which is not required under CEQA, the applicant proposes to use newer equipment that has low emissions, project construction plans would require that all diesel-powered off-road construction equipment used on-site to meet U.S. EPA Tier 4 standards for particulate matter emissions. If such equipment is not available, then such equipment shall include diesel particulate matter filters (DPFs) approved (i.e., certified) by the California Air Resources Board. Diesel equipment that meets the Tier 4 standards would have toxic air contaminant and $PM_{2.5}$ emissions that are 80 percent or lower than typical construction equipment used throughout the State. Adverse effects to new project residents are anticipated to be well below any health risk thresholds given the anticipated low intensity use of diesel equipment during construction activities that may occur along with the control measures that the applicant would implement.

Comment 2: Description of Construction Equipment and Heavy-Duty Truck Emissions

The reviewer recommends clarification of a statement on page 18 of the air quality analysis regarding air pollutant emissions during construction.

Response:

The statement has been rewritten as follows:

> Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known toxic air contaminant (TAC). ~~These exhaust~~ The air pollutant emissions associated with this activity were previously addressed in this report by predicting daily emissions and were found to be below significance thresholds. Therefore, this activity would not be considered to contribute substantially to existing or projected air quality violations

Comment 3: Construction impacts to school children are underestimated

The reviewer believes the impacts to school children almost 1,000 feet away are underestimated because a Worker Adjustment Factor was not directly applied to the cancer risk calculations.

Response:

The health risk assessment presented in the air quality analysis fully addresses impacts to sensitive receptors, including school children. There are several methods to predict cancer risk to school children and the air quality analysis uses a more accurate method to address this impact. As described on page 20 of the assessment, construction emissions were modeled to only occur during construction work periods (i.e., 7:00am to 5:00pm), rather than assuming they occur over a 24-hour day. The reviewer is describing a method where emissions are modeled to occur 24-hours per day and a worker exposure factor, or WFA, is applied. This factor is used to address worker exposure periods from emission sources that are treated as continuous and are appropriate to apply to school children for continuous sources. A WAF could be back-calculated from the air quality analysis as 3.7 (compared to the Reviewer's recommendation of 4.2) assuming school children are present 9 hours per day and construction activity lasts 10 hours per day. These adjustment factors are documented in Attachment 4 of the air quality analysis.

Comment 4: Include the impacts of I680 into the cumulative impact assessment as per Mitigation Measure AIR-4 of the NCRSP

Interstate 680 is over 1,600 feet from the project site and 3,000 feet from the sensitive receptors affected by the project.

Response:

The health risk assessment followed Bay Area Air Quality Management District (BAAQMD CEQA Air Quality Guidelines in assessing sources of TAC or $PM_{2.5}$ emissions that are within 1,000 feet of the project site. The freeway is well beyond that distance. Sources beyond 1,000 feet are typically assumed to make up background health risks. It should be noted that the impacts caused by the existing environment upon the project in this setting are not considered as impacts under CEQA.

Our response to this comment is to include the impacts from Interstate 680 in the analysis. Rather than model the freeway impacts, screening cancer risk and $PM_{2.5}$ concentrations modeled by BAAQMD (i.e., Raster data) were used to conservatively describe the effects of freeway traffic emissions upon the project site and sensitive receptors. We state conservatively since the District's modeling was conducted using emission rates from EMFAC2014 that are considerably higher than emissions rates predicted at the time of project construction and operation. The CT-EMFAC2017 model predicts that DPM emissions from the fleet will be 89 percent lower in 2024 than EMFAC2014. $PM_{2.5}$ emissions that include fugitive emissions will be 21 percent lower.

Use of the District's Raster data conservatively indicates increased cancer risk from Interstate 680 traffic would be 13.0 chances per million and the annual $PM_{2.5}$ concentration would increase by 0.26 micrograms per cubic meter ($\mu g/m^3$) at the project site. At the location of the MEI (sensitive receptor most affected by the project), the increase in cancer risk would be 6.5 chances per million assuming almost continuous exposure over 30 years, which BAAQMD assumes in their modeling. Note this is a school site. The increase in $PM_{2.5}$ annual concentrations at the school MEI would be 0.13 $\mu g/m^3$. The increase in cancer risk at the residential MEI would be 7.6 chances per million and the increase in annual $PM_{2.5}$ concentrations would be 0.16 $\mu g/m^3$. The inclusion of these screening data at the MEI locations is not appropriate because they are so far away (well beyond the distance BAAQMD recommends for this type of analysis) and would not change the conclusion in terms of CEQA impacts or mitigation measures. Therefore, the impacts to sensitive receptors affected by the project reported in the air quality assessment remain. BAAQMD Raster Screening Data is included in Attachment 1 of this memo.

