Appendix B: Air Quality, Greenhouse Gas Emissions, and Energy Supporting Information

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B.1 - Air Quality and Greenhouse Gas Assessment

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OAK ROAD TOWNHOUSE CONDOMINIUMS AIR QUALITY & GREENHOUSE GAS ASSESSMENT

Contra Costa County, California

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Introduction

The purpose of this report is to address air quality and greenhouse gas (GHG) emissions impacts associated with the proposed SummerHill Homes Oak Road Townhouse Condominium Development ("Project") involving approximately 5.7 acres at Jones Road and Oak Road in Contra Costa County, near Walnut Creek, California. The air quality impacts associated with the project would be from the demolition of the existing uses (former Palmer School site), construction of new buildings and infrastructure, and operation of the new multifamily residential development. Air pollutant emissions associated with the construction and operation of the project were predicted using appropriate computer models. In addition, the potential construction community risk impact to nearby sensitive receptors and the impact of existing toxic air contaminant (TAC) sources affecting the new residential units were evaluated. This analysis addresses those issues following the guidance provided by the Bay Area Air Quality Management District (BAAQMD).[1]

Project Description

The property being acquired for the development was the recent site of the Palmer School, which closed permanently in 2020. This school has a more than 80-year history of operating at the site, adjacent to I-680 and BART. Baseline conditions for the project site include the following:

- Palmer School operated continuously in the sit from 1939 to June 2020, when COVID restrictions made it impossible to operate;
- Eighteen (18) buildings plus other portable structures exist on the site, totaling about 50,000 sf of lot coverage, along with on-site parking and typical school facilities;
- During the last 10 years of operation student count between 370 and 400 students along with 40-52 staff members;
- Daily school hours of operation were 7:00 AM to 6:00 PM Monday to Friday;
- Summer Program of 10 weeks with 100 to 160 students, 7:00 AM to 6:00 PM Monday to Friday, plus 25 staff members; and
- Night time meetings for parents along with scouting and other activities.

The project proposes to demolish all existing pavement and structures, re-grade the site, and construct several townhouse-style condominium buildings. Specifically, the project would construct:

- 125 dwelling units in 19 three-story buildings ranging from approximately 1,250 to 2,250 square feet (sf) with attached two-car garages,
- Approximately 34 surface parking spaces and roadways, totaling 73,930 sf of onsite asphalt surfaces.
- Approximately 58,360 sf of common open spaces and 33,7670 sf of private open spaces.

Setting

The project is in unincorporated 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

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

Bay Area meets all ambient air quality standards except for ground-level ozone, respirable particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$).

Air Pollutants of Concern

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

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

Toxic Air Contaminants

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

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

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

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 site are children that may be living in the multifamily homes adjacent to the project site. The John Muir Health/Walnut Creek Medical Center is the next closest sensitive receptor, located approximately 1,580 feet (i.e., one third of a mile) to the northeast of site. Once constructed, the project would introduce new sensitive receptors (i.e., infants and children) to the area.

Regulatory Agencies

CARB has adopted and implemented several 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. These regulations include the solid waste collection vehicle (SWCV) rule, in-use public and utility fleets, and the heavy-duty diesel truck and bus regulations. In 2008, CARB approved a new regulation to reduce emissions of DPM and nitrogen oxides from existing on-road heavy-duty diesel fueled vehicles.[3] The regulation requires affected vehicles to meet specific performance requirements between 2014 and 2023, with all affected diesel vehicles required to have 2010 model-year engines or equivalent by 2023. These requirements are phased in over the compliance period and depend on the model year of the vehicle.

The BAAQMD is the regional agency tasked with managing air quality in the region. At the State level, the CARB (a part of the California Environmental Protection Agency [EPA]) oversees regional air district activities and regulates air quality at the State level. The BAAQMD has published California Environmental Quality Act (CEQA) Air Quality Guidelines that are used in this assessment to evaluate air quality impacts of projects.[4] The detailed community risk modeling methodology used in this assessment is contained in *Attachment 1*.

Contra Costa County General Plan 2005 - 2020

The project is located in an unincorporated portion of Contra Costa County that is almost surrounded by the City of Walnut Creek. The Contra Costa County General Plan applies to this area. The current general plan and amendments for Contra Costa County includes goals, policies, and actions to reduce exposure of the county's sensitive population to air pollution and toxic air contaminants (TACs). The following goals, policies, and actions are applicable to the proposed project:

Applicable Goals

[3] Available online: http://www.arb.ca.gov/msprog/onrdiesel/onrdiesel.htm. Accessed: November 21, 2014.
[4] Bay Area Air Quality Management District. 2017. *BAAQMD CEQA Air Quality Guidelines*. May.

8-AA To meet Federal Air Quality Standards for all air pollutants.

8-AB To continue to support Federal, State, and regional efforts to reduce air pollution in order to protect human and environmental health.

8-AC To restore air quality in the area to a more healthful level.

Applicable Policies

8-103 When there is a finding that a proposed project might significantly affect air quality, appropriate mitigation measures shall be imposed.

8-104 Proposed projects shall be reviewed for their potential to generate hazardous air pollutants.

8-105 Land uses which are sensitive to air pollution shall be separated from sources of air pollution.

8-107 New housing in infill and peripheral areas which are adjacent to existing residential development shall be encouraged.

Policy 31.3 Proactively manage local air quality issues.

Applicable Implementation Measures

8-dl Review major development applications for consistency with regional air quality plan assumptions.

8-dm Review major development applications to ensure that buffer zones are provided between major air pollution sources (freeways, industry, etc.) or sources of hazardous pollutants and sensitive receptors such as hospitals, convalescent homes, and residences.

8-dp Review proposed development to encourage maximum use of bicycle, pedestrian, and transit modes of transportation.

8-dq Support efforts at the State and regional level to enact legislation providing for stricter controls on mobile, stationery and area sources of air pollutants.

8-dr Support efforts at the State and regional level to enact legislation providing for stricter controls on mobile, stationary and area sources of air pollutants.

The county is in the process of updating its General Plan. The new plan, *Envision 2040*, will respond to current concerns about sustainability, environmental justice, and affordable housing, while carrying forward enduring County values like balancing growth and conservation.

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, as summarized in Table 1.

Table 1. Air Quality 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		
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.			

AIR QUALITY IMPACTS AND MITIGATION MEASURES

Impact: 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), has prepared 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*.[5] 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 impacts. In formulating compliance strategies, BAAQMD relies on planned land uses established by local general plans. Land use planning affects vehicle travel, which in turn affects region-wide emissions of air pollutants and GHGs.

The 2017 Clean Air Plan, adopted by BAAQMD in April 2017, includes control measures that are intended to reduce air pollutant emissions in the Bay Area either directly or indirectly. Plans must show consistency with the control measures listed within the Clean Air Plan. At the project-level, there are no consistency measures or thresholds. The proposed project would not conflict with the latest Clean Air planning efforts since 1) project would have emissions below the BAAQMD thresholds (see below), 2) the project would be considered urban infill, and 3) the project would be located near transit with regional connections, and 4) the project site has been occupied with similar sensitive land uses.

Impact: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable State or federal 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 using CalEEMod default values. The CARB EMission FACtors 2021 (EMFAC2021) model was used to predict emissions from construction traffic, which includes worker travel, vendor trucks

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

and haul trucks.[6] The model output from CalEEMod along with construction inputs are included as *Attachment 2* and EMFAC2021 vehicle emissions modeling outputs are included in *Attachment 3*.

Land Use Inputs

The proposed project land uses were input into CalEEMod as follows:

- 125 dwelling units and 292,965 sf entered as "Residential- Condo/Townhouse" on 5.7 acres.
- 34 parking spaces in "Parking Lot" estimated at approximately 13,600 sf.
- 1.39 acres (60,331 sf) of other asphalt surfaces to represent other paved areas such as roadways,.
- 2.12 acres (92,129 sf) entered as "City Park" to represent common and private open spaces that may be maintained through landscaping and watering.

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 CalEEMod defaults for a project of this type and size.

According to SummerHill Homes, construction would begin in September 2022 and continue through mid-2026. Much of the emissions are likely to occur in the first year when demolition, site preparation and grading activities occur. Since specific construction details are not known, CalEEMod default assumptions were used for construction equipment, equipment quantities, average hours of equipment use per day, and work schedule for each phase. Although construction would occur over a longer period with lower average daily emissions, the CalEEMod default construction schedule of approximately 15 months, or 330 construction workdays was used. This provides an upper bound estimate of construction emissions (i.e., a conservative assessment). In this scenario, all construction is estimated to be complete by November 2023. However, residential build-out would occur into 2026. The first year of operation is not likely until 2026 when emission rates are lower.

Construction Truck Traffic Emissions

Construction would produce traffic in the form of worker trips and truck traffic. The traffic-related emissions are based on worker and vendor trip estimates produced by CalEEMod and haul trips that were estimated for demolition material to be exported, soil material imported and/or exported to the site, and cement and asphalt truck trips. CalEEMod provides daily estimates of worker and vendor trips for each applicable phase. The total trips for those were computed by multiplying the daily trip rate by the number of days in that phase. Haul trips for demolition were estimated using CalEEMod defaults for trips per square-foot of material demolished. The square feet of material

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

to be demolished on site was estimated to be 50,000 sf. Likewise, the number of concrete and asphalt total round haul trips were estimated using the information provided by the applicant and an assumed 10 cubic yards (CY) per material delivery for the project. Concrete/asphalt deliveries were converted to total one-way trips by assuming two trips per delivery.

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 or the recent EMFAC2021 model. The construction traffic information was combined with EMFAC2021 motor vehicle emissions factors. EMFAC2017 provides aggregate emission rates in grams per mile for each vehicle type. The construction traffic 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). Each trip was assumed to include an idle time of 5 minutes and emissions associated with vehicle starts were also included. EMFAC2021 emission rates from calendar year 2022 for Contra Costa County were used. Table 2 provides the traffic inputs that were combined with the EMFAC2021 emission factors to compute vehicle emissions.

Table 2. Construction Traffic Data Used for EMFAC2021 Model Runs

CalEEMod Run/Land Uses and Construction Phase	Trips by Trip Type			Notes
	Total Worker[1]	Total Vendor[1]	Total Haul[2]	
Vehicle mix[1]	70.0% LDA 6.9% LDT1 23.1% LDT2	33.0% MHDT 67.0% HHDT	100% HHDT	
Trip Length (miles)	10.8	7.3	20.0 (Demo) 7.3 (Cement/Asphalt)	5 Minute Truck Idle Time
Demolition	300	-	356	50,000 sf Existing Material Demo
Site Preparation	180	-	-	default
Grading	300	-	250	1,000 cy Material Export 1,000 cy Material Import
Trenching	100	-	-	default
Building Construction	36,800	9,430	-	default
Architectural Coating	640	-	-	default
Paving	300	-	-	default

Notes:
[1] Based on 2022 EMFAC2021 vehicle fleet mix for Contra Costa County.
[2] Demolition hauling trips estimated by CalEEMod based on existing structure sizes.

Summary of Computed Construction Period Emissions

Annual emissions were predicted using CalEEMod and EMFAC2021. Average daily emissions were computed by dividing the total construction emissions each year by the number of construction days in that year; 87 in 2022 and 234 in 2023 (321 construction workdays total). Table

3 shows daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust estimated during construction of the project. As indicated in Table 3, predicted construction period emissions would not exceed the BAAQMD significance thresholds.

Table 3. Construction Period Emissions - Unmitigated

Scenario		ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction Emissions (tons)	2022 - 2023	0.11 tons	1.02 tons	0.05 tons	0.05 tons
	2023 - 2024	2.28 tons	1.76 tons	0.09 tons	0.08 tons
	TOTAL	2.39 tons	2.77 tons	0.14 tons	0.12 tons
Daily Emissions[1] (pounds)	2022 - 2023	2.51 lbs./day	23.35 lbs./day	1.19 lbs./day	1.04 lbs./day
	2023 - 2024	19.52 lbs./day	15.03 lbs./day	0.79 lbs./day	0.67 lbs./day
	AVERAGE	14.91 lbs./day	17.29 lbs./day	0.90 lbs./day	0.77 lbs./day
BAAQMD Thresholds (pounds per day)		***54* lbs./day**	***54* lbs./day**	***82* lbs./day**	***54* lbs./day**
Exceed Threshold?		No	No	No	No

Notes: [1]Assumes 88 workdays in 2022 and 242 workdays in 2023.

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 to reduce fugitive dust (PM_{10} and $PM_{2.5}$).*

Mitigation Measure AQ-1: Implement BAAQMD-Recommended Basic and Additional Measures to Control Particulate Matter Emissions during Construction.

Measures to reduce fugitive dust (i.e., $PM_{2.5}$) emissions from construction are recommended to ensure that health impacts to nearby sensitive receptors are minimized. During any construction period ground disturbance, the applicant shall ensure that the project contractor implements both basic and additional measures to control dust and exhaust. Implementation of the dust control measures recommended by BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less-than-significant level. The contractor shall implement the following enhanced best management practices:

1. During site preparation and grading, all exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
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 mph.

5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. All 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.
7. 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.
8. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
9. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
10. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
11. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
12. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
13. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6-to-12-inch compacted layer of wood chips, mulch, or gravel.
14. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.
15. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points.

Effectiveness of Mitigation Measure AQ-1

Mitigation Measure AQ-1 represents enhanced mitigation measures that would achieve greater than an 80 percent reduction in on-site fugitive $PM_{2.5}$ emissions. These measures are consistent with recommendations in the BAAMQD CEQA Guidance for providing "best management practices" to control construction emissions.

Operational Period Emissions

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

Land Uses

The project land uses were input to CalEEMod as described above.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest full year of operation would be 2024 if construction begins in September of 2022. Emissions associated with build-out later than 2024 would be lower than those estimated for 2024.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates. Therefore, the project-specific daily trip generation rate for Multifamily Housing - Midrise (Institute of Transportation Engineers Land Use Code 221) were provided by the traffic consultant.[7] Saturday and Sunday trip rates were assumed to be the weekday rate adjusted by multiplying the ratio of the CalEEMod default rates for Saturday and Sunday trips to the default weekday rate. Default trip lengths and trip types specified by CalEEMod for each input land use were used for the emissions estimates.

EMFAC2021 Adjustment

As previously described, the vehicle emission factors and fleet mix used in CalEEMod are based on EMFAC2014, which is an older CARB emission model for on-road and off-road mobile sources. Since the release of CalEEMod Version 2016.3.2, a new emission model has been produced by CARB. A new version of EMFAC2021 became available for use in April 2021. It includes the latest understanding of vehicle emissions and data on California's car and truck fleets and travel activity. Therefore, the CalEEMod vehicle emission factors and fleet mix were updated with the emission rates and fleet mix from EMFAC2021. On-road emission rates for Contra Costa County, calendar year 2024 were used. More details about the updates in emissions calculation methodologies and data are available in the EMFAC2021 Technical Support documents.[8]

Energy

CalEEMod defaults for energy use were used, which include the 2016 Title 24 Building Standards. 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 CO_2 per megawatt of electricity delivered in the year 2017.[9] This intensity factor was used in the model and it was assumed that all powered was supplied by PG&E.

The project is designed be all-electric construction in the new homes with no natural gas provided. Each home will have roof-top solar panels. The number and orientation of the panels will vary

[7] Trip rates provided via email by the project's traffic consultant (Hexagon Transportation Consultants, Inc.), January 5, 2021.