These impacts were addressed for the project site, which is closer but still well over 1,000 feet from the freeway. Rather than conduct refined modeling of Interstate 680, the applicant proposes to incorporate measures into their project design to ensure health risks from the freeway at the project site would not exceed single-source thresholds. This would include ventilation systems with high-efficiency particulate matter filtration. The filters would be rated MERV13. Inclusion

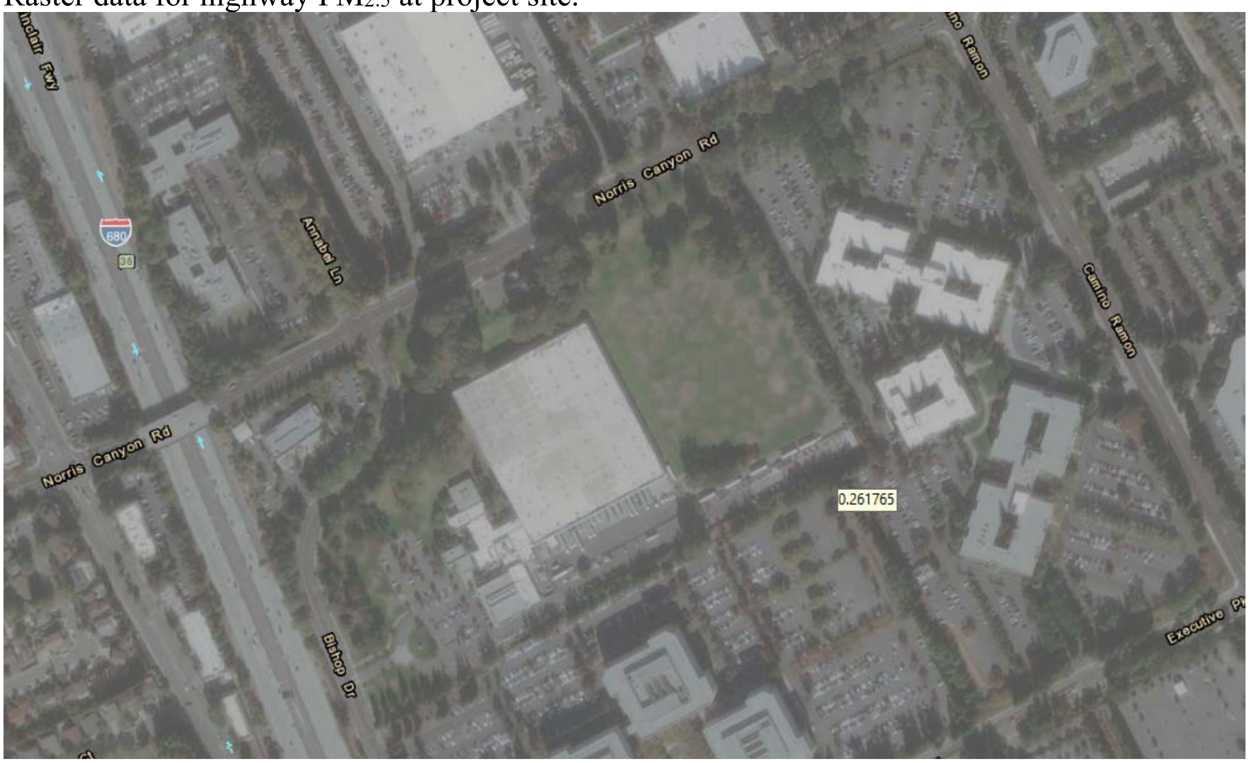
Changes to Air Quality and GHG Assessment

Revisions were made to the Air Quality and GHG Assessment, as noted above. No new modeling was conducted in response to these comments. The report has been reorganized to address non-CEQA issues separately.