[8] See CARB 2021: https://content.govdelivery.com/accounts/CARB/bulletins/2d48287

[9] PG&E, 2019. *Corporate Responsibility and Sustainability Report*. Web: http://www.pgecorp.com/corp_responsibility/reports/2019/assets/PGE_CRSR_2019.pdf

from unit to unit. At a minimum, the solar panels would off-set the increased electricity demand for appliances that may have been traditionally

Other Inputs

Default model assumptions for emissions associated with solid waste generation and water/wastewater use were applied to the project. Water/wastewater use was changed to 100% aerobic conditions to represent wastewater treatment plant conditions. All hearths were assumed to be natural gas powered.

Existing Uses

A CalEEMod model run was developed to estimate emissions from the existing land uses. The project site is the former Palmer School and contains structures and pavement used by the school, as follows:

- 30,930 sf entered as "Educational – Elementary School" with 370 students, and
- 98,000 sf entered as "Parking – Other Asphalt Surfaces."

Traffic generation were provided by the traffic consultant.[10]

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod and daily emissions were estimating assuming 365 days of operation. Table 4 shows average daily emissions of ROG, NO_X, total PM_{10}, and total $PM_{2.5}$ during operation of the project. The operational period emissions would not exceed the BAAQMD significance thresholds. Emissions from the project are anticipated to be less than the existing uses with the school operating for all pollutants except ROG.

Table 4. Operational Period Emissions

Scenario	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
2024 Project Operational Emissions (*tons/year*)	1.82 tons	0.40 tons	0.55 tons	0.14 tons
2024 Project Operational Emissions (*lbs./day*)[1]	10 lbs.	2.2 lbs.	3.0 lbs.	0.8 lbs.
Existing Site Operational Emissions (*tons/year*)	0.83 tons	0.63 tons	0.83 tons	0.21 tons
Existing Site Operational Emissions (*lbs/day*)	4.52 lbs.	3.5 lbs.	4.5 lbs.	1.2 lbs.
Net Annual Emissions (*tons/year*)	0.99 tons	-0.12 tons	-027 tons	-0.07 tons
Net Annual Emissions (*lbs/day*)	5.4 lbs.	-1.3 lbs.	-1.5 lbs.	-0.4 lbs.
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

[10] Trip rates provided via email by the project's traffic consultant (Hexagon Transportation Consultants, Inc.), January 5, 2021.

Impact: Expose sensitive receptors to substantial pollutant concentrations?

Project impacts related to increased community risk occur since the project is a new source of TACs during construction and operation with the potential to adversely affect existing sensitive receptors in the project vicinity. This project would generate dust and introduce new sources of TACs during construction (i.e., equipment exhausts from construction activity and truck hauling emissions) that would affect nearby sensitive receptors. Long-term operation of the project would generate localized TAC emissions that are considered negligible based on the low volume of traffic generated and the type of traffic. Residential traffic includes light-duty automobiles that have low emission rates of TACs. Note that the project replaces a school that produced higher localized volumes of traffic. Therefore, project impacts to both existing sensitive receptors were assessed given temporary construction activities. Note the analysis of new sensitive receptors introduced by the project is provided for informational purposes only.

Community Risk Methodology for Construction

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. Although it was concluded in the previous sections (see Table 3) that construction exhaust air pollutant emissions would not be considered to contribute substantially to existing or projected air quality violations, construction exhaust emissions may still pose health risks for sensitive receptors such as surrounding residents.

Community risk impacts are addressed by predicting increased lifetime cancer risk, the increase in annual $PM_{2.5}$ concentrations, and computing the Hazard Index (HI) for non-cancer health risks. Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known TAC. The primary community risk impact issues associated with construction emissions are cancer risk and exposure to $PM_{2.5}$ concentrations. These emissions pose health risks for sensitive receptors such as surrounding residents. 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 $PM_{2.5}$.[11] For this assessment, PM_{10} exhaust emissions from construction equipment and truck traffic were assumed to be DPM. This assessment included dispersion modeling to predict the offsite concentrations resulting from project construction, so that lifetime cancer risks and non-cancer health effects could be evaluated. The methodology for computing community risks impacts is contained in *Attachment 1*.

Construction Period Emissions

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment, while EMFAC2017 was used to estimate emissions from on-road activities. On-road emissions are a result of haul truck travel during demolition and grading activities, worker travel, and vendor deliveries. A trip length of one (1) mile was used to represent vehicle travel while at or near the construction site. It was assumed emissions from on-road vehicles traveling at or near the site would occur at the construction site. The total emissions from construction (on and off road) were estimated to be approximately 0.12 tons (246 pounds). Fugitive $PM_{2.5}$ dust emissions were calculated in the same way described above and estimated to be approximately 0.1 tons (177 pounds).

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

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict DPM and $PM_{2.5}$ concentrations at sensitive receptors (i.e., residents) in the vicinity of the project construction area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling ambient impacts of these types of emission activities for CEQA projects.[12] Emission sources for the construction site were grouped into two categories: exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. Combustion equipment exhaust emissions were modeled as a series of point sources with a 9-foot release height (construction equipment exhaust stack height) placed at 16.4-feet (5-meter) intervals throughout the construction site. This resulted in 972 individual point sources being used to represent mobile equipment DPM exhaust emissions in the construction area, with DPM emissions occurring throughout the project construction site. Construction fugitive $PM_{2.5}$ dust emissions were modeled as an area source encompassing the entire construction site with a near ground level release height of 7 feet (2 meters). Construction emissions were modeled as occurring daily between 7:00 a.m. to 4:00 p.m. when most of the construction activity would occur.

The modeling used a five-year data set (2012-2015 and 2017) of hourly meteorological data from Buchanan Field Airport in Concord, CA that was prepared for use with the AERMOD model by BAAQMD. The Buchanan Field is approximately 4 miles north from the project site. Annual DPM and $PM_{2.5}$ concentrations from construction activities were calculated at nearby sensitive receptors using the model. Receptor heights of 5 feet (1.5 meters) and 15 feet (4.55 meters) were used to represent the breathing heights at nearby multifamily homes.

Project Construction Community Risk Impacts

The modeled maximum annual DPM and $PM_{2.5}$ concentrations, which includes fugitive dust emissions, were identified at nearby sensitive receptors (as shown in Figure 1) to find the maximally exposed individuals (MEIs). Using the maximum annual modeled DPM concentrations, the maximum increased cancer risks were calculated using BAAQMD recommended methods and exposure parameters described in *Attachment 1*. Non-cancer health hazards and maximum annual $PM_{2.5}$ concentrations were also calculated. *Attachment 4* to this report includes the emission calculations used for the construction area source modeling and the cancer risk calculations.

Results of this assessment indicated that the highest concentration of construction related DPM and fugitive $PM_{2.5}$, and thus the MEI, was located at a multifamily residence adjacent to the northern project boundary. DPM concentrations were highest on the second floor, while fugitive $PM_{2.5}$ concentrations were highest on the first floor (see Figure 1). The unmitigated maximum increased cancer risk from construction was 16.3 per million at the MEI. The maximum annual $PM_{2.5}$ concentration from construction was 0.45 $\mu g/m^3$ occurring during the 2022-2023 construction period. Both exceed their respective BAAQMD single-source thresholds of greater than 10.0 in a million and greater than 0.3 $\mu g/m^3$ for $PM_{2.5}$ concentration.

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

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

However, with the incorporation of *Mitigation Measure AQ-1 and AQ-2* (discussed below), the increased project cancer risk and $PM_{2.5}$ concentration would not exceed their single-source thresholds. Both the unmitigated and mitigated non-cancer hazards from construction activities would be below the single-source significance threshold of 1.0. Table 5 summarizes the maximum cancer risks, $PM_{2.5}$ concentrations, and health hazard indexes for project related construction activities.

Table 5. Construction Risk Impacts at the Off-Site Residential MEIs

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction	Unmitigated Mitigated*	**16.3 (infant)** 1.8 (infant)	**0.45** 0.19	0.01 <0.01
	BAAQMD Single-Source Threshold	***>10.0***	***>0.3***	***>1.0***
Exceed Threshold?	Unmitigated Mitigated*	***Yes*** *No*	***Yes*** *No*	*No* *No*

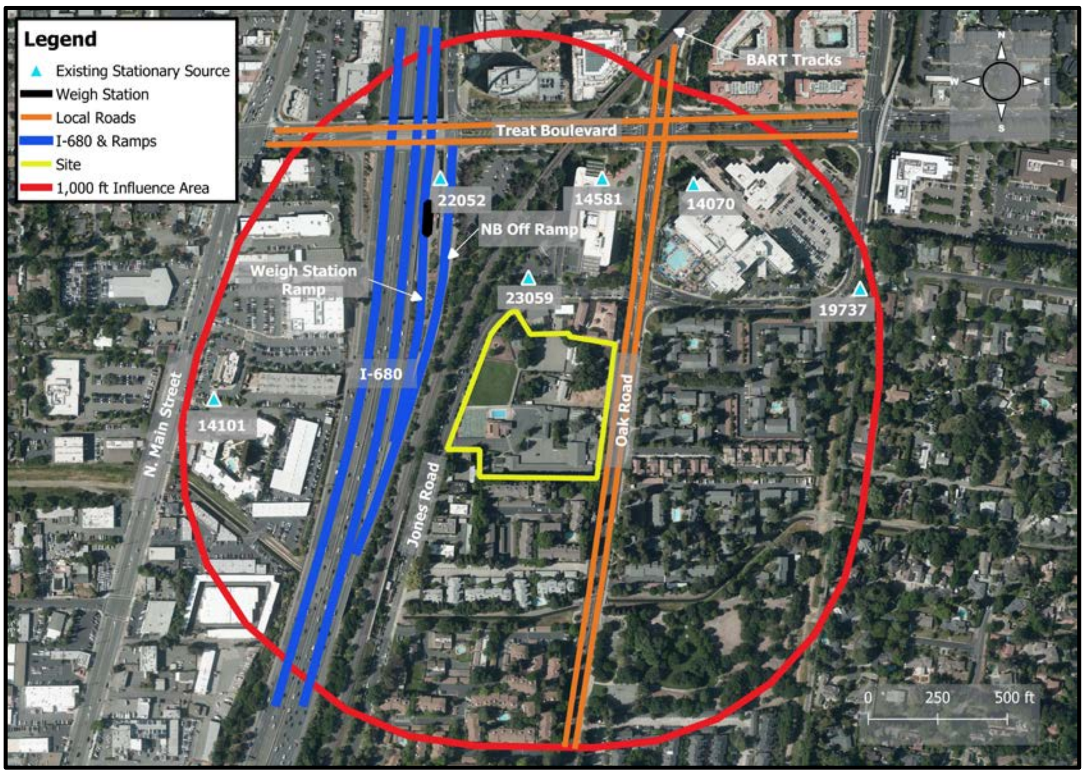
* Mitigation Measures include construction equipment engines with Tier 4 Interim emissions limits and BAAQMD's enhanced BMPs for fugitive dust.

Mitigation Measure AQ-2 would reduce construction-related DPM to the levels needed to meet the health risk assessment thresholds for both cancer risk and $PM_{2.5}$ concentration.

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

Community health risk assessments typically look at all substantial sources of TACs that can affect sensitive receptors that are located within 1,000 feet of the 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 identified several sources of TACs near the project. They include: Interstate 680 (I-680), the northbound off ramp, a truck weigh station, Oak Road, Treat Boulevard, and six stationary sources (i.e., diesel powered emergency generators). All other roadways within the area are considered low-volume roadways (i.e., below 10,000 average daily traffic, or ADT) and, therefore, not a significant source of TACs. Figure 2 shows the TAC sources affecting the project site. Community risk impacts from these sources upon the construction MEI are reported in Table 6. Details of the emissions modeling and community risk calculations are included in *Attachment 5 and Attachment 6.*

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



Freeways – I-680

Both the project site and construction MEI are near I-680. A refined analysis of the impacts of TACs and $PM_{2.5}$ from I-680 on the project site and construction MEI was conducted to assess potential cancer risks and $PM_{2.5}$ concentrations associated with interstate traffic. A review of the traffic census information reported by the California Department of Transportation (Caltrans) for 2019 indicates that I-680 had an average annual daily traffic (AADT) volume of 291,000 vehicles per day (based on 2019 measurements) that are about 3.23 percent trucks, of which 1.7 percent are considered diesel heavy duty trucks and 1.5 percent are medium duty trucks.[13] Northbound off ramp volumes were also estimated using Caltrans' Traffic Census Program data and were determined to be approximately 7.1 percent of the mainline volume. Traffic volumes were grown from 2019 estimates to 2023 assuming an increase of one percent per year.

Modeling I-680 Emissions

Analysis of I-680 involved developing emissions estimates of DPM, organic TACs (as TOG), and $PM_{2.5}$ emissions estimates using the Caltrans version of the CARB's EMFAC2017 emissions model, known as CT-EMFAC2017. CT-EMFAC2017 provides emission factors for mobile source criteria pollutants and TACs, including DPM. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and fugitive road dust for $PM_{2.5}$ that includes tire and brake wear emissions. In general, vehicle fleet emissions are projected to decrease in the future as reflected in the CT-EMFAC2017 emissions estimates. Inputs to the emissions model include region (i.e., Contra Costa County), type of road (i.e., freeway), traffic mix assigned by CT-EMFAC2017 for the county and adjusted for the local truck mix on I-680, year of analysis (i.e., 2023), and season (i.e., annual).

CT-EMFAC2017 was used to develop vehicle emission factors for the year 2023 using the mix of vehicles in Contra Costa County to estimate TAC and $PM_{2.5}$ emissions over the 30-year exposure period used for calculating increased cancer risks from traffic on I-680. 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 produced 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), since, as discussed above, overall vehicle emissions, in particular diesel truck emissions will decrease in the future. Hourly traffic distributions specific to this segment of I-680 were obtained from Caltrans Performance Measurement System (PeMS). PeMS data is collected in real-time from nearly 40,000 individual detectors spanning the freeway system across all major metropolitan areas of California[14]. The fraction of traffic volume each hour in 2019 was calculated and applied to the AADT estimate to estimate hourly traffic emission rates for I-680.

For all hours of the day, other than during peak a.m. and p.m. periods, an average speed of 65 mph was assumed for northbound and southbound vehicles. Based on weekday 2019 speed data from PeMS, traffic speeds on northbound and southbound I-680 in the vicinity of the project site during the peak a.m. and p.m. periods were identified. For the 2-hour period during the peak a.m. period, the average northbound speed was approximately 65 mph while the average southbound speed was 25 mph. During the 2-hour peak p.m. period, the average travel speed in the northbound direction was approximately 30 mph and 60 mph in the southbound direction. Northbound off ramp speeds were assumed to average 35 mph, regardless of the time of day.

Hourly emissions rates were developed for DPM, organic TACs, and $PM_{2.5}$ emissions for 2023 traffic along this segment of I-680 and the northbound off ramp. TAC and $PM_{2.5}$ concentrations at the construction MEI location were developed using these emissions rates with an air quality dispersion model (AERMOD). Maximum increased lifetime cancer risks and annual $PM_{2.5}$

[13] Caltrans. 2021. *2019 Annual Average Daily Truck Traffic on the California State Highway System*
[14] https://dot.ca.gov/programs/traffic-operations/mpr/pems-source

concentrations for the receptors were then computed using modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters described in *Attachment 1*.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis. Northbound and southbound traffic on I-680 within about 1,000 feet of the project site was evaluated with the model. Emissions from vehicle traffic were modeled in AERMOD using a series of volume sources along a line (line volume sources), with line segments used to represent northbound and southbound travel lanes on I-680 and the northbound off ramp. The modeling used a five-year data set (2012-2015 and 2017) of hourly meteorological data from Buchanan Field Airport in Concord, CA prepared by the BAAQMD for use with the AERMOD model. Other inputs to the model included road geometry and elevations, hourly traffic emissions, and receptor locations and heights. Figure 2 shows the roadway links used for the modeling and receptor location at the construction MEI where concentrations were calculated.

Computed Cancer and Non-Cancer Health Impacts of I-680

The maximum increased cancer risk and maximum $PM_{2.5}$ concentration at the construction MEIs are shown in Table 6. Maximum increased cancer risk associated with I-680 and the northbound off ramp at the construction MEI receptor would be 16.3 in one million, the maximum $PM_{2.5}$ concentration at the receptor with the highest construction-related annual $PM_{2.5}$ concentration would be 0.69 $\mu g/m^3$, and the HI at the construction MEI location would be less than 0.01. Details of the emission calculations, dispersion modeling and cancer risk calculations for the receptors with the maximum impacts are provided in *Attachment 5 and Attachment 6.*

Local Roadways – Oak Road and Treat Boulevard

The project site and construction MEI are near the high-volume roadways (i.e., roadways with daily traffic volumes more than 10,000 ADT) of Oak Road and Treat Boulevard. A refined analysis of the impacts of TACs and $PM_{2.5}$ from these local roadways on the construction MEI is necessary to evaluate potential cancer risks and $PM_{2.5}$ concentrations associated with them. Traffic information for these roadways were not readily available, as a traffic study is currently underway. Therefore, it was assumed Oak Road has an ADT of 20,000 vehicles a day and Treat Boulevard has an ADT of 40,000. The hourly traffic distributions used for the analysis of I-680 were used to estimate hourly traffic distributions on the local roadways. Likewise, the truck percentages used to analyze I-680 were used to estimate the truck traffic percentages on the local roadways.

Modeling Local Roadway Emissions

Analysis of the nearby roadways involved developing emissions estimates of DPM, organic TACs (as TOG), and $PM_{2.5}$ emissions for 2023 using CT-EMFAC2017. Emission processes modeled include running exhaust for DPM, $PM_{2.5}$ and total organic compounds (e.g., TOG), running evaporative losses for TOG, and fugitive road dust for $PM_{2.5}$ that includes tire and brake wear emissions. Inputs to the emissions model include region (i.e., Contra Costa County), type of road (i.e., major/collector), traffic mix assigned by CT-EMFAC2017 for the county, year of analysis (i.e., 2023), and season (i.e., annual). Year 2023 emissions were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (30 years), since, as previously discussed, overall vehicle emissions, in particular diesel truck emissions, will decrease in the future. Hourly traffic distributions specific for each roadway were obtained by averaging 2019 hourly traffic volumes from I-680 using PeMS data. The fraction of traffic volume each hour was calculated and applied to the daily traffic estimates for each roadway to obtain hourly traffic emission rates.

For all hours of the day, other than during peak a.m. and p.m. periods, an average speed of 35 mph was assumed for both Oak Road and Treat Boulevard. Traffic speeds during the peak a.m. and p.m. periods were assumed to be 5 miles per hour slower on Oak Road and 10 mph slower on Treat Boulevard, based on the amount of access provided by each roadway.

Hourly emissions rates were developed for DPM, organic TACs, and $PM_{2.5}$ emissions for 2023 traffic along the applicable segments of each roadway within approximately 1,000 feet of the project site. TAC and $PM_{2.5}$ concentrations at the construction MEI location were developed using these emissions rates with an air quality dispersion model (AERMOD). Maximum increased lifetime cancer risks and maximum annual $PM_{2.5}$ concentrations for the receptors were then computed using modeled TAC and $PM_{2.5}$ concentrations and BAAQMD methods and exposure parameters described in *Attachment 1*.

NOTE TO READER: CT-EMFAC2017 was used to estimate emissions from roadways. Caltrans has not issued a new version of CT-EMFAC that incorporates EMFAC2021 as of the date of this analysis (5/13/2021). EMFAC2021 $PM_{2.5}$ emission rates in future years tend to be much lower than those provided by CT-EMFAC2017, primarily due to improved methods for estimating brake wear on highways. Therefore, fugitive $PM_{2.5}$ concentrations from roadways are overpredicted in this assessment.

Dispersion Modeling

Dispersion modeling of TAC and $PM_{2.5}$ emissions was conducted using the U.S. EPA AERMOD dispersion model, which is recommended by the BAAQMD for this type of analysis. Roadway traffic within approximately 1,000 feet of the project site was evaluated with the model. Emissions from vehicle traffic were modeled using a series of area sources along a line (line area sources), with line segments used to represent travel lanes. The modeling used a five-year data set (2012-2015 and 2017) of hourly meteorological data from the Buchanan Field Airport in Concord, CA prepared by the BAAQMD for use with the AERMOD model. Other inputs to the model included road geometry and elevations, hourly traffic emissions, and receptor locations and heights. Figure 2 shows the roadway links used for the modeling and receptor locations where concentrations were calculated.

Computed Cancer and Non-Cancer Health Impacts of Local Roadways

The maximum increased cancer risk associated with Oak Road at the construction MEI receptor would be 1.7 in one million, the maximum $PM_{2.5}$ concentration at the receptor with the highest annual construction related $PM_{2.5}$ concentration would be 0.22 $\mu g/m^3$, and the HI at the construction MEI location would be less than 0.01. Likewise, the maximum increased cancer risk associated with Treat Boulevard at the construction MEI receptor would be 0.3 in one million.

Maximum annual $PM_{2.5}$ concentrations from Treat Boulevard at the receptor with the highest construction related annual $PM_{2.5}$ concentration would be 0.06 μg/m^3 the HI would be less than 0.01. The risk impacts from these roadways on the construction MEI are shown in Table 6. Details of the emission calculations, dispersion modeling and cancer risk calculations for the receptor with the maximum cancer risk from local roadway traffic are provided in *Attachment 5 and Attachment 6.*

<u>*Truck Weigh Station*</u>

A weigh station for northbound trucks is located adjacent to I-680, approximately 460 feet from the project site. Emissions from weigh station operations were estimated using CT-EMFAC2017 and its impacts on the construction MEI estimated using AERMOD.

Modeling Weigh Station Emissions

Analysis of the weigh station emissions involved developing estimates of DPM for 2023 using CT-EMFAC2017 assuming a 100 percent truck fraction. CT-EMFAC2017 inputs include region (i.e., Contra Costa County), type of road (i.e., local/urban), year of analysis (i.e., 2023), and season (i.e., annual). Year 2023 emissions were conservatively assumed as being representative of future conditions over the period that cancer risks are evaluated (30 years), since, as previously discussed, overall vehicle emissions, in particular diesel truck emissions, will decrease in the future. Daily truck traffic volumes were estimated to be the truck fraction of the I-680 northbound off ramp, with 50 percent of the trucks stopping to weigh, and the other 50 percent passing by the weigh station at 5 mph. Hourly traffic distributions for the weigh station were obtained by averaging 2019 hourly traffic volumes from I-680 using PeMS data. Trucks being weighed were assumed to stop and idle for 1 minute.

Dispersion Modeling

Dispersion modeling of DPM emissions was conducted using AERMOD, the dispersion model recommended by the BAAQMD for this type of analysis. Emissions from weigh station operations were modeled using a series of volume sources along a line (line volume sources), with line segments used to represent the truck travel lane and an area source to represent truck idling during weighing. The modeling used a five-year data set (2012-2015 and 2017) of hourly meteorological data from the Buchanan Field Airport in Concord, CA prepared by the BAAQMD for use with the AERMOD model. Other inputs to the model included lane geometry, hourly truck emissions, and receptor locations and heights. Figure 2 shows the links and area source used to model the weigh station and receptor locations where concentrations were calculated.

Computed Cancer and Non-Cancer Health Impacts of The Weigh Station

The maximum increased cancer risk associated with operation of the weigh station at the construction MEI receptor would be 0.3 in one million, the maximum $PM_{2.5}$ concentration at the receptor with the highest annual construction related $PM_{2.5}$ concentration would be less than 0.001 μg/m^3, and the HI at the construction MEI location would be less than 0.01. The risk impacts from the weigh station on the construction MEI are shown in Table 6. Details of the emission calculations, dispersion modeling and cancer risk calculations for the construction MEI are provided in *Attachment 5 and Attachment 6*.

<u>*Stationary Sources*</u>

Permitted stationary sources of air pollution near the project site are identified using BAAQMD's *Permitted Stationary Sources 2018* GIS website,[15] which provides the location of nearby stationary sources and their estimated risk and hazard impacts, including emissions and adjustments to account for new OEHHA guidance. Six existing stationary sources of TACs were identified within 1,000 feet of the project; all of them diesel powered generators. They are:

- Facility 14070 – SF Bay Area Rapid Transit District Generator
- Facility 14101 – AT&T Services, Inc. Generator
- Facility 14581 – Jones Lang LaSalle Generator
- Facility 19737 – Avalon Bay Communities, Inc. Generator
- Facility 22052 – MLM Treat Towers Generator
- Facility 23059 – Level 3 Communications LLC Generator

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.[16] The average daily emissions provided by BAAQMD for each of the sources were adjusted for distance using BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion Engines*, *Gasoline Dispensing Facility Distance Multiplier Tool*, or *Generic Distance Multiplier Tool* when appropriate. Results from the screening calculator are listed in Table 6.

Combined Community Health Risk at Off-Site Construction MEI

Table 6 reports both the project and cumulative community risk impacts at the sensitive receptors most affected by construction (i.e., the construction MEI and receptor with the highest annual construction related $PM_{2.5}$ concentration). Without mitigation, the project's community risk from project construction activities would exceed the single-source maximum cancer risk and annual $PM_{2.5}$ concentration significance thresholds but would not exceed the HI significance threshold. With the incorporation of *Mitigation Measures AQ-1 and AQ-2*, the project does not exceed single-source thresholds. The cumulative cancer risks and maximum HI would not exceed their thresholds given either the unmitigated or mitigated condition. The combination of existing sources in the area results in an annual $PM_{2.5}$ concentration of 0.97 $\mu g/m^3$, which exceeds the cumulative threshold of 0.8 $\mu g/m^3$. Therefore, the cumulative annual $PM_{2.5}$ concentration with the project impact would also exceed the significance threshold of greater than 0.8 $\mu g/m^3$ for both the unmitigated and mitigated condition. This is primarily the caused by emissions from I-680.

[15] BAAQMD, Permitted Stationary Sources 2018 GIS website https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65
[16] Correspondence with Areana Flores, MSc, Environmental Planner, BAAQMD, January 6, 2021.

Table 6. Impacts from Combined Sources at Off-Site Construction MEI

Source		Cancer Risk (per million)	Annual $PM_{2.5}$ ($\mu g/m^3$)	Hazard Index
Project Construction Impacts				
Project Construction	Unmitigated Mitigated*	**16.3 (infant)** 1.8 (infant)	**0.45** 0.19	0.01 <0.01
BAAQMD Single-Source Threshold		***>10.0***	***>0.3***	***>1.0***
Exceed Single Source Threshold?	Unmitigated Mitigated*	***Yes*** *No*	***Yes*** *No*	*No* *No*
Cumulative Impacts				
I-680		16.3	0.69	<0.01
I-680 Truck Weigh Station		0.3	<0.01	<0.01
Oak Road		1.7	0.22	<0.01
Treat Boulevard		0.3	0.06	<0.01
Facility 14070		2.0	0.002	0.01
Facility 14101		0.1	0.002	<0.01
Facility 14581		0.1	---	---
Facility 19737		0.1	---	---
Facility 22052		0.2	---	---
Facility 23059		0.7	---	---
Cumulative Total	Unmitigated Mitigated*	38.1 23.6	**1.42** **1.17**	<0.08 <0.07
BAAQMD Cumulative Source Threshold		***>100***	***>0.8***	***>10.0***
Exceed Cumulative Source Threshold?	Unmitigated Mitigated*	*No* *No*	***Yes*** ***Yes***	*No* *No*

* Mitigation Measure include AQ-1 and AQ-2; BAAQMD enhanced BMPs and construction equipment engines with Tier 4 interim emissions limits.

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

The project shall implement the following:

- All diesel-powered off-road equipment, larger than 25 horsepower, operating on the site for more than two days continuously shall, at a minimum, meet U.S. EPA particulate matter emissions standards for Tier 4 engines. Where Tier 4 equipment is not available, exceptions could be made for equipment meeting Tier 2 or Tier 3 standards that include CARB-certified Level 3 Diesel Particulate Filters or equivalent. Equipment that is electrically powered or uses non-diesel fuels would also meet this requirement.
- Minimize diesel generator use by providing line power to the site during early construction phases.
- Avoid staging construction equipment near residences (i.e., within 200 feet of homes).

Effectiveness of Mitigation Measure AQ-1 and AQ-2

CalEEMod was used to compute emissions associated with construction equipment mitigation measures (MM AQ-1 and AQ-2) if all equipment meets U.S. EPA Tier 4 engines standards for particulate matter emissions (or equivalent). Implementation of Mitigation Measure AQ-1, which includes enhanced controls measures for fugitive dust, would reduce fugitive $PM_{2.5}$ emissions by over 80 percent. With the implementation of *Mitigation Measure AQ-2*, exhaust $PM_{2.5}$ emissions (assumed to be DPM emissions) from construction would be reduced by as much as 91 percent. Cancer risk associated with construction would be reduced below both the single and cumulative thresholds. Annual $PM_{2.5}$ concentrations would be reduced well below the single source threshold, but it is not possible to reduce the levels below the cumulative threshold since existing non-project sources cause concentrations to exceed the cumulative threshold. Since the project would implement enhanced control measures to reduce $PM_{2.5}$ emissions and the project contribution would be well below the single source threshold, the project contribution is not considered to be considerable. Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce this impact to less than significant.

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, due to 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*.[17] While the State is on track to exceed the AB 32 scoping plan 2020 targets, this plan is an update to reflect the enacted SB 32 reduction target.

SB 32 was passed in 2016, which codified a 2030 GHG emissions reduction target of 40 percent below 1990 levels. CARB is currently working on a second update to the Scoping Plan to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32. The proposed Scoping Plan Update was published on January 20, 2017 as directed by SB 32 companion legislation AB 197. The mid-term 2030 target is considered critical by CARB on the path to obtaining an even deeper GHG emissions target of 80 percent below 1990 levels by 2050, as directed in Executive Order S-3-05. The Scoping Plan outlines the suite of policy measures, regulations, planning efforts,

[17] 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

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.
- 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 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.[18] The CALGreen Code encourages sustainable construction standards that involve planning/design, energy efficiency, water efficiency resource efficiency, and environmental quality. These green building standard codes are mandatory statewide and are applicable to residential and non-residential developments. The most recent CALGreen Code (2019 California Building Standard Code) was effective as of January 1, 2020.

The California Building Energy Efficiency Standards (California Energy Code) is under Title 24, Part 6 and is overseen by the California Energy Commission (CEC). This code includes design requirements to conserve energy in new residential and non-residential developments, while being cost effective for homeowners. This Energy Code is enforced and verified by cities during the planning and building permit process. The current energy efficiency standards (2019 Energy Code) replaced the 2016 Energy Code as of January 1,2020. Under the 2019 standards, single-family homes are predicted to be 53 percent more efficient than homes built under the 2016 standard due more stringent energy-efficiency standards and mandatory installation of solar photovoltaic systems. For nonresidential developments, it is predicted that these buildings will use 30 percent less energy due to lightening upgrades.[19]

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[18] 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.