Attachment 1: BAAQMD Raster Screening Data for I-680

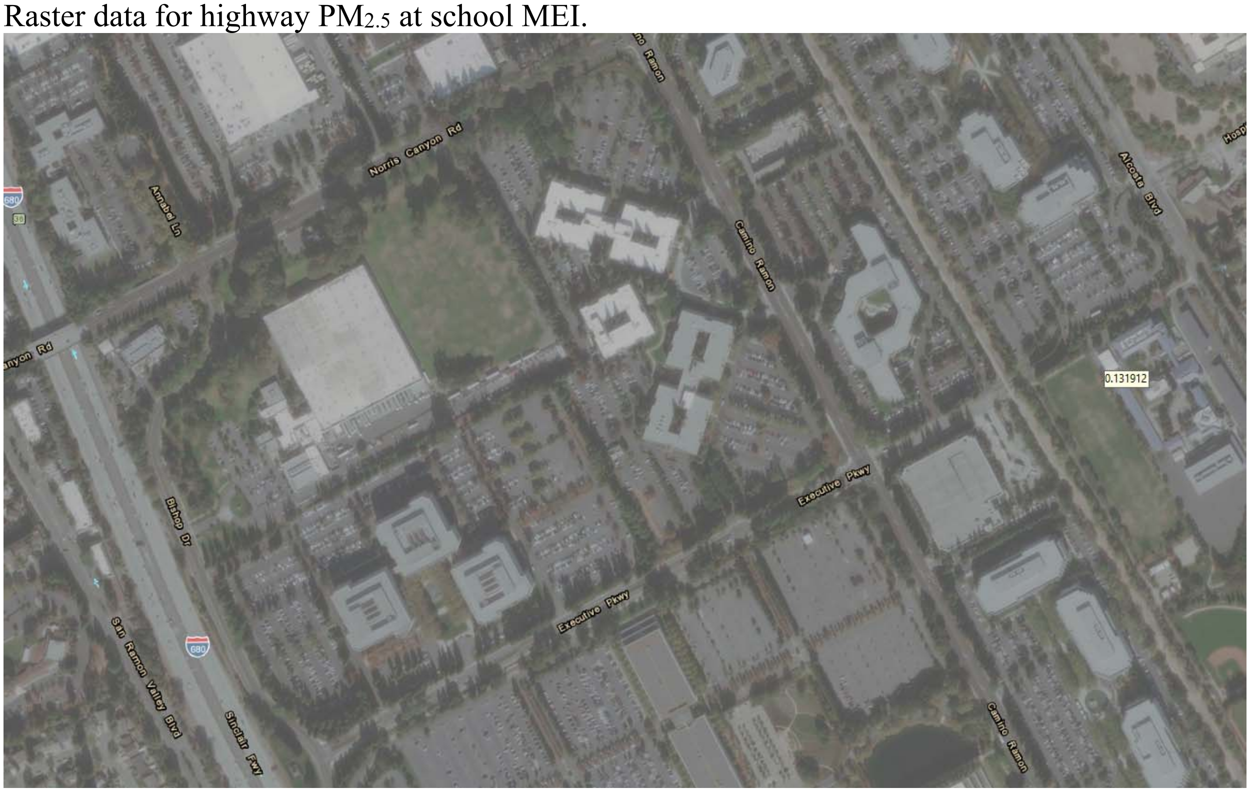
Raster data for highway cancer risk at project site.

Raster data for highway $PM_{2.5}$ at project site.



Raster data for highway cancer risk at school MEI.

Raster data for highway $PM_{2.5}$ at school MEI.



Raster data for highway cancer risk at residential MEI

Raster data for highway $PM_{2.5}$ at residential MEI

Typical Construction Trailer - Contra Costa County, Annual

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

Typical Construction Trailer

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	0.72	1000sqft	0.02	720.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2030
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Typical construction trailer for estimate of energy usage
CO2 Intensity Factor adjusted to reflect SCE's GHG Emissions Factors

Land Use - 12'x60' single-wide unit (720 sq ft)

Construction Phase - Typical construction trailer for energy use estimates - estimates are included in the operational component of the results

Off-road Equipment - Zeroed out construction equipment

Trips and VMT -

Architectural Coating -

Vehicle Trips - Zeroed out off-site trips

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Typical Construction Trailer - Contra Costa County, Annual

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

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Area Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value

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	4.2300e-003	3.2600e-003	4.5300e-003	1.0000e-005	0.0000	1.8000e-004	1.8000e-004	0.0000	1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Maximum	**4.2300e-003**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

Mitigated Construction

Typical Construction Trailer - Contra Costa County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	4.2300e-003	3.2600e-003	4.5300e-003	1.0000e-005	0.0000	1.8000e-004	1.8000e-004	0.0000	1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Maximum	**4.2300e-003**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

	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**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**1-3-2023**	**4-2-2023**	0.0075	0.0075
		Highest	0.0075	0.0075

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	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	1.7663	1.7663	2.0000e-004	3.0000e-005	1.7813
Mobile	1.8100e-003	1.9000e-003	0.0172	4.0000e-005	4.7000e-003	2.0000e-005	4.7200e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.3950	3.3950	2.1000e-004	1.6000e-004	3.4477

Typical Construction Trailer - Contra Costa County, Annual

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

Waste						0.0000	0.0000		0.0000	0.0000	0.1360	0.0000	0.1360	8.0400e-003	0.0000	0.3369
Water						0.0000	0.0000		0.0000	0.0000	0.0406	0.0895	0.1301	4.1800e-003	1.0000e-004	0.2645
Total	**5.0600e-003**	**2.4700e-003**	**0.0177**	**4.0000e-005**	**4.7000e-003**	**6.0000e-005**	**4.7600e-003**	**1.2600e-003**	**6.0000e-005**	**1.3200e-003**	**0.1766**	**5.2507**	**5.4273**	**0.0126**	**2.9000e-004**	**5.8304**