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

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[20] 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.[21] 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.[22] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011.

Contra Costa County Climate Action Plan

The Contra Costa County Board of Supervisors adopted the county's current Climate Action Plan (CAP) on December 15, 2015.[23] The Climate Action Plan is a qualified plan and demonstrates the county's commitment to addressing the challenges of climate change. The CAP outlines the county's overall strategies for reducing greenhouse gas emissions in response to state regulations to address climate change. The CAP outlines ways in which the county can prepare for and adapt to the consequences of climate change, and provides energy use, transportation, land use, and solid waste strategies to reduce Contra Costa's GHG emissions. The CAP has a GHG reduction target of 15% from 2005 levels by the year 2020. In addition, the CAP forecasts the potential GHG emissions and estimated GHG reductions from proposed measures through 2035 to the level specified in EO B-30-15. Such a goal is equal to 50% below 1990 levels, or approximately 57% below baseline levels.

As part of the CAP, the county developed a development checklist (i.e., Appendix E to the CAP) to help both project applicants and County staff determine where a proposed new development project is consistent with Contra Costa County's CAP. The checklist should be completed for each project subject to discretionary review. The criterion in the checklist clarifies implementation of the CAP and explain how a project can comply. The checklist is provided in Attachment 7.

BAAQMD Significance Thresholds

For quantified emissions, the BAAQMD's CEQA Air Quality 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

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[20] 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

[21] 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

[22] 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.

[23] Contra Costa County. December 15, 2015.*Climate Action Plan.* https://www.contracosta.ca.gov/DocumentCenter/View/39791/Contra-Costa-County-Climate-Action-Plan

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 2.6 is calculated for 2030 based on the 1990 inventory and the projected 2030 statewide population and employment levels.[24] The 2030 bright-line threshold is a 40 percent reduction of the 2020 1,100 MT CO_{2e}/year threshold.

Impact: **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.

<u>CalEEMod Modeling</u>

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 previously described. CalEEMod output is included in *Attachment 2*.

Existing Uses

A CalEEMod run was developed to estimate GHG emissions assuming the Palmer School was still in operation. This is a common, valid baseline approach under CEQA since the school was operational into 2020 and could choose to reopen instead of selling and the GHG emissions from the school operation would continue to be part of the environment. Inputs for this modeling scenario were estimated using the trip estimates provide by the traffic consultant and included:

- 30,930 sf entered as "Educational – Elementary School" with 370 students, and
- 98,000 sf entered as "Parking – Other Asphalt Surfaces."

These land use inputs along with the other operational inputs described above were applied to the modeling in the same manner described above for the proposed project. Trip generation rates for the school (ITE Land Use Code 534 – Private K-8 School) were provided by the applicant's traffic consultant and used to estimate existing condition mobile source emissions.[25]

<u>Construction Emissions</u>

GHG emissions associated with construction were computed to be 607 MT of CO_2e for the total construction period (2022-2024), with the highest annual GHG emissions estimate being 422 MT

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[24] Association of Environmental Professionals, 2016. *Beyond 2020 and Newhall: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California*. April.

[25] Trip rates provided via email by the project's traffic consultant (Hexagon Transportation Consultants, Inc.), January 5, 2021.

of CO2e for the 2022-2023 construction period. These computations assume the project is constructed during the shortest time period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the County 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 7, the net annual emissions resulting from operation of the proposed project are predicted to be reduction of 300 MT of CO_2e in 2024. As shown in Table 7, the project would not exceed the 660 MT CO_2e/year bright-line threshold in 2024.

Table 7. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	**2024**	
	Proposed Project	**Existing Use**
Area	2	0
Energy Consumption	61	47
Mobile	607	928
Solid Waste Generation	29	34
Water Usage	12	2
Total (MT CO_2e/yr)	711	1,011
Net Emissions	-300 MT CO_{2e}/year	
Bright-Line Significance Threshold	***660 MT CO_2e/year***	
Exceed threshold?	*No*	

Impact: 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. For example, proposed buildings would be constructed in conformance with CALGreen and the Title 24 Building Code, which requires high-efficiency water fixtures and water-efficient irrigation systems. Additionally, by completing Contra Costa's Development Checklist (see Attachment 7), the project would demonstrate compliance with the county's CAP and applicable GHG emissions reduction goals. The project would also be subject to local policies that may affect GHG emissions.

Conclusions

The proposed project would result in lower GHG emissions when compared to the school that was occupying the site. Thus, the project would have a GHG emissions benefit when compared to the school. Additionally, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

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 modeling assumptions and 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.

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

Attachment 4 is the construction health risk assessment. 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 emissions modeling for I-680, roadways, and the weigh station.

Attachment 6 includes the health risk calculations for the cumulative source analysis.

Attachment 7 includes the Contra Costa CAP's Development Checklist.

Attachment 1: Health Risk Calculation Methodology

A health risk assessment (HRA) for exposure to Toxic Air Contaminates (TACs) requires the application of a risk characterization model to the results from the air dispersion model to estimate potential health risk at each sensitive receptor location. The State of California Office of Environmental Health Hazard Assessment (OEHHA) and California Air Resources Board (CARB) develop recommended methods for conducting health risk assessments. The most recent OEHHA risk assessment guidelines were published in February of 2015.[26] 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.[27] 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.[28] Exposure parameters from the OEHHA guidelines and the recent BAAQMD HRA Guidelines were used in this evaluation.

<u>Cancer Risk</u>

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

The current OEHHA guidance recommends that cancer risk be calculated by age groups to account for different breathing rates and sensitivity to TACs. Specifically, they recommend evaluating risks for the third trimester of pregnancy to age zero, ages zero to less than two (infant exposure), ages two to less than 16 (child exposure), and ages 16 to 70 (adult exposure). Age sensitivity factors (ASFs) associated with the different types of exposure are an ASF of 10 for the third trimester and infant exposures, an ASF of 3 for a child exposure, and an ASF of 1 for an adult exposure. Also associated with each exposure type are different breathing rates, expressed as liters per kilogram of body weight per day (L/kg-day) or liters per kilogram of body weight per 8-hour period for the case of worker or school child exposures. As recommended by the BAAQMD for residential exposures, 95th percentile breathing rates are used for the third trimester and infant exposures, and 80th percentile breathing rates for child and adult exposures. For children at schools and daycare facilities, BAAQMD recommends using the 95th percentile 8-hour breathing rates. Additionally, CARB and the BAAQMD recommend the use of a residential exposure duration of 30 years for sources with long-term emissions (e.g., roadways). For workers, assumed to be adults,

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[26] 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.

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

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

a 25-year exposure period is recommended by the BAAQMD. For school children a 9-year exposure period is recommended by the BAAQMD.

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

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

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

Where:

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

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

Where:

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

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

The health risk parameters used in this evaluation are summarized as follows:

Parameter	Exposure Type →	Infant		Child	Adult
	Age Range →	**3rd Trimester**	**0<2**	**2 < 16**	**16 - 30**
DPM Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$		1.10E+00	1.10E+00	1.10E+00	1.10E+00
Daily Breathing Rate (L/kg-day) 80th Percentile Rate		273	758	572	261
Daily Breathing Rate (L/kg-day) 95th Percentile Rate		361	1,090	745	335
8-hour Breathing Rate (L/kg-8 hours) 95th Percentile Rate		-	1,200	520	240
Inhalation Absorption Factor		1	1	1	1
Averaging Time (years)		70	70	70	70
Exposure Duration (years)		0.25	2	14	14*
Exposure Frequency (days/year)		350	350	350	350*
Age Sensitivity Factor		10	10	3	1
Fraction of Time at Home (FAH)		0.85-1.0	0.85-1.0	0.72-1.0	0.73*

Non-Cancer Hazards

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

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

Annual $PM_{2.5}$ Concentrations

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

Attachment 2: CalEEMod Modeling Output

Construction Criteria Air Pollutants						
Unmitigated	ROG	NOX	PM10 Exhaust	PM2.5 Exhaust	**CO2e**	
Year	Tons				MT	
Construction Equipment						
2022	0.0933	0.9201	0.0449	0.0417	120.4752	
2023	2.2417	1.5031	0.0733	0.0689	247.7678	
EMFAC						
2022	0.02	0.10	0.01	0.00	65.05	
2023	0.04	0.26	0.02	0.01	173.82	
Total Construction Emissions by Year						
2022	0.11	1.02	0.05	0.05	185.53	
2023	2.28	1.76	0.09	0.08	421.59	
	Total Construction Emissions					
Tons	2.39	2.77	0.14	0.12	607.12	
Pounds/Workdays	*Average Daily Emissions*				Workdays	
2022	2.51	23.35	1.19	1.04		**87**
2023	19.52	15.03	0.79	0.67		**234**
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		
	Total Construction Emissions					
Pounds	22.03	38.38	1.98	1.72	0.00	
Average	14.91	17.29	0.90	0.77	0.00	321.00
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**		

Operational Criteria Air Pollutants				
Unmitigated	ROG	NOX	Total PM10	Total PM2.5
Year	Tons			
Total	1.82	0.40	0.55	0.14
	Existing Use Emissions			
Total	0.83	0.63	0.83	0.21
	Net Annual Operational Emissions			
Tons/year	0.98	-0.23	-0.28	-0.07
Threshold - Tons/year	**10.0**	**10.0**	**15.0**	**10.0**
	Average Daily Emissions			
Pounds Per Day	5.38	-1.27	-1.54	-0.38
Threshold - lbs/day	**54.0**	**54.0**	**82.0**	**54.0**

Category	**CO2e**			
	Project 2024	Existing	Project 2030	Existing
Area	2	0		
Energy	61	47		

Mobile	607	928		
Waste	29	34		
Water	12	2		
TOTAL	711	1011	0.00	0.00
Net GHG Emissions		-300		0.00
Service Population	207			
Per Capita Emissions		3		0.00

ITE Trip Generation Estimates Redevelopment of the former Palmer School Site

				Daily		AM Peak Hour						PM Peak Hour					
	ITE Land						Split		Trip				Split		Trip		
Land Use	Use Code	Size		Rate	Trips	Rate	In	Out	In	Out	Total	Rate	In	Out	In	Out	Total
Proposed Land Uses																	
Multifamily Housing (Mid-Rise)	**221**	**125**	Dwelling Units	5.44	680	0.36	26%	74%	12	33	45	0.44	61%	39%	34	21	55
Total Project Trips					**680**				**12**	**33**	**45**				**34**	**21**	**55**
Existing Land Uses																	
Private School (K-8)	**534**	**370**	Students	4.11	1,521	0.91	55%	45%	185	152	337	0.26	46%	54%	44	52	96
Total Existing Trips					**1,521**				**185**	**152**	**337**				**44**	**52**	**96**
Net Project Trips					**-841**				**-173**	**-119**	**-292**				**-10**	**-31**	**-41**

Source: ITE Trip Generation Manual, 10th Edition 2017

Palmer School Site Housing

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	1.39	Acre	0.00	60,330.60	0
Parking Lot	34.00	Space	0.00	13,600.00	0
City Park	2.12	Acre	0.00	92,129.40	0
Condo/Townhouse	125.00	Dwelling Unit	5.70	292,965.00	358

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
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 2020 rate

Land Use - Based on square footages provided on 5/12/2021 email. All acreage assigned to residential

Construction Phase - Added trenching

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - added trenching

Trips and VMT - added 129 asphalt to 227 building demo trips (356). Emfac2017 used for trip emissions

On-road Fugitive Dust -

Demolition - Asphalt = 98,000sf=1.000cy=1,306 tons added to Building = 50,000sf

Grading - Unexpected import/export of 1,000cy

Vehicle Trips - Trip rate provided is 5.44 trips/unit

Woodstoves - no hearth

Energy Use - No natural gas

Water And Wastewater - WTP treatment

Construction Off-road Equipment Mitigation - BMPs and Tier 4i >25hp

Area Mitigation -

Energy Mitigation - Meet CalGreen Title 24 energy efficiency standards

Water Mitigation - Minimum water conservation features

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	PhaseEndDate	11/9/2022	12/7/2022
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24NG	15,568.01	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	18.75	0.00
tblFireplaces	NumberNoFireplace	5.00	0.00
tblFireplaces	NumberWood	21.25	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	0.59	0.51
tblFleetMix	LDA	0.59	0.51
tblFleetMix	LDA	0.59	0.51
tblFleetMix	LDA	0.59	0.51

tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MHD	0.01	9.8074e-003
tblFleetMix	MHD	0.01	9.8074e-003

tblFleetMix	MHD	0.01	9.8074e-003
tblFleetMix	MHD	0.01	9.8074e-003
tblFleetMix	OBUS	1.6400e-003	7.5276e-004
tblFleetMix	OBUS	1.6400e-003	7.5276e-004
tblFleetMix	OBUS	1.6400e-003	7.5276e-004
tblFleetMix	OBUS	1.6400e-003	7.5276e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	1,000.00
tblLandUse	LandUseSquareFeet	60,548.40	60,330.60
tblLandUse	LandUseSquareFeet	92,347.20	92,129.40
tblLandUse	LandUseSquareFeet	125,000.00	292,965.00
tblLandUse	LotAcreage	1.39	0.00
tblLandUse	LotAcreage	0.31	0.00
tblLandUse	LotAcreage	2.12	0.00
tblLandUse	LotAcreage	7.81	5.70
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblTripsAndVMT	HaulingTripNumber	227.00	0.00
tblTripsAndVMT	HaulingTripNumber	250.00	0.00
tblTripsAndVMT	VendorTripNumber	41.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00

tblTripsAndVMT	WorkerTripNumber	160.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	0.00
tblTripsAndVMT	WorkerTripNumber	32.00	0.00
tblTripsAndVMT	WorkerTripNumber	32.00	0.00
tblTripsAndVMT	WorkerTripNumber	32.00	0.00
tblVehicleEF	HHD	0.41	0.23
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.08	6.8774e-008
tblVehicleEF	HHD	1.58	5.19
tblVehicleEF	HHD	0.84	0.78
tblVehicleEF	HHD	2.87	5.3549e-004
tblVehicleEF	HHD	4,335.05	834.77
tblVehicleEF	HHD	1,539.35	1,615.14
tblVehicleEF	HHD	8.78	0.01
tblVehicleEF	HHD	13.83	4.14
tblVehicleEF	HHD	1.90	1.88
tblVehicleEF	HHD	19.75	2.71
tblVehicleEF	HHD	7.9210e-003	2.3029e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	6.1930e-003	0.03
tblVehicleEF	HHD	9.4000e-005	3.8684e-007
tblVehicleEF	HHD	7.5790e-003	2.1975e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8110e-003	8.7968e-003
tblVehicleEF	HHD	5.9250e-003	0.02
tblVehicleEF	HHD	8.6000e-005	3.5568e-007
tblVehicleEF	HHD	7.6000e-005	9.3011e-005
tblVehicleEF	HHD	4.1410e-003	2.8185e-005
tblVehicleEF	HHD	0.41	0.33