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	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	1.7663	1.7663	2.0000e-004	3.0000e-005	1.7813
Mobile	1.8100e-003	1.9000e-003	0.0172	4.0000e-005	4.7000e-003	2.0000e-005	4.7200e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.3950	3.3950	2.1000e-004	1.6000e-004	3.4477
Waste						0.0000	0.0000		0.0000	0.0000	0.1360	0.0000	0.1360	8.0400e-003	0.0000	0.3369
Water						0.0000	0.0000		0.0000	0.0000	0.0406	0.0895	0.1301	4.1800e-003	1.0000e-004	0.2645
Total	**5.0600e-003**	**2.4700e-003**	**0.0177**	**4.0000e-005**	**4.7000e-003**	**6.0000e-005**	**4.7600e-003**	**1.2600e-003**	**6.0000e-005**	**1.3200e-003**	**0.1766**	**5.2507**	**5.4273**	**0.0126**	**2.9000e-004**	**5.8304**

	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**

Typical Construction Trailer - Contra Costa County, Annual

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Architectural Coating	Architectural Coating	1/3/2023	1/9/2023	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,080; Non-Residential Outdoor: 360; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48

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
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Architectural Coating - 2023

Unmitigated Construction On-Site

Typical Construction Trailer - Contra Costa County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	**4.2300e-003**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

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

Typical Construction Trailer - Contra Costa County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.7500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8000e-004	3.2600e-003	4.5300e-003	1.0000e-005		1.8000e-004	1.8000e-004		1.8000e-004	1.8000e-004	0.0000	0.6383	0.6383	4.0000e-005	0.0000	0.6393
Total	**4.2300e-003**	**3.2600e-003**	**4.5300e-003**	**1.0000e-005**		**1.8000e-004**	**1.8000e-004**		**1.8000e-004**	**1.8000e-004**	**0.0000**	**0.6383**	**0.6383**	**4.0000e-005**	**0.0000**	**0.6393**

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**

4.0 Operational Detail - Mobile

Typical Construction Trailer - Contra Costa County, Annual

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

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	1.8100e-003	1.9000e-003	0.0172	4.0000e-005	4.7000e-003	2.0000e-005	4.7200e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.3950	3.3950	2.1000e-004	1.6000e-004	3.4477
Unmitigated	1.8100e-003	1.9000e-003	0.0172	4.0000e-005	4.7000e-003	2.0000e-005	4.7200e-003	1.2600e-003	2.0000e-005	1.2800e-003	0.0000	3.3950	3.3950	2.1000e-004	1.6000e-004	3.4477

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	7.01	1.59	0.50	12,686	12,686
Total	7.01	1.59	0.50	12,686	12,686

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
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.577637	0.055806	0.175331	0.118814	0.021880	0.005573	0.007435	0.007088	0.000537	0.000305	0.024935	0.001797	0.00286

Typical Construction Trailer - Contra Costa County, Annual

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

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	1.1438	1.1438	1.9000e-004	2.0000e-005	1.1551
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	1.1438	1.1438	1.9000e-004	2.0000e-005	1.1551
NaturalGas Mitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
NaturalGas Unmitigated	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261

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					

Typical Construction Trailer - Contra Costa County, Annual

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

General Office Building	11664	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
Total		**6.0000e-005**	**5.7000e-004**	**4.8000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.6224**	**0.6224**	**1.0000e-005**	**1.0000e-005**	**0.6261**

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					
General Office Building	11664	6.0000e-005	5.7000e-004	4.8000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.6224	0.6224	1.0000e-005	1.0000e-005	0.6261
Total		**6.0000e-005**	**5.7000e-004**	**4.8000e-004**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**0.6224**	**0.6224**	**1.0000e-005**	**1.0000e-005**	**0.6261**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

Typical Construction Trailer - Contra Costa County, Annual

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

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

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	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	3.1900e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Typical Construction Trailer - Contra Costa County, Annual

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

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	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**3.1900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

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	3.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	2.8100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Typical Construction Trailer - Contra Costa County, Annual

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

Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	**3.1900e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**0.0000**	**1.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1301	4.1800e-003	1.0000e-004	0.2645
Unmitigated	0.1301	4.1800e-003	1.0000e-004	0.2645

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Typical Construction Trailer - Contra Costa County, Annual

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

General Office Building	0.127968 / 0.0784322	0.1301	4.1800e-003	1.0000e-004	0.2645
Total		**0.1301**	**4.1800e-003**	**1.0000e-004**	**0.2645**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	0.127968 / 0.0784322	0.1301	4.1800e-003	1.0000e-004	0.2645
Total		**0.1301**	**4.1800e-003**	**1.0000e-004**	**0.2645**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

Typical Construction Trailer - Contra Costa County, Annual

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

Mitigated	0.1360	8.0400e-003	0.0000	0.3369
Unmitigated	0.1360	8.0400e-003	0.0000	0.3369

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.67	0.1360	8.0400e-003	0.0000	0.3369
Total		**0.1360**	**8.0400e-003**	**0.0000**	**0.3369**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	0.67	0.1360	8.0400e-003	0.0000	0.3369
Total		**0.1360**	**8.0400e-003**	**0.0000**	**0.3369**