tblVehicleEF	HHD	5.1000e-005	9.3011e-005
tblVehicleEF	HHD	0.09	0.02
tblVehicleEF	HHD	3.4400e-004	2.5266e-004
tblVehicleEF	HHD	0.07	3.7352e-007
tblVehicleEF	HHD	0.04	7.3159e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.3500e-004	1.0357e-007
tblVehicleEF	HHD	7.6000e-005	9.3011e-005
tblVehicleEF	HHD	4.1410e-003	2.8185e-005
tblVehicleEF	HHD	0.48	0.59
tblVehicleEF	HHD	5.1000e-005	9.3011e-005
tblVehicleEF	HHD	0.14	0.14
tblVehicleEF	HHD	3.4400e-004	2.5266e-004
tblVehicleEF	HHD	0.08	4.0895e-007
tblVehicleEF	LDA	3.2820e-003	2.1138e-003
tblVehicleEF	LDA	4.5120e-003	0.07
tblVehicleEF	LDA	0.48	0.66
tblVehicleEF	LDA	1.04	3.16
tblVehicleEF	LDA	229.87	262.11
tblVehicleEF	LDA	52.85	68.11
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.06	0.25
tblVehicleEF	LDA	0.04	7.0681e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.6840e-003	1.2180e-003
tblVehicleEF	LDA	2.2790e-003	2.0072e-003
tblVehicleEF	LDA	0.02	2.4738e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5520e-003	1.1214e-003
tblVehicleEF	LDA	2.0950e-003	1.8456e-003

tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	8.2620e-003	8.1269e-003
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.06	0.32
tblVehicleEF	LDA	2.3010e-003	2.5384e-003
tblVehicleEF	LDA	5.4600e-004	6.5971e-004
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.07	0.35
tblVehicleEF	LDT1	6.8390e-003	6.0626e-003
tblVehicleEF	LDT1	0.01	0.11
tblVehicleEF	LDT1	0.88	1.38
tblVehicleEF	LDT1	2.31	5.73
tblVehicleEF	LDT1	287.67	337.36
tblVehicleEF	LDT1	66.83	89.96
tblVehicleEF	LDT1	0.09	0.13
tblVehicleEF	LDT1	0.13	0.41
tblVehicleEF	LDT1	0.04	8.9033e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.0930e-003	1.8897e-003
tblVehicleEF	LDT1	2.9260e-003	3.0493e-003
tblVehicleEF	LDT1	0.02	3.1161e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.9260e-003	1.7391e-003
tblVehicleEF	LDT1	2.6900e-003	2.8038e-003

tblVehicleEF	LDT1	0.08	0.66
tblVehicleEF	LDT1	0.21	0.18
tblVehicleEF	LDT1	0.07	0.66
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.14	0.53
tblVehicleEF	LDT1	0.15	0.59
tblVehicleEF	LDT1	2.8860e-003	3.2675e-003
tblVehicleEF	LDT1	7.0800e-004	8.7134e-004
tblVehicleEF	LDT1	0.08	0.66
tblVehicleEF	LDT1	0.21	0.18
tblVehicleEF	LDT1	0.07	0.66
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.14	0.53
tblVehicleEF	LDT1	0.16	0.65
tblVehicleEF	LDT2	4.4150e-003	2.7271e-003
tblVehicleEF	LDT2	5.8360e-003	0.08
tblVehicleEF	LDT2	0.62	0.80
tblVehicleEF	LDT2	1.34	3.74
tblVehicleEF	LDT2	323.78	350.09
tblVehicleEF	LDT2	74.71	89.67
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	0.04	8.5318e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6770e-003	1.3349e-003
tblVehicleEF	LDT2	2.3140e-003	2.1137e-003
tblVehicleEF	LDT2	0.02	2.9861e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5420e-003	1.2282e-003
tblVehicleEF	LDT2	2.1270e-003	1.9435e-003

tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.10	0.08
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.22
tblVehicleEF	LDT2	0.08	0.39
tblVehicleEF	LDT2	3.2420e-003	3.3903e-003
tblVehicleEF	LDT2	7.6900e-004	8.6853e-004
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.10	0.08
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.22
tblVehicleEF	LDT2	0.09	0.43
tblVehicleEF	LHD1	4.9090e-003	5.0912e-003
tblVehicleEF	LHD1	0.02	8.5720e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.19
tblVehicleEF	LHD1	0.99	0.88
tblVehicleEF	LHD1	2.29	1.96
tblVehicleEF	LHD1	9.15	8.97
tblVehicleEF	LHD1	681.50	781.17
tblVehicleEF	LHD1	29.86	16.45
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.39	0.88
tblVehicleEF	LHD1	0.94	0.42
tblVehicleEF	LHD1	9.4400e-004	8.0443e-004
tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.6152e-003
tblVehicleEF	LHD1	0.02	0.02

tblVehicleEF	LHD1	8.5100e-004	2.0459e-004
tblVehicleEF	LHD1	9.0300e-004	7.6963e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5520e-003	2.4038e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.8200e-004	1.8812e-004
tblVehicleEF	LHD1	2.2690e-003	0.12
tblVehicleEF	LHD1	0.10	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3040e-003	0.12
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.31	0.17
tblVehicleEF	LHD1	0.23	0.11
tblVehicleEF	LHD1	9.1000e-005	8.7084e-005
tblVehicleEF	LHD1	6.6780e-003	7.6170e-003
tblVehicleEF	LHD1	3.4200e-004	1.6260e-004
tblVehicleEF	LHD1	2.2690e-003	0.12
tblVehicleEF	LHD1	0.10	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.3040e-003	0.12
tblVehicleEF	LHD1	0.15	0.13
tblVehicleEF	LHD1	0.31	0.17
tblVehicleEF	LHD1	0.26	0.12
tblVehicleEF	LHD2	3.0810e-003	2.8956e-003
tblVehicleEF	LHD2	7.0300e-003	7.5539e-003
tblVehicleEF	LHD2	5.6740e-003	0.01
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.59
tblVehicleEF	LHD2	1.02	1.05
tblVehicleEF	LHD2	14.17	14.29

tblVehicleEF	LHD2	700.23	830.46
tblVehicleEF	LHD2	22.53	8.78
tblVehicleEF	LHD2	0.10	0.11
tblVehicleEF	LHD2	0.77	1.02
tblVehicleEF	LHD2	0.40	0.22
tblVehicleEF	LHD2	1.2540e-003	1.4506e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.03
tblVehicleEF	LHD2	3.6400e-004	8.9420e-005
tblVehicleEF	LHD2	1.2000e-003	1.3878e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7050e-003	2.7041e-003
tblVehicleEF	LHD2	0.01	0.03
tblVehicleEF	LHD2	3.3500e-004	8.2219e-005
tblVehicleEF	LHD2	6.3300e-004	0.06
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	3.9400e-004	0.06
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	0.05	0.08
tblVehicleEF	LHD2	0.08	0.06
tblVehicleEF	LHD2	1.3800e-004	1.3667e-004
tblVehicleEF	LHD2	6.8040e-003	7.9880e-003
tblVehicleEF	LHD2	2.4300e-004	8.6836e-005
tblVehicleEF	LHD2	6.3300e-004	0.06
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.9400e-004	0.06
tblVehicleEF	LHD2	0.12	0.15

tblVehicleEF	LHD2	0.05	0.08
tblVehicleEF	LHD2	0.08	0.06
tblVehicleEF	MCY	0.46	0.18
tblVehicleEF	MCY	0.16	0.20
tblVehicleEF	MCY	19.70	14.15
tblVehicleEF	MCY	10.22	8.31
tblVehicleEF	MCY	173.46	190.32
tblVehicleEF	MCY	45.58	51.99
tblVehicleEF	MCY	1.16	0.62
tblVehicleEF	MCY	0.32	0.15
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.0890e-003	1.9048e-003
tblVehicleEF	MCY	3.6840e-003	3.5285e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9530e-003	1.7841e-003
tblVehicleEF	MCY	3.4690e-003	3.3220e-003
tblVehicleEF	MCY	0.88	4.35
tblVehicleEF	MCY	0.74	3.59
tblVehicleEF	MCY	0.55	4.35
tblVehicleEF	MCY	2.27	1.20
tblVehicleEF	MCY	0.60	3.82
tblVehicleEF	MCY	2.23	1.49
tblVehicleEF	MCY	2.1230e-003	1.8815e-003
tblVehicleEF	MCY	6.8900e-004	5.1399e-004
tblVehicleEF	MCY	0.88	0.11
tblVehicleEF	MCY	0.74	3.59
tblVehicleEF	MCY	0.55	0.11
tblVehicleEF	MCY	2.81	1.42

tblVehicleEF	MCY	0.60	3.82
tblVehicleEF	MCY	2.43	1.62
tblVehicleEF	MDV	8.6020e-003	4.0871e-003
tblVehicleEF	MDV	0.02	0.11
tblVehicleEF	MDV	0.97	0.99
tblVehicleEF	MDV	2.71	4.18
tblVehicleEF	MDV	443.89	427.69
tblVehicleEF	MDV	101.43	108.93
tblVehicleEF	MDV	0.12	0.11
tblVehicleEF	MDV	0.24	0.46
tblVehicleEF	MDV	0.04	8.7530e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.7420e-003	1.4324e-003
tblVehicleEF	MDV	2.3930e-003	2.2034e-003
tblVehicleEF	MDV	0.02	3.0635e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.6050e-003	1.3208e-003
tblVehicleEF	MDV	2.2000e-003	2.0260e-003
tblVehicleEF	MDV	0.06	0.39
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.07	0.39
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.10	0.30
tblVehicleEF	MDV	0.20	0.54
tblVehicleEF	MDV	4.4430e-003	4.1396e-003
tblVehicleEF	MDV	1.0620e-003	1.0551e-003
tblVehicleEF	MDV	0.06	0.39
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.07	0.39
tblVehicleEF	MDV	0.03	0.03

tblVehicleEF	MDV	0.10	0.30
tblVehicleEF	MDV	0.22	0.59
tblVehicleEF	MH	0.02	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.46	0.98
tblVehicleEF	MH	4.96	2.31
tblVehicleEF	MH	1,212.36	1,673.66
tblVehicleEF	MH	57.99	21.75
tblVehicleEF	MH	1.34	1.64
tblVehicleEF	MH	0.78	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	9.7500e-004	2.6960e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2290e-003	3.3152e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	8.9700e-004	2.4788e-004
tblVehicleEF	MH	0.68	30.74
tblVehicleEF	MH	0.06	8.06
tblVehicleEF	MH	0.27	30.74
tblVehicleEF	MH	0.08	0.08
tblVehicleEF	MH	0.02	0.19
tblVehicleEF	MH	0.29	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	6.6600e-004	2.1500e-004
tblVehicleEF	MH	0.68	30.74
tblVehicleEF	MH	0.06	8.06
tblVehicleEF	MH	0.27	30.74
tblVehicleEF	MH	0.10	0.10

tblVehicleEF	MH	0.02	0.19
tblVehicleEF	MH	0.32	0.12
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	4.4400e-003	0.01
tblVehicleEF	MHD	0.04	9.4058e-003
tblVehicleEF	MHD	0.37	0.69
tblVehicleEF	MHD	0.35	0.40
tblVehicleEF	MHD	5.47	1.17
tblVehicleEF	MHD	134.03	168.50
tblVehicleEF	MHD	1,189.25	1,228.53
tblVehicleEF	MHD	60.64	8.85
tblVehicleEF	MHD	0.38	0.98
tblVehicleEF	MHD	1.11	1.21
tblVehicleEF	MHD	10.23	1.42
tblVehicleEF	MHD	1.4100e-004	2.5039e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	3.2360e-003	0.01
tblVehicleEF	MHD	8.9200e-004	1.1375e-004
tblVehicleEF	MHD	1.3500e-004	2.3951e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	3.0890e-003	0.01
tblVehicleEF	MHD	8.2100e-004	1.0459e-004
tblVehicleEF	MHD	7.9700e-004	0.03
tblVehicleEF	MHD	0.04	7.4822e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	4.6600e-004	0.03
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.02	0.06

tblVehicleEF	MHD	0.33	0.05
tblVehicleEF	MHD	1.2910e-003	1.5655e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.0200e-004	8.7447e-005
tblVehicleEF	MHD	7.9700e-004	0.03
tblVehicleEF	MHD	0.04	7.4822e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	4.6600e-004	0.03
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.36	0.06
tblVehicleEF	OBUS	0.01	8.8755e-003
tblVehicleEF	OBUS	8.3020e-003	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.24	0.48
tblVehicleEF	OBUS	0.53	1.19
tblVehicleEF	OBUS	5.50	3.28
tblVehicleEF	OBUS	71.68	65.31
tblVehicleEF	OBUS	1,277.67	1,610.85
tblVehicleEF	OBUS	69.06	24.74
tblVehicleEF	OBUS	0.14	0.25
tblVehicleEF	OBUS	0.75	1.18
tblVehicleEF	OBUS	2.17	0.70
tblVehicleEF	OBUS	1.3000e-005	2.9301e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.3690e-003	0.02
tblVehicleEF	OBUS	8.6300e-004	2.1422e-004
tblVehicleEF	OBUS	1.2000e-005	2.8032e-004
tblVehicleEF	OBUS	0.06	0.02

tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	2.2410e-003	0.02
tblVehicleEF	OBUS	7.9300e-004	1.9697e-004
tblVehicleEF	OBUS	1.1280e-003	0.12
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.5800e-004	0.12
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.04	0.13
tblVehicleEF	OBUS	0.34	0.16
tblVehicleEF	OBUS	6.9600e-004	6.2282e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	7.8700e-004	2.4454e-004
tblVehicleEF	OBUS	1.1280e-003	0.12
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	5.5800e-004	0.12
tblVehicleEF	OBUS	0.05	0.12
tblVehicleEF	OBUS	0.04	0.13
tblVehicleEF	OBUS	0.37	0.17
tblVehicleEF	SBUS	0.87	0.07
tblVehicleEF	SBUS	6.1030e-003	0.12
tblVehicleEF	SBUS	0.06	2.8019e-003
tblVehicleEF	SBUS	2.09	1.29
tblVehicleEF	SBUS	0.40	0.65
tblVehicleEF	SBUS	1.33	0.39
tblVehicleEF	SBUS	1,440.18	181.28
tblVehicleEF	SBUS	1,240.06	1,039.92
tblVehicleEF	SBUS	10.45	2.41
tblVehicleEF	SBUS	13.22	1.22

tblVehicleEF	SBUS	4.78	2.19
tblVehicleEF	SBUS	19.18	0.53
tblVehicleEF	SBUS	0.01	9.3418e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.7600e-004	3.2171e-005
tblVehicleEF	SBUS	0.01	8.9253e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.9310e-003	2.7159e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.6200e-004	2.9580e-005
tblVehicleEF	SBUS	4.1200e-004	0.01
tblVehicleEF	SBUS	4.0500e-003	3.1391e-003
tblVehicleEF	SBUS	0.25	0.13
tblVehicleEF	SBUS	2.0500e-004	0.01
tblVehicleEF	SBUS	0.11	0.04
tblVehicleEF	SBUS	1.7590e-003	6.8625e-003
tblVehicleEF	SBUS	0.07	0.02
tblVehicleEF	SBUS	0.01	1.6174e-003
tblVehicleEF	SBUS	0.01	9.5373e-003
tblVehicleEF	SBUS	1.2700e-004	2.3818e-005
tblVehicleEF	SBUS	4.1200e-004	0.01
tblVehicleEF	SBUS	4.0500e-003	3.1391e-003
tblVehicleEF	SBUS	0.34	0.23
tblVehicleEF	SBUS	2.0500e-004	0.01
tblVehicleEF	SBUS	0.13	0.17
tblVehicleEF	SBUS	1.7590e-003	6.8625e-003
tblVehicleEF	SBUS	0.07	0.02
tblVehicleEF	UBUS	0.24	0.28

tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.04	3.32
tblVehicleEF	UBUS	11.74	2.23
tblVehicleEF	UBUS	1,955.59	1,281.51
tblVehicleEF	UBUS	151.51	21.04
tblVehicleEF	UBUS	5.66	0.29
tblVehicleEF	UBUS	12.20	0.22
tblVehicleEF	UBUS	0.49	0.12
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.11	5.2094e-003
tblVehicleEF	UBUS	1.3120e-003	1.5137e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	7.6342e-003
tblVehicleEF	UBUS	0.10	4.9755e-003
tblVehicleEF	UBUS	1.2060e-003	1.3918e-004
tblVehicleEF	UBUS	4.9640e-003	0.04
tblVehicleEF	UBUS	0.09	0.01
tblVehicleEF	UBUS	2.7550e-003	0.04
tblVehicleEF	UBUS	0.38	0.05
tblVehicleEF	UBUS	0.02	0.03
tblVehicleEF	UBUS	0.98	0.11
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.7290e-003	2.0804e-004
tblVehicleEF	UBUS	4.9640e-003	0.04
tblVehicleEF	UBUS	0.09	0.01
tblVehicleEF	UBUS	2.7550e-003	0.04
tblVehicleEF	UBUS	0.65	0.34
tblVehicleEF	UBUS	0.02	0.03
tblVehicleEF	UBUS	1.08	0.12
tblVehicleTrips	ST_TR	22.75	0.00

tblVehicleTrips	ST_TR	5.67	5.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	4.84	5.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	5.81	5.44
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	NumberCatalytic	2.50	0.00
tblWoodstoves	NumberNoncatalytic	2.50	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	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					