Typical Construction Trailer - Contra Costa County, Annual

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Bishop Ranch 6 Addendum Energy Use Summary

Summary of Energy Use During Construction		(Annually)
Construction vehicle fuel	303,764	gallons (gasoline, diesel)
Construction equipment fuel	203,191	gallons (diesel)
Total construction fuel	506,955	gallons (gasoline, diesel)
Construction office electricity	74,070	kilowatt hours
Summary of Energy Use During Operations		(Annually)
Operation vehicle fuel	282,260	gallons (gasoline, diesel)
Operation natural gas	10,335,770	kilo British Thermal Units
Operation electricity	2,860,888	kilowatt hours

Construction Vehicle Fuel Calculations

California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 14, 2021

VMT = Vehicle Miles Traveled

FE = Fuel Economy

Region Type: County

Region: CONTRA COSTA

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2007 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel_Consumption (1000 gallons/day)	Calculations FE (mi/gallon)	VMT*FE
Contra Costa	2023	HHDT	Aggregated	Aggregated	GAS	2.5538992	326.0302982	51.09842	0.073466	4.437855443	1446.875334
Contra Costa	2023	HHDT	Aggregated	Aggregated	DSL	5197.8222	628100.9399	54490.17	92.41798	6.79630661	4268766.57
Contra Costa	2023	LDA	Aggregated	Aggregated	GAS	415473.55	15421746.18	1949195	469.7434	32.83014843	506298216.1
Contra Costa	2023	LDA	Aggregated	Aggregated	DSL	4583.4538	173065.8983	21477.78	3.441231	50.29185725	8703805.451
Contra Costa	2023	LDT1	Aggregated	Aggregated	GAS	42903.228	1560070.346	196335.5	55.8014	27.9575489	43615742.98
Contra Costa	2023	LDT1	Aggregated	Aggregated	DSL	23.39799	398.9985164	77.63046	0.016483	24.20605452	9658.179843
Contra Costa	2023	LDT2	Aggregated	Aggregated	GAS	136800.1	5101359.876	635180.3	196.0618	26.01914803	132733037.7
Contra Costa	2023	LDT2	Aggregated	Aggregated	DSL	961.6321	40776.24302	4679.641	1.10959	36.748913	1498482.607
Contra Costa	2023	LHDT1	Aggregated	Aggregated	GAS	10141.215	353591.6844	151089	41.71301	8.476772663	2997316.324
Contra Costa	2023	LHDT1	Aggregated	Aggregated	DSL	8597.3408	314852.4382	108143.7	17.12671	18.38370707	5788154.995
Contra Costa	2023	LHDT2	Aggregated	Aggregated	GAS	1267.0063	45469.50058	18876.51	6.08917	7.467273689	339533.2054
Contra Costa	2023	LHDT2	Aggregated	Aggregated	DSL	2958.1461	110401.0059	37209.76	6.718772	16.43172465	1814078.93
Contra Costa	2023	MHDT	Aggregated	Aggregated	GAS	807.40555	45803.81966	16154.57	9.192351	4.982818755	228232.1317
Contra Costa	2023	MHDT	Aggregated	Aggregated	DSL	4601.6248	262908.2893	43927.33	26.81733	9.803671632	2577466.537

Worker	
Sum of VMT*FE (Column BI)	**692858943**
Total VMT	**22297417.54**
Weighted Average FE	**31.07350624**
Vendor	
Sum of VMT*FE (Column BI)	**18014995.57**
Total VMT	**1761453.708**
Weighted Average FE	**10.22734545**
Haul	
Sum of VMT*FE (Column BI)	**4270213.445**
Total VMT	**628426.9702**
Weighted Average FE	**6.795083037**

Bishop Ranch 6 Addendum Construction Assumptions

On-site Construction

Source: AQ/GHG Appendix, CalEEMod Output

2400 2440 Camino Ramon, San Ramon Contra Costa County, Annua

Date: 1/20/2021 5:03 PM

Construction Schedule	**Phase Name**	**Phase Type**	**Start Date**	**End Date**	**Num Days Week**	**Num Days**
	Demolition	Demolition	1/3/2023	3/1/2023	5	42
	Grading/Excavation	Grading	3/1/2023	5/1/2023	5	44
	Trenching Underground Utilities	Trenching	5/1/2023	12/1/2023	5	155
	Building Foundation	Building Construction	9/1/2023	10/1/2027	5	1066
	Building Foundation Exterior	Building Construction	11/3/2023	4/28/2028	5	1171
	Fine Grade, Rock, and Pave	Paving	12/1/2023	4/1/2024	5	87
	Architectural Coating	Architectural Coating	7/1/2024	12/29/2028	5	1175

Trips and VMT	**Phase Name**	**Trips per Day**	**Total Trips**							**Trips per Phase**			**VMT per Phase**			**Fuel Consumption (gallons)**		
		Worker Trip Number	**Vendor Trip Number**	**Hauling Trip Number**	**Worker Trip Length**	**Vendor Trip Length**	**Hauling Trip Length**	**Vendor Vel**	**Num Days**	**Worker Trip Number**	**Vendor Trip Number**	**Hauling Trip Number**	**Worker Trips**	**Vendor Trips**	**Hauling Trips**	**Worker Trips**	**Vendor Trips**	**Hauling Trips**
	Demolition	10	0	2274	10.8	7.3	20	HDT_Mix	42	420	0	2,274	4,536	0	45,480	145.98	0.00	334.65
	Grading/Excavation	15	0	1250	10.8	7.3	20	HDT_Mix	44	660	0	1,250	7,128	0	25,000	229.39	0.00	183.96
	Trenching Undergound Utilities	13	0	0	10.8	7.3	20	HDT_Mix	155	2,015	0	0	21,762	0	0	700.34	0.00	0.00
	Building Foundation	239	60	1440	10.8	7.3	20	HDT_Mix	1066	254,774	63,960	1,440	2,751,559	466,908	28,800	88,550.01	45,652.90	211.92
	Building Construction Exterior	239	60	0	10.8	7.3	20	HDT_Mix	1171	279,869	70,260	0	3,022,585	512,898	0	97,272.10	50,149.67	0.00
	Fine Grade, Rock, and Pave	23	0	240	10.8	7.3	20	HDT_Mix	87	2,001	0	240	21,611	0	4,800	695.47	0.00	35.32
	Architectural Coating	48	0	0	10.8	7.3	20	HDT_Mix	1175	56,400	0	0	609,120	0	0	19,602.55	0.00	0.00

On site Total Construction VMT (miles)

7,522,187

On Site Total Fuel Consumption (gallons)

303,764

Construction Equipment Fuel Calculation

On-site
Source: AQ/GHG Appendix, CalEEMod Output
2400 2440 Camino Ramon, San Ramon   Contra Costa County, Annual
Date: 1/20/2021 5:03 PM

Construction Schedule	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days
	Demolition	Demolition	1/3/2023	3/1/2023	5	42
	Grading/Excavation	Grading	3/1/2023	5/1/2023	5	44
	Trenching Underground Utilities	Trenching	5/1/2023	12/1/2023	5	155
	Building Foundation	Building Construction	9/1/2023	10/1/2027	5	1066
	Building Foundation Exterior	Building Construction	11/3/2023	4/28/2028	5	1171
	Fine Grade, Rock, and Pave	Paving	12/1/2023	4/1/2024	5	87
	Architectural Coating	Architectural Coating	7/1/2024	12/29/2028	5	1175

Construction Equipment	Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of Days	HP Hours	Diesel Fuel Usage
	Demolition	Excavators	3	8	158	0.38	42	60,520.32	3,026.02
	Demolition	Concrete/Industrial Saws	1	0.3	81	0.73	42	745.04	37.25
	Demolition	Rubber Tired Dozers	0	0	247	0.4	42	0.00	0.00
	Grading/Excavation	Excavators	1	0.5	158	0.38	44	1,320.88	66.04
	Grading/Excavation	Rubber Tired Dozers	0	0	247	0.4	44	0.00	0.00
	Grading/Excavation	graders	2	3	187	0.41	44	20,240.88	1,012.04
	Grading/Excavation	Tractors/Loaders/Backhoes	3	4	97	0.37	44	18,949.92	947.50
	Grading/Excavation	Scrapers	0	0	367	0.48	44	0.00	0.00
	Trenching Underground Utilities	Excavators	3	0.7	158	0.38	155	19,543.02	977.15
	Trenching Underground Utilities	Tractors/Loaders/Backhoes	2	3.3	97	0.37	155	36,715.47	1,835.77
	Building Foundation	Cranes	0	0	231	0.29	1066	0.00	0.00
	Building Foundation	Forklifts	0	0	89	0.2	1066	0.00	0.00
	Building Foundation	Generator Sets	0	0	84	0.74	1066	0.00	0.00
	Building Foundation	Tractors/Loaders/Backhoes	3	0.9	97	0.37	1066	103,298.60	5,164.93
	Building Foundation	Excavators	3	0.9			1066	0.00	0.00
	Building Foundation	Welders	0	0	46	0.45	1066	0.00	0.00
	Building Construction Exterior	Cranes	1	0.2	231	0.29	1171	15,689.06	784.45
	Building Construction Exterior	Forklifts	3	5	89	0.2	1171	312,657.00	15,632.85
	Building Construction Exterior	Generator Sets	2	0.9	84	0.74	1171	131,020.85	6,551.04
	Building Construction Exterior	Tractors/Loaders/Backhoes	0	0	97	0.37	1171	0.00	0.00
	Building Construction Exterior	Welders	0	0	46	0.45	1171	0.00	0.00
	Fine Grade, Rock, and Pave	Pavers	1	0.8	130	0.42	87	3,800.16	190.01
	Fine Grade, Rock, and Pave	Rollers	4	1.5	80	0.38	87	15,868.80	793.44
	Fine Grade, Rock, and Pave	Paving Equipment	0	0	132	0.36	87	0.00	0.00
	Fine Grade, Rock, and Pave	graders	2	1.1	187	0.41	87	14,674.64	733.73
	Fine Grade, Rock, and Pave	Tractors/Loaders/Backhoes	2	1.5	97	0.37	87	9,367.29	468.36
	Architectural Coating	Air Compressors	15	5	78	0.48	1175	3,299,400.00	164,970.00
						Construction Equipment Fuel Consumption			**203,190.60 gallons**