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
2022	0.0933	0.9201	0.7599	1.3700e-003	0.1806	0.0449	0.2254	0.0871	0.0417	0.1288	0.0000	119.6339	119.6339	0.0337	0.0000	120.4752
2023	2.2417	1.5031	1.7315	2.8600e-003	0.0000	0.0733	0.0733	0.0000	0.0689	0.0689	0.0000	246.2717	246.2717	0.0598	0.0000	247.7678
Maximum	**2.2417**	**1.5031**	**1.7315**	**2.8600e-003**	**0.1806**	**0.0733**	**0.2254**	**0.0871**	**0.0689**	**0.1288**	**0.0000**	**246.2717**	**246.2717**	**0.0598**	**0.0000**	**247.7678**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0244	0.5016	0.8821	1.3700e-003	0.0813	2.9800e-003	0.0842	0.0392	2.9800e-003	0.0422	0.0000	119.6337	119.6337	0.0337	0.0000	120.4750
2023	2.1331	1.1640	1.9161	2.8600e-003	0.0000	8.5800e-003	8.5800e-003	0.0000	8.5800e-003	8.5800e-003	0.0000	246.2714	246.2714	0.0598	0.0000	247.7675
Maximum	**2.1331**	**1.1640**	**1.9161**	**2.8600e-003**	**0.0813**	**8.5800e-003**	**0.0842**	**0.0392**	**8.5800e-003**	**0.0422**	**0.0000**	**246.2714**	**246.2714**	**0.0598**	**0.0000**	**247.7675**

	ROG	**NOx**	**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	**7.60**	**31.26**	**-12.32**	**0.00**	**55.00**	**90.22**	**68.93**	**55.00**	**89.55**	**74.34**	**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	**9-1-2022**	**11-30-2022**	0.8228	0.4001
2	**12-1-2022**	**2-28-2023**	0.5280	0.3679
3	**3-1-2023**	**5-31-2023**	0.5243	0.3761
4	**6-1-2023**	**8-31-2023**	0.5243	0.3761
5	**9-1-2023**	**9-30-2023**	0.1659	0.1215
		Highest	0.8228	0.4001

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	1.3855	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	60.5283	60.5283	8.3600e-003	1.7300e-003	61.2527
Mobile	0.4304	0.3891	2.4071	6.4300e-003	0.5354	5.2800e-003	0.5407	0.1338	4.9500e-003	0.1387	0.0000	606.6719	606.6719	0.0308	0.0000	607.4424
Waste						0.0000	0.0000		0.0000	0.0000	11.7085	0.0000	11.7085	0.6920	0.0000	29.0074
Water						0.0000	0.0000		0.0000	0.0000	2.8815	6.7516	9.6331	0.0109	6.4600e-003	11.8291
Total	**1.8159**	**0.3997**	**3.3352**	**6.4800e-003**	**0.5354**	**0.0104**	**0.5458**	**0.1338**	**0.0101**	**0.1439**	**14.5900**	**675.4686**	**690.0585**	**0.7434**	**8.1900e-003**	**711.0847**

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	1.3855	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	54.3586	54.3586	7.5100e-003	1.5500e-003	55.0091
Mobile	0.4304	0.3891	2.4071	6.4300e-003	0.5354	5.2800e-003	0.5407	0.1338	4.9500e-003	0.1387	0.0000	606.6719	606.6719	0.0308	0.0000	607.4424
Waste						0.0000	0.0000		0.0000	0.0000	11.7085	0.0000	11.7085	0.6920	0.0000	29.0074
Water						0.0000	0.0000		0.0000	0.0000	2.3052	5.7563	8.0614	8.7300e-003	5.1800e-003	9.8225
Total	**1.8159**	**0.3997**	**3.3352**	**6.4800e-003**	**0.5354**	**0.0104**	**0.5458**	**0.1338**	**0.0101**	**0.1439**	**14.0137**	**668.3035**	**682.3172**	**0.7405**	**6.7300e-003**	**702.8346**

	ROG	NOx	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	3.95	1.06	1.12	0.40	17.83	1.16

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	9/1/2022	9/28/2022	5	20	
2	Site Preparation	Site Preparation	9/29/2022	10/12/2022	5	10	
3	Grading	Grading	10/13/2022	11/9/2022	5	20	
4	Utilities	Trenching	11/10/2022	12/7/2022	5	20	
5	Building Construction	Building Construction	11/10/2022	9/27/2023	5	230	
6	Paving	Paving	9/28/2023	10/25/2023	5	20	
7	Architectural Coating	Architectural Coating	10/26/2023	11/22/2023	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 593,254; Residential Outdoor: 197,751; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41

Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
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
Demolition	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Utilities			0.00	0.00	10.80	7.30				
Building Construction	9	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0246	0.0000	0.0246	3.7300e-003	0.0000	3.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**0.0246**	**0.0124**	**0.0370**	**3.7300e-003**	**0.0116**	**0.0153**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0111	0.0000	0.0111	1.6800e-003	0.0000	1.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8400e-003	0.1356	0.2467	3.9000e-004		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**5.8400e-003**	**0.1356**	**0.2467**	**3.9000e-004**	**0.0111**	**6.2000e-004**	**0.0117**	**1.6800e-003**	**6.2000e-004**	**2.3000e-003**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	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
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0903**	**8.0600e-003**	**0.0984**	**0.0497**	**7.4200e-003**	**0.0571**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4800e-003	0.0608	0.1148	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**3.4800e-003**	**0.0608**	**0.1148**	**1.9000e-004**	**0.0407**	**3.1000e-004**	**0.0410**	**0.0223**	**3.1000e-004**	**0.0227**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

Mitigated Construction Off-Site

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

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0656	0.0000	0.0656	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654
Total	**0.0195**	**0.2086**	**0.1527**	**3.0000e-004**	**0.0656**	**9.4100e-003**	**0.0751**	**0.0337**	**8.6600e-003**	**0.0424**	**0.0000**	**26.0548**	**26.0548**	**8.4300e-003**	**0.0000**	**26.2654**

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					

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
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					0.0295	0.0000	0.0295	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.2000e-003	0.1033	0.1899	3.0000e-004		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654
Total	**5.2000e-003**	**0.1033**	**0.1899**	**3.0000e-004**	**0.0295**	**4.8000e-004**	**0.0300**	**0.0152**	**4.8000e-004**	**0.0156**	**0.0000**	**26.0547**	**26.0547**	**8.4300e-003**	**0.0000**	**26.2654**

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 Utilities - 2022

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
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
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
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**

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
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
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
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**

3.6 Building Construction - 2022

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	0.0316	0.2889	0.3027	5.0000e-004		0.0150	0.0150		0.0141	0.0141	0.0000	42.8692	42.8692	0.0103	0.0000	43.1259
Total	**0.0316**	**0.2889**	**0.3027**	**5.0000e-004**		**0.0150**	**0.0150**		**0.0141**	**0.0141**	**0.0000**	**42.8692**	**42.8692**	**0.0103**	**0.0000**	**43.1259**

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	9.8700e-003	0.2019	0.3307	5.0000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	42.8691	42.8691	0.0103	0.0000	43.1259

Total	9.8700e-003	0.2019	0.3307	5.0000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003	0.0000	42.8691	42.8691	0.0103	0.0000	43.1259

Mitigated Construction Off-Site

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

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1518	1.3881	1.5676	2.6000e-003		0.0675	0.0675		0.0635	0.0635	0.0000	223.6916	223.6916	0.0532	0.0000	225.0219
Total	**0.1518**	**1.3881**	**1.5676**	**2.6000e-003**		**0.0675**	**0.0675**		**0.0635**	**0.0635**	**0.0000**	**223.6916**	**223.6916**	**0.0532**	**0.0000**	**225.0219**

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	0.0515	1.0530	1.7248	2.6000e-003		8.1600e-003	8.1600e-003		8.1600e-003	8.1600e-003	0.0000	223.6913	223.6913	0.0532	0.0000	225.0216
Total	**0.0515**	**1.0530**	**1.7248**	**2.6000e-003**		**8.1600e-003**	**8.1600e-003**		**8.1600e-003**	**8.1600e-003**	**0.0000**	**223.6913**	**223.6913**	**0.0532**	**0.0000**	**225.0216**

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 Paving - 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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

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	3.3400e-003	0.1004	0.1730	2.3000e-004		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.3400e-003**	**0.1004**	**0.1730**	**2.3000e-004**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

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 - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.0777					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**2.0796**	**0.0130**	**0.0181**	**3.0000e-005**		**7.1000e-004**	**7.1000e-004**		**7.1000e-004**	**7.1000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	2.0777					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	5.4000e-004	0.0106	0.0183	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	**2.0783**	**0.0106**	**0.0183**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.5533**	**2.5533**	**1.5000e-004**	**0.0000**	**2.5571**

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	0.4304	0.3891	2.4071	6.4300e-003	0.5354	5.2800e-003	0.5407	0.1338	4.9500e-003	0.1387	0.0000	606.6719	606.6719	0.0308	0.0000	607.4424
Unmitigated	0.4304	0.3891	2.4071	6.4300e-003	0.5354	5.2800e-003	0.5407	0.1338	4.9500e-003	0.1387	0.0000	606.6719	606.6719	0.0308	0.0000	607.4424

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	680.00	680.00	680.00	1,570,533	1,570,533
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	680.00	680.00	680.00	1,570,533	1,570,533

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
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
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
City Park	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851
Condo/Townhouse	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851
Other Asphalt Surfaces	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851
Parking Lot	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	54.3586	54.3586	7.5100e-003	1.5500e-003	55.0091
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	60.5283	60.5283	8.3600e-003	1.7300e-003	61.2527
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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	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
Other Asphalt Surfaces	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
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		**0.0000**	**0.0000**	**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

	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	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
Other Asphalt Surfaces	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
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		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	630679	60.0749	8.3000e-003	1.7200e-003	60.7938
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	4760	0.4534	6.0000e-005	1.0000e-005	0.4588
Total		**60.5283**	**8.3600e-003**	**1.7300e-003**	**61.2527**

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	567336	54.0413	7.4600e-003	1.5400e-003	54.6879
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	3332	0.3174	4.0000e-005	1.0000e-005	0.3212
Total		**54.3586**	**7.5000e-003**	**1.5500e-003**	**55.0091**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	1.3855	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532
Unmitigated	1.3855	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532

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	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1498					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0279	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532
Total	**1.3855**	**0.0107**	**0.9281**	**5.0000e-005**		**5.1400e-003**	**5.1400e-003**		**5.1400e-003**	**5.1400e-003**	**0.0000**	**1.5168**	**1.5168**	**1.4600e-003**	**0.0000**	**1.5532**

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	0.2078					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.1498					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0279	0.0107	0.9281	5.0000e-005		5.1400e-003	5.1400e-003		5.1400e-003	5.1400e-003	0.0000	1.5168	1.5168	1.4600e-003	0.0000	1.5532
Total	**1.3855**	**0.0107**	**0.9281**	**5.0000e-005**		**5.1400e-003**	**5.1400e-003**		**5.1400e-003**	**5.1400e-003**	**0.0000**	**1.5168**	**1.5168**	**1.4600e-003**	**0.0000**	**1.5532**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	8.0614	8.7300e-003	5.1800e-003	9.8225
Unmitigated	9.6331	0.0109	6.4600e-003	11.8291

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 2.52594	0.8421	1.2000e-004	2.0000e-005	0.8522
Condo/Townhouse	8.14425 / 5.13442	8.7909	0.0107	6.4400e-003	10.9769
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**9.6331**	**0.0109**	**6.4600e-003**	**11.8291**

Mitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
City Park	0 / 2.37186	0.7908	1.1000e-004	2.0000e-005	0.8002
Condo/Townhouse	6.5154 / 4.82122	7.2707	8.6200e-003	5.1500e-003	9.0223
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**8.0614**	**8.7300e-003**	**5.1700e-003**	**9.8226**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.7085	0.6920	0.0000	29.0074
Unmitigated	11.7085	0.6920	0.0000	29.0074

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.18	0.0365	2.1600e-003	0.0000	0.0905
Condo/Townhouse	57.5	11.6720	0.6898	0.0000	28.9168
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.7085**	**0.6920**	**0.0000**	**29.0074**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.18	0.0365	2.1600e-003	0.0000	0.0905
Condo/Townhouse	57.5	11.6720	0.6898	0.0000	28.9168
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.7085**	**0.6920**	**0.0000**	**29.0074**

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

Palmer School - Private (K-8)

Contra Costa County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Elementary School	370.00	Student	5.70	30,933.25	0
Other Asphalt Surfaces	98.00	1000sqft	0.00	98,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
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 rate

Land Use - Students based on traffic data.

Construction Phase - No construction

Off-road Equipment - no construction

Vehicle Trips - Based on traffic

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	0.00
tblFleetMix	HHD	0.03	0.02
tblFleetMix	HHD	0.03	0.02
tblFleetMix	LDA	0.59	0.51
tblFleetMix	LDA	0.59	0.51
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LDT2	0.18	0.23
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD1	0.01	0.03
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	LHD2	4.9730e-003	6.6880e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MCY	5.3010e-003	3.7167e-003
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MDV	0.12	0.14
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MH	7.7100e-004	8.5110e-004
tblFleetMix	MHD	0.01	9.8074e-003
tblFleetMix	MHD	0.01	9.8074e-003
tblFleetMix	OBUS	1.6400e-003	7.5276e-004

tblFleetMix	OBUS	1.6400e-003	7.5276e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	SBUS	2.7150e-003	5.2702e-004
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblFleetMix	UBUS	1.7060e-003	1.0699e-003
tblLandUse	LotAcreage	0.71	5.70
tblLandUse	LotAcreage	2.25	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210
tblTripsAndVMT	WorkerTripNumber	0.00	18.00
tblVehicleEF	HHD	0.41	0.23
tblVehicleEF	HHD	0.04	0.12
tblVehicleEF	HHD	0.08	6.8774e-008
tblVehicleEF	HHD	1.58	5.19
tblVehicleEF	HHD	0.84	0.78
tblVehicleEF	HHD	2.87	5.3549e-004
tblVehicleEF	HHD	4,335.05	834.77
tblVehicleEF	HHD	1,539.35	1,615.14
tblVehicleEF	HHD	8.78	0.01
tblVehicleEF	HHD	13.83	4.14
tblVehicleEF	HHD	1.90	1.88
tblVehicleEF	HHD	19.75	2.71
tblVehicleEF	HHD	7.9210e-003	2.3029e-003
tblVehicleEF	HHD	0.06	0.08
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	6.1930e-003	0.03
tblVehicleEF	HHD	9.4000e-005	3.8684e-007
tblVehicleEF	HHD	7.5790e-003	2.1975e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8110e-003	8.7968e-003
tblVehicleEF	HHD	5.9250e-003	0.02
tblVehicleEF	HHD	8.6000e-005	3.5568e-007
tblVehicleEF	HHD	7.6000e-005	9.3011e-005
tblVehicleEF	HHD	4.1410e-003	2.8185e-005
tblVehicleEF	HHD	0.41	0.33
tblVehicleEF	HHD	5.1000e-005	9.3011e-005
tblVehicleEF	HHD	0.09	0.02
tblVehicleEF	HHD	3.4400e-004	2.5266e-004
tblVehicleEF	HHD	0.07	3.7352e-007
tblVehicleEF	HHD	0.04	7.3159e-003
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	1.3500e-004	1.0357e-007
tblVehicleEF	HHD	7.6000e-005	9.3011e-005
tblVehicleEF	HHD	4.1410e-003	2.8185e-005
tblVehicleEF	HHD	0.48	0.59
tblVehicleEF	HHD	5.1000e-005	9.3011e-005
tblVehicleEF	HHD	0.14	0.14
tblVehicleEF	HHD	3.4400e-004	2.5266e-004
tblVehicleEF	HHD	0.08	4.0895e-007
tblVehicleEF	LDA	3.2820e-003	2.1138e-003

tblVehicleEF	LDA	4.5120e-003	0.07
tblVehicleEF	LDA	0.48	0.66
tblVehicleEF	LDA	1.04	3.16
tblVehicleEF	LDA	229.87	262.11
tblVehicleEF	LDA	52.85	68.11
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.06	0.25
tblVehicleEF	LDA	0.04	7.0681e-003
tblVehicleEF	LDA	8.0000e-003	8.0000e-003
tblVehicleEF	LDA	1.6840e-003	1.2180e-003
tblVehicleEF	LDA	2.2790e-003	2.0072e-003
tblVehicleEF	LDA	0.02	2.4738e-003
tblVehicleEF	LDA	2.0000e-003	2.0000e-003
tblVehicleEF	LDA	1.5520e-003	1.1214e-003
tblVehicleEF	LDA	2.0950e-003	1.8456e-003
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	8.2620e-003	8.1269e-003
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.06	0.32
tblVehicleEF	LDA	2.3010e-003	2.5384e-003
tblVehicleEF	LDA	5.4600e-004	6.5971e-004
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.09	0.09
tblVehicleEF	LDA	0.03	0.31
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.03	0.23
tblVehicleEF	LDA	0.07	0.35
tblVehicleEF	LDT1	6.8390e-003	6.0626e-003
tblVehicleEF	LDT1	0.01	0.11
tblVehicleEF	LDT1	0.88	1.38
tblVehicleEF	LDT1	2.31	5.73
tblVehicleEF	LDT1	287.67	337.36
tblVehicleEF	LDT1	66.83	89.96
tblVehicleEF	LDT1	0.09	0.13
tblVehicleEF	LDT1	0.13	0.41
tblVehicleEF	LDT1	0.04	8.9033e-003
tblVehicleEF	LDT1	8.0000e-003	8.0000e-003
tblVehicleEF	LDT1	2.0930e-003	1.8897e-003
tblVehicleEF	LDT1	2.9260e-003	3.0493e-003
tblVehicleEF	LDT1	0.02	3.1161e-003
tblVehicleEF	LDT1	2.0000e-003	2.0000e-003
tblVehicleEF	LDT1	1.9260e-003	1.7391e-003
tblVehicleEF	LDT1	2.6900e-003	2.8038e-003
tblVehicleEF	LDT1	0.08	0.66
tblVehicleEF	LDT1	0.21	0.18
tblVehicleEF	LDT1	0.07	0.66
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.14	0.53
tblVehicleEF	LDT1	0.15	0.59

tblVehicleEF	LDT1	2.8860e-003	3.2675e-003
tblVehicleEF	LDT1	7.0800e-004	8.7134e-004
tblVehicleEF	LDT1	0.08	0.66
tblVehicleEF	LDT1	0.21	0.18
tblVehicleEF	LDT1	0.07	0.66
tblVehicleEF	LDT1	0.02	0.04
tblVehicleEF	LDT1	0.14	0.53
tblVehicleEF	LDT1	0.16	0.65
tblVehicleEF	LDT2	4.4150e-003	2.7271e-003
tblVehicleEF	LDT2	5.8360e-003	0.08
tblVehicleEF	LDT2	0.62	0.80
tblVehicleEF	LDT2	1.34	3.74
tblVehicleEF	LDT2	323.78	350.09
tblVehicleEF	LDT2	74.71	89.67
tblVehicleEF	LDT2	0.06	0.07
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	0.04	8.5318e-003
tblVehicleEF	LDT2	8.0000e-003	8.0000e-003
tblVehicleEF	LDT2	1.6770e-003	1.3349e-003
tblVehicleEF	LDT2	2.3140e-003	2.1137e-003
tblVehicleEF	LDT2	0.02	2.9861e-003
tblVehicleEF	LDT2	2.0000e-003	2.0000e-003
tblVehicleEF	LDT2	1.5420e-003	1.2282e-003
tblVehicleEF	LDT2	2.1270e-003	1.9435e-003
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.10	0.08
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.06	0.22
tblVehicleEF	LDT2	0.08	0.39
tblVehicleEF	LDT2	3.2420e-003	3.3903e-003
tblVehicleEF	LDT2	7.6900e-004	8.6853e-004
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.10	0.08
tblVehicleEF	LDT2	0.04	0.30
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.22
tblVehicleEF	LDT2	0.09	0.43
tblVehicleEF	LHD1	4.9090e-003	5.0912e-003
tblVehicleEF	LHD1	0.02	8.5720e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.19
tblVehicleEF	LHD1	0.99	0.88
tblVehicleEF	LHD1	2.29	1.96
tblVehicleEF	LHD1	9.15	8.97
tblVehicleEF	LHD1	681.50	781.17
tblVehicleEF	LHD1	29.86	16.45
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	1.39	0.88
tblVehicleEF	LHD1	0.94	0.42
tblVehicleEF	LHD1	9.4400e-004	8.0443e-004

tblVehicleEF	LHD1	0.08	0.08
tblVehicleEF	LHD1	0.01	9.6152e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	8.5100e-004	2.0459e-004
tblVehicleEF	LHD1	9.0300e-004	7.6963e-004
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	2.5520e-003	2.4038e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	7.8200e-004	1.8812e-004
tblVehicleEF	LHD1	2.2690e-003	0.12
tblVehicleEF	LHD1	0.10	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.3040e-003	0.12
tblVehicleEF	LHD1	0.13	0.10
tblVehicleEF	LHD1	0.31	0.17
tblVehicleEF	LHD1	0.23	0.11
tblVehicleEF	LHD1	9.1000e-005	8.7084e-005
tblVehicleEF	LHD1	6.6780e-003	7.6170e-003
tblVehicleEF	LHD1	3.4200e-004	1.6260e-004
tblVehicleEF	LHD1	2.2690e-003	0.12
tblVehicleEF	LHD1	0.10	0.03
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.3040e-003	0.12
tblVehicleEF	LHD1	0.15	0.13
tblVehicleEF	LHD1	0.31	0.17
tblVehicleEF	LHD1	0.26	0.12
tblVehicleEF	LHD2	3.0810e-003	2.8956e-003
tblVehicleEF	LHD2	7.0300e-003	7.5539e-003
tblVehicleEF	LHD2	5.6740e-003	0.01
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.56	0.59
tblVehicleEF	LHD2	1.02	1.05
tblVehicleEF	LHD2	14.17	14.29
tblVehicleEF	LHD2	700.23	830.46
tblVehicleEF	LHD2	22.53	8.78
tblVehicleEF	LHD2	0.10	0.11
tblVehicleEF	LHD2	0.77	1.02
tblVehicleEF	LHD2	0.40	0.22
tblVehicleEF	LHD2	1.2540e-003	1.4506e-003
tblVehicleEF	LHD2	0.09	0.09
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.03
tblVehicleEF	LHD2	3.6400e-004	8.9420e-005
tblVehicleEF	LHD2	1.2000e-003	1.3878e-003
tblVehicleEF	LHD2	0.04	0.03
tblVehicleEF	LHD2	2.7050e-003	2.7041e-003
tblVehicleEF	LHD2	0.01	0.03
tblVehicleEF	LHD2	3.3500e-004	8.2219e-005
tblVehicleEF	LHD2	6.3300e-004	0.06
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	0.01	0.02

tblVehicleEF	LHD2	3.9400e-004	0.06
tblVehicleEF	LHD2	0.11	0.13
tblVehicleEF	LHD2	0.05	0.08
tblVehicleEF	LHD2	0.08	0.06
tblVehicleEF	LHD2	1.3800e-004	1.3667e-004
tblVehicleEF	LHD2	6.8040e-003	7.9880e-003
tblVehicleEF	LHD2	2.4300e-004	8.6836e-005
tblVehicleEF	LHD2	6.3300e-004	0.06
tblVehicleEF	LHD2	0.03	0.02
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.9400e-004	0.06
tblVehicleEF	LHD2	0.12	0.15
tblVehicleEF	LHD2	0.05	0.08
tblVehicleEF	LHD2	0.08	0.06
tblVehicleEF	MCY	0.46	0.18
tblVehicleEF	MCY	0.16	0.20
tblVehicleEF	MCY	19.70	14.15
tblVehicleEF	MCY	10.22	8.31
tblVehicleEF	MCY	173.46	190.32
tblVehicleEF	MCY	45.58	51.99
tblVehicleEF	MCY	1.16	0.62
tblVehicleEF	MCY	0.32	0.15
tblVehicleEF	MCY	0.01	0.01
tblVehicleEF	MCY	4.0000e-003	4.0000e-003
tblVehicleEF	MCY	2.0890e-003	1.9048e-003
tblVehicleEF	MCY	3.6840e-003	3.5285e-003
tblVehicleEF	MCY	5.0400e-003	4.2000e-003
tblVehicleEF	MCY	1.0000e-003	1.0000e-003
tblVehicleEF	MCY	1.9530e-003	1.7841e-003
tblVehicleEF	MCY	3.4690e-003	3.3220e-003
tblVehicleEF	MCY	0.88	4.35
tblVehicleEF	MCY	0.74	3.59
tblVehicleEF	MCY	0.55	4.35
tblVehicleEF	MCY	2.27	1.20
tblVehicleEF	MCY	0.60	3.82
tblVehicleEF	MCY	2.23	1.49
tblVehicleEF	MCY	2.1230e-003	1.8815e-003
tblVehicleEF	MCY	6.8900e-004	5.1399e-004
tblVehicleEF	MCY	0.88	0.11
tblVehicleEF	MCY	0.74	3.59
tblVehicleEF	MCY	0.55	0.11
tblVehicleEF	MCY	2.81	1.42
tblVehicleEF	MCY	0.60	3.82
tblVehicleEF	MCY	2.43	1.62
tblVehicleEF	MDV	8.6020e-003	4.0871e-003
tblVehicleEF	MDV	0.02	0.11
tblVehicleEF	MDV	0.97	0.99
tblVehicleEF	MDV	2.71	4.18
tblVehicleEF	MDV	443.89	427.69
tblVehicleEF	MDV	101.43	108.93
tblVehicleEF	MDV	0.12	0.11

tblVehicleEF	MDV	0.24	0.46
tblVehicleEF	MDV	0.04	8.7530e-003
tblVehicleEF	MDV	8.0000e-003	8.0000e-003
tblVehicleEF	MDV	1.7420e-003	1.4324e-003
tblVehicleEF	MDV	2.3930e-003	2.2034e-003
tblVehicleEF	MDV	0.02	3.0635e-003
tblVehicleEF	MDV	2.0000e-003	2.0000e-003
tblVehicleEF	MDV	1.6050e-003	1.3208e-003
tblVehicleEF	MDV	2.2000e-003	2.0260e-003
tblVehicleEF	MDV	0.06	0.39
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.07	0.39
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.10	0.30
tblVehicleEF	MDV	0.20	0.54
tblVehicleEF	MDV	4.4430e-003	4.1396e-003
tblVehicleEF	MDV	1.0620e-003	1.0551e-003
tblVehicleEF	MDV	0.06	0.39
tblVehicleEF	MDV	0.18	0.11
tblVehicleEF	MDV	0.07	0.39
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.10	0.30
tblVehicleEF	MDV	0.22	0.59
tblVehicleEF	MH	0.02	0.01
tblVehicleEF	MH	0.02	0.03
tblVehicleEF	MH	1.46	0.98
tblVehicleEF	MH	4.96	2.31
tblVehicleEF	MH	1,212.36	1,673.66
tblVehicleEF	MH	57.99	21.75
tblVehicleEF	MH	1.34	1.64
tblVehicleEF	MH	0.78	0.30
tblVehicleEF	MH	0.13	0.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.03	0.04
tblVehicleEF	MH	9.7500e-004	2.6960e-004
tblVehicleEF	MH	0.06	0.02
tblVehicleEF	MH	3.2290e-003	3.3152e-003
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	8.9700e-004	2.4788e-004
tblVehicleEF	MH	0.68	30.74
tblVehicleEF	MH	0.06	8.06
tblVehicleEF	MH	0.27	30.74
tblVehicleEF	MH	0.08	0.08
tblVehicleEF	MH	0.02	0.19
tblVehicleEF	MH	0.29	0.11
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	6.6600e-004	2.1500e-004
tblVehicleEF	MH	0.68	30.74
tblVehicleEF	MH	0.06	8.06
tblVehicleEF	MH	0.27	30.74
tblVehicleEF	MH	0.10	0.10