Notes:
Equipment assumptions are provided in the CalEEMod output files.
Fuel usage estimate of 0.05 gallons of diesel fuel per horsepower hour is from the SCAQMD CEQA Air Quality Handbook, Table A9 3E.
South Coast Air Quality Management District. 1993. Air Quality Handbook, Table A9 3E.
Website: http://www.aqmd.gov/home/rules compliance/ceqa/air quality analysis handbook. Accessed July 14, 2021.

Construction Office Electricity Calculation

Energy Appendix: CalEEMod Typical Construction Trailer

Typical Construction Trailer   Contra Costa County, Annual

Date: 7/14/2021 11:25 AM

Typical Construction Trailer - Contra Costa County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12362.4	1.1438	1.9000e-004	2.0000e-005	1.1551
Total		**1.1438**	**1.9000e-004**	**2.0000e-005**	**1.1551**

Energy by Land Use - Electricity

Annual	12,362	kWh/yr
Total Over Construction	**74,070**	**kWh**

Total Construction Schedule	
Start	1/3/2023
End	12/29/2028
Total Calendar Days	2187
Years	5.99

Proposed Operation Fuel Calculation
California Air Resource Board (ARB). 2020. EMFAC2017 Web Database. Website: https://arb.ca.gov/emfac/2017/. Accessed July 14, 2021.

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: CONTRA COSTA
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given									*Calculations*	
Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
Contra Costa	2022	HHDT	Aggregated	Aggregated	GAS	2.55389924	326.030298	0.073465732	4.437855	1446.875334
Contra Costa	2022	HHDT	Aggregated	Aggregated	DSL	5197.82221	628100.94	92.41798169	6.796307	4268766.57
Contra Costa	2022	LDA	Aggregated	Aggregated	GAS	415473.548	15421746.2	469.7434191	32.83015	506298216.1
Contra Costa	2022	LDA	Aggregated	Aggregated	DSL	4583.45377	173065.898	3.441231002	50.29186	8703805.451
Contra Costa	2022	LDT1	Aggregated	Aggregated	GAS	42903.2277	1560070.35	55.80139915	27.95755	43615742.98
Contra Costa	2022	LDT1	Aggregated	Aggregated	DSL	23.3979897	398.998516	0.016483418	24.20605	9658.179843
Contra Costa	2022	LDT2	Aggregated	Aggregated	GAS	136800.104	5101359.88	196.0617569	26.01915	132733037.7
Contra Costa	2022	LDT2	Aggregated	Aggregated	DSL	961.632096	40776.243	1.109590453	36.74891	1498482.607
Contra Costa	2022	LHDT1	Aggregated	Aggregated	GAS	10141.2151	353591.684	41.71300782	8.476773	2997316.324
Contra Costa	2022	LHDT1	Aggregated	Aggregated	DSL	8597.3408	314852.438	17.126711	18.38371	5788154.995
Contra Costa	2022	LHDT2	Aggregated	Aggregated	GAS	1267.00628	45469.5006	6.089170221	7.467274	339533.2054
Contra Costa	2022	LHDT2	Aggregated	Aggregated	DSL	2958.14609	110401.006	6.718771661	16.43172	1814078.93
Contra Costa	2022	MCY	Aggregated	Aggregated	GAS	20059.4004	150633.325	4.032727418	37.35272	5626563.93
Contra Costa	2022	MDV	Aggregated	Aggregated	GAS	96988.1695	3373514.73	160.3022176	21.04472	70994661.38
Contra Costa	2022	MDV	Aggregated	Aggregated	DSL	2277.47631	91589.7891	3.283134593	27.89706	2555085.46
Contra Costa	2022	MH	Aggregated	Aggregated	GAS	1897.63768	17272.4204	3.528471445	4.895157	84551.20294
Contra Costa	2022	MH	Aggregated	Aggregated	DSL	786.612474	7158.01481	0.719189642	9.952889	71242.92814
Contra Costa	2022	MHDT	Aggregated	Aggregated	GAS	807.405553	45803.8197	9.19235114	4.982819	228232.1317
Contra Costa	2022	MHDT	Aggregated	Aggregated	DSL	4601.62483	262908.289	26.81732917	9.803672	2577466.537
Contra Costa	2022	OBUS	Aggregated	Aggregated	GAS	296.080399	14116.531	2.915717305	4.841529	68345.60006
Contra Costa	2022	OBUS	Aggregated	Aggregated	DSL	128.452759	10172.086	1.248250433	8.149075	82893.0887
Contra Costa	2022	SBUS	Aggregated	Aggregated	GAS	60.6221342	3079.94121	0.312242439	9.863942	30380.36059
Contra Costa	2022	SBUS	Aggregated	Aggregated	DSL	888.654245	29222.8443	3.243075951	9.010842	263322.4272
Contra Costa	2022	UBUS	Aggregated	Aggregated	GAS	25.2696676	2467.56988	0.300312384	8.216677	20275.22488
Contra Costa	2022	UBUS	Aggregated	Aggregated	DSL	202.170625	20363.4657	3.347914921	6.082432	123859.4

Vehicles		
Sum of VMT*FE	**790795119.6**	
Total VMT	**27778461.97**	
Weighted Average FE	**28.46792312**	**miles/gallon**

Total VMT
Source: AQ/GHG Appendix, CalEEMod Output
2400 2440 Camino Ramon, San Ramon   Contra Costa County, Annual
Date: 1/20/2021 5:06 PM

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Condo/Townhouse	995.52	971.04	829.60	2,236,439	2,236,439
Parking Lot	0.00	0.00	0.00		
Single Family Housing	2,529.92	2,634.44	2291.40	5,798,909	5,798,909
Total	3,525.44	3,605.48	3,121.00	8,035,348	8,035,348

	Annual VMT (miles)	Fuel Consumption	
Total VMT	8,035,348	**282,260**	**gallons per year**

Operation Natural Gas Use

Source: AQ/GHG Appendix, CalEEMod Output

2400 2440 Camino Ramon, San Ramon Contra Costa County, Annual

Date: 1/20/2021 5:03 PM

kBTU/yr = kilo British Thermal Units/year

CF = cubic feet

	Natural Gas Use
City Park	0
Condo/Townhomes	2546330
Parking Lot	0
Single Family Housing	7789440

Total **10,335,770 kBTU/yr**

	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					
City Park	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
Condo/Townhouse	2.54633e+006	0.0137	0.1173	0.0499	7.5000e-004		9.4900e-003	9.4900e-003		9.4900e-003	9.4900e-003	0.0000	135.8818	135.8818	2.6000e-003	2.4900e-003	136.6893
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
Single Family Housing	7.78944e+006	0.0420	0.3589	0.1527	2.2900e-003		0.0290	0.0290		0.0290	0.0290	0.0000	415.6744	415.6744	7.9700e-003	7.6200e-003	418.1446
Total		**0.0557**	**0.4763**	**0.2027**	**3.0400e-003**		**0.0385**	**0.0385**		**0.0385**	**0.0385**	**0.0000**	**551.5562**	**551.5562**	**0.0106**	**0.0101**	**554.8339**

Operation Electricity Use

Source: AQ/GHG Appendix, CalEEMod Output

2400 2440 Camino Ramon, San Ramon   Contra Costa County, Annual

Date: 1/20/2021 5:03 PM

Project Electricity Use

kWh/yr = kilowatt hours per year

Land Use	Electricity Use (kWh/yr)
City Park	0
Condo/Townhomes	686178
Parking Lot	6440
Single Family Housing	2168270
Total	**2,860,888 kWh/yr**

Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Condo/Townhouse	686178	65.3615	9.0300e-003	1.8700e-003	66.1437
Parking Lot	6440	0.6134	8.0000e-005	2.0000e-005	0.6208
Single Family Housing	2.16827e+006	206.5375	0.0285	5.9000e-003	209.0091
Total		**272.5125**	**0.0376**	**7.7900e-003**	**275.7735**

From: Public Records <PublicRecords@baaqmd.gov>

Sent: Wednesday, July 7, 2021 4:26 PM

To: Di Xu

Subject:Public Records Request No. 2021-07-0066

Dear Di Xu,

Thank you for your request. We have searched our records and have no records that respond to your below request for:

Mendelson Autobody Inc

38 Beta Ct

San Ramon

If you have any questions or concerns, please call or e-mail me.

Sincerely,

Rochele Henderson

Public Records Section

BAAQMD

415-516-1916

From: Public Records <PublicRecords@baaqmd.gov>

Sent: Wednesday, July 7, 2021 4:26 PM

To: Di Xu

Subject:Public Records Request No. 2021-07-0067

Dear Di Xu,

Thank you for your request. We have searched our records and have no records that respond to your below request for:

B & S Hacienda Auto Body

2250 SAN RAMON VALLEY BLVD

SAN RAMON

If you have any questions or concerns, please call or e-mail me.

Sincerely,

Rochele Henderson

Public Records Section

BAAQMD

415-516-1916

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