tblVehicleEF	MH	0.02	0.19
tblVehicleEF	MH	0.32	0.12
tblVehicleEF	MHD	0.02	0.01
tblVehicleEF	MHD	4.4400e-003	0.01
tblVehicleEF	MHD	0.04	9.4058e-003
tblVehicleEF	MHD	0.37	0.69
tblVehicleEF	MHD	0.35	0.40
tblVehicleEF	MHD	5.47	1.17
tblVehicleEF	MHD	134.03	168.50
tblVehicleEF	MHD	1,189.25	1,228.53
tblVehicleEF	MHD	60.64	8.85
tblVehicleEF	MHD	0.38	0.98
tblVehicleEF	MHD	1.11	1.21
tblVehicleEF	MHD	10.23	1.42
tblVehicleEF	MHD	1.4100e-004	2.5039e-003
tblVehicleEF	MHD	0.13	0.05
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	3.2360e-003	0.01
tblVehicleEF	MHD	8.9200e-004	1.1375e-004
tblVehicleEF	MHD	1.3500e-004	2.3951e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	3.0000e-003	3.0000e-003
tblVehicleEF	MHD	3.0890e-003	0.01
tblVehicleEF	MHD	8.2100e-004	1.0459e-004
tblVehicleEF	MHD	7.9700e-004	0.03
tblVehicleEF	MHD	0.04	7.4822e-003
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	4.6600e-004	0.03
tblVehicleEF	MHD	0.04	0.04
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.33	0.05
tblVehicleEF	MHD	1.2910e-003	1.5655e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	7.0200e-004	8.7447e-005
tblVehicleEF	MHD	7.9700e-004	0.03
tblVehicleEF	MHD	0.04	7.4822e-003
tblVehicleEF	MHD	0.04	0.05
tblVehicleEF	MHD	4.6600e-004	0.03
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	0.02	0.06
tblVehicleEF	MHD	0.36	0.06
tblVehicleEF	OBUS	0.01	8.8755e-003
tblVehicleEF	OBUS	8.3020e-003	0.01
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.24	0.48
tblVehicleEF	OBUS	0.53	1.19
tblVehicleEF	OBUS	5.50	3.28
tblVehicleEF	OBUS	71.68	65.31
tblVehicleEF	OBUS	1,277.67	1,610.85
tblVehicleEF	OBUS	69.06	24.74
tblVehicleEF	OBUS	0.14	0.25

tblVehicleEF	OBUS	0.75	1.18
tblVehicleEF	OBUS	2.17	0.70
tblVehicleEF	OBUS	1.3000e-005	2.9301e-004
tblVehicleEF	OBUS	0.13	0.05
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	2.3690e-003	0.02
tblVehicleEF	OBUS	8.6300e-004	2.1422e-004
tblVehicleEF	OBUS	1.2000e-005	2.8032e-004
tblVehicleEF	OBUS	0.06	0.02
tblVehicleEF	OBUS	3.0000e-003	3.0000e-003
tblVehicleEF	OBUS	2.2410e-003	0.02
tblVehicleEF	OBUS	7.9300e-004	1.9697e-004
tblVehicleEF	OBUS	1.1280e-003	0.12
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	5.5800e-004	0.12
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.04	0.13
tblVehicleEF	OBUS	0.34	0.16
tblVehicleEF	OBUS	6.9600e-004	6.2282e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	7.8700e-004	2.4454e-004
tblVehicleEF	OBUS	1.1280e-003	0.12
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	5.5800e-004	0.12
tblVehicleEF	OBUS	0.05	0.12
tblVehicleEF	OBUS	0.04	0.13
tblVehicleEF	OBUS	0.37	0.17
tblVehicleEF	SBUS	0.87	0.07
tblVehicleEF	SBUS	6.1030e-003	0.12
tblVehicleEF	SBUS	0.06	2.8019e-003
tblVehicleEF	SBUS	2.09	1.29
tblVehicleEF	SBUS	0.40	0.65
tblVehicleEF	SBUS	1.33	0.39
tblVehicleEF	SBUS	1,440.18	181.28
tblVehicleEF	SBUS	1,240.06	1,039.92
tblVehicleEF	SBUS	10.45	2.41
tblVehicleEF	SBUS	13.22	1.22
tblVehicleEF	SBUS	4.78	2.19
tblVehicleEF	SBUS	19.18	0.53
tblVehicleEF	SBUS	0.01	9.3418e-004
tblVehicleEF	SBUS	0.74	0.04
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.7600e-004	3.2171e-005
tblVehicleEF	SBUS	0.01	8.9253e-004
tblVehicleEF	SBUS	0.32	0.02
tblVehicleEF	SBUS	2.9310e-003	2.7159e-003
tblVehicleEF	SBUS	0.03	0.01
tblVehicleEF	SBUS	1.6200e-004	2.9580e-005

tblVehicleEF	SBUS	4.1200e-004	0.01
tblVehicleEF	SBUS	4.0500e-003	3.1391e-003
tblVehicleEF	SBUS	0.25	0.13
tblVehicleEF	SBUS	2.0500e-004	0.01
tblVehicleEF	SBUS	0.11	0.04
tblVehicleEF	SBUS	1.7590e-003	6.8625e-003
tblVehicleEF	SBUS	0.07	0.02
tblVehicleEF	SBUS	0.01	1.6174e-003
tblVehicleEF	SBUS	0.01	9.5373e-003
tblVehicleEF	SBUS	1.2700e-004	2.3818e-005
tblVehicleEF	SBUS	4.1200e-004	0.01
tblVehicleEF	SBUS	4.0500e-003	3.1391e-003
tblVehicleEF	SBUS	0.34	0.23
tblVehicleEF	SBUS	2.0500e-004	0.01
tblVehicleEF	SBUS	0.13	0.17
tblVehicleEF	SBUS	1.7590e-003	6.8625e-003
tblVehicleEF	SBUS	0.07	0.02
tblVehicleEF	UBUS	0.24	0.28
tblVehicleEF	UBUS	0.07	0.03
tblVehicleEF	UBUS	4.04	3.32
tblVehicleEF	UBUS	11.74	2.23
tblVehicleEF	UBUS	1,955.59	1,281.51
tblVehicleEF	UBUS	151.51	21.04
tblVehicleEF	UBUS	5.66	0.29
tblVehicleEF	UBUS	12.20	0.22
tblVehicleEF	UBUS	0.49	0.12
tblVehicleEF	UBUS	0.01	0.03
tblVehicleEF	UBUS	0.11	5.2094e-003
tblVehicleEF	UBUS	1.3120e-003	1.5137e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	7.6342e-003
tblVehicleEF	UBUS	0.10	4.9755e-003
tblVehicleEF	UBUS	1.2060e-003	1.3918e-004
tblVehicleEF	UBUS	4.9640e-003	0.04
tblVehicleEF	UBUS	0.09	0.01
tblVehicleEF	UBUS	2.7550e-003	0.04
tblVehicleEF	UBUS	0.38	0.05
tblVehicleEF	UBUS	0.02	0.03
tblVehicleEF	UBUS	0.98	0.11
tblVehicleEF	UBUS	0.02	0.01
tblVehicleEF	UBUS	1.7290e-003	2.0804e-004
tblVehicleEF	UBUS	4.9640e-003	0.04
tblVehicleEF	UBUS	0.09	0.01
tblVehicleEF	UBUS	2.7550e-003	0.04
tblVehicleEF	UBUS	0.65	0.34
tblVehicleEF	UBUS	0.02	0.03
tblVehicleEF	UBUS	1.08	0.12
tblVehicleTrips	WD_TR	1.29	4.11

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1457	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003
Energy	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	46.3210	46.3210	2.7800e-003	1.0100e-003	46.6919
Mobile	0.6850	0.6029	3.7409	9.8200e-003	0.8165	8.0900e-003	0.8246	0.2040	7.5900e-003	0.2116	0.0000	926.8933	926.8933	0.0485	0.0000	928.1052
Waste						0.0000	0.0000		0.0000	0.0000	13.7060	0.0000	13.7060	0.8100	0.0000	33.9559
Water						0.0000	0.0000		0.0000	0.0000	0.2846	1.2313	1.5159	0.0294	7.3000e-004	2.4669
Total	**0.8338**	**0.6309**	**3.7687**	**9.9900e-003**	**0.8165**	**0.0102**	**0.8268**	**0.2040**	**9.7400e-003**	**0.2137**	**13.9905**	**974.4540**	**988.4445**	**0.8907**	**1.7400e-003**	**1,011.2289**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1457	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003
Energy	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	46.3210	46.3210	2.7800e-003	1.0100e-003	46.6919
Mobile	0.6850	0.6029	3.7409	9.8200e-003	0.8165	8.0900e-003	0.8246	0.2040	7.5900e-003	0.2116	0.0000	926.8933	926.8933	0.0485	0.0000	928.1052
Waste						0.0000	0.0000		0.0000	0.0000	13.7060	0.0000	13.7060	0.8100	0.0000	33.9559
Water						0.0000	0.0000		0.0000	0.0000	0.2846	1.2313	1.5159	0.0294	7.3000e-004	2.4669
Total	**0.8338**	**0.6309**	**3.7687**	**9.9900e-003**	**0.8165**	**0.0102**	**0.8268**	**0.2040**	**9.7400e-003**	**0.2137**	**13.9905**	**974.4540**	**988.4445**	**0.8907**	**1.7400e-003**	**1,011.2289**

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6850	0.6029	3.7409	9.8200e-003	0.8165	8.0900e-003	0.8246	0.2040	7.5900e-003	0.2116	0.0000	926.8933	926.8933	0.0485	0.0000	928.1052
Unmitigated	0.6850	0.6029	3.7409	9.8200e-003	0.8165	8.0900e-003	0.8246	0.2040	7.5900e-003	0.2116	0.0000	926.8933	926.8933	0.0485	0.0000	928.1052

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Elementary School	1,520.70	0.00	0.00	2,395,036	2,395,036
Other Asphalt Surfaces	0.00	0.00	0.00		
Total	1,520.70	0.00	0.00	2,395,036	2,395,036

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Elementary School	9.50	7.30	7.30	65.00	30.00	5.00	63	25	12
Other Asphalt Surfaces	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
Elementary School	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851
Other Asphalt Surfaces	0.508723	0.041426	0.232534	0.142470	0.028876	0.006688	0.009807	0.022559	0.000753	0.001070	0.003717	0.000527	0.000851

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	15.8818	15.8818	2.1900e-003	4.5000e-004	16.0718
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	15.8818	15.8818	2.1900e-003	4.5000e-004	16.0718
NaturalGas Mitigated	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	30.4392	30.4392	5.8000e-004	5.6000e-004	30.6201
NaturalGas Unmitigated	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	30.4392	30.4392	5.8000e-004	5.6000e-004	30.6201

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					
Elementary School	570409	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	30.4392	30.4392	5.8000e-004	5.6000e-004	30.6201
Other Asphalt Surfaces	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		**3.0800e-003**	**0.0280**	**0.0235**	**1.7000e-004**		**2.1300e-003**	**2.1300e-003**		**2.1300e-003**	**2.1300e-003**	**0.0000**	**30.4392**	**30.4392**	**5.8000e-004**	**5.6000e-004**	**30.6201**

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					
Elementary School	570409	3.0800e-003	0.0280	0.0235	1.7000e-004		2.1300e-003	2.1300e-003		2.1300e-003	2.1300e-003	0.0000	30.4392	30.4392	5.8000e-004	5.6000e-004	30.6201
Other Asphalt Surfaces	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		**3.0800e-003**	**0.0280**	**0.0235**	**1.7000e-004**		**2.1300e-003**	**2.1300e-003**		**2.1300e-003**	**2.1300e-003**	**0.0000**	**30.4392**	**30.4392**	**5.8000e-004**	**5.6000e-004**	**30.6201**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	166730	15.8818	2.1900e-003	4.5000e-004	16.0718
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**15.8818**	**2.1900e-003**	**4.5000e-004**	**16.0718**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Elementary School	166730	15.8818	2.1900e-003	4.5000e-004	16.0718
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**15.8818**	**2.1900e-003**	**4.5000e-004**	**16.0718**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1457	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003
Unmitigated	0.1457	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003

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	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003
Total	**0.1457**	**4.0000e-005**	**4.2900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.3600e-003**	**8.3600e-003**	**2.0000e-005**	**0.0000**	**8.9100e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0182					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1271					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-004	4.0000e-005	4.2900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.3600e-003	8.3600e-003	2.0000e-005	0.0000	8.9100e-003
Total	**0.1457**	**4.0000e-005**	**4.2900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.3600e-003**	**8.3600e-003**	**2.0000e-005**	**0.0000**	**8.9100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.5159	0.0294	7.3000e-004	2.4669
Unmitigated	1.5159	0.0294	7.3000e-004	2.4669

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.896969 / 2.30649	1.5159	0.0294	7.3000e-004	2.4669
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.5159**	**0.0294**	**7.3000e-004**	**2.4669**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Elementary School	0.896969 / 2.30649	1.5159	0.0294	7.3000e-004	2.4669
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**1.5159**	**0.0294**	**7.3000e-004**	**2.4669**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.7060	0.8100	0.0000	33.9559
Unmitigated	13.7060	0.8100	0.0000	33.9559

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	67.52	13.7060	0.8100	0.0000	33.9559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**13.7060**	**0.8100**	**0.0000**	**33.9559**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Elementary School	67.52	13.7060	0.8100	0.0000	33.9559
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**13.7060**	**0.8100**	**0.0000**	**33.9559**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Attachment 3: EMFAC2021 Calculations

CalEEMod EMFAC2021 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.44068	0.049464	0.196382	0.130085	0.001214	0.016138	0.001646	0.019684	0.001985	0.000769	0.010295	0.008499	0.123158

CalEEMod Construction Inputs

Phase	CalEEMod WORKER TRIPS	CalEEMod VENDOR TRIPS	Total Worker Trips	Total Vendor Trips	CalEEMod HAULING TRIPS	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	*Worker VMT*	*Vendor VMT*	*Hauling VMT*
Demolition	15	0	300	0	356	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	7120
Site Preparation	18	0	180	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1944	0	0
Grading	15	0	300	0	250	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	5000
Trenching	5	2	100	40	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	1080	292	0
Building Construction	160	41	36800	9430	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	397440	68839	0
Paving	15	0	300	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	3240	0	0
Architectural Coating	32	0	640	0	0	10.8	7.3	20	LD_Mix	HDT_Mix	HHDT	6912	0	0

Number of Days Per Year					
2021	9/1/22	12/31/22	122	87	
2022	1/1/23	11/22/23	326	234	
			448	**321**	***Total Workdays***

Phase	Start Date	End Date	Days/Week	Workdays
Demolition	9/1/2022	9/28/2022	5	20
Site Preparation	9/29/2022	10/12/2022	5	10
Grading	10/13/2022	11/9/2022	5	20
Trenching	10/13/2022	11/9/2022	5	20
Building Construction	11/10/2022	9/27/2023	5	230
Paving	9/28/2023	10/25/2023	5	20
Architectural Coating	10/26/2023	11/22/2023	5	20

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: Contra Costa (SF)
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips	Energy Co	NOx RUNI	NOx IDLE	NOx STRE
Contra Co:	2022	HHDT	Aggregate	Aggregate	Gasoline	0.94961	42.9131	42.9131	0	18.9998	0	14.7437	0	1.9531
Contra Co:	2022	HHDT	Aggregate	Aggregate	Diesel	4876.64	585418	585418	0	71120.8	0	2.49334	67.9396	2.51073
Contra Co:	2022	HHDT	Aggregate	Aggregate	Natural Ga	385.456	27747.2	27747.2	0	3379.22	0	1.21098	13.4563	0
Contra Co:	2022	LDA	Aggregate	Aggregate	Gasoline	342252	1.3E+07	1.3E+07	0	1582160	0	0.05381	0	0.29906
Contra Co:	2022	LDA	Aggregate	Aggregate	Diesel	1556.09	46980.8	46980.8	0	6671.79	0	0.24868	0	0
Contra Co:	2022	LDA	Aggregate	Aggregate	Electricity	14864.7	645475	0	645475	74237.2	249207	0	0	0
Contra Co:	2022	LDA	Aggregate	Aggregate	Plug-in Hy	7196.97	332010	172872	159139	29759.5	48064.6	0.00334	0	0.11603
Contra Co:	2022	LDT1	Aggregate	Aggregate	Gasoline	34814.4	1206518	1206518	0	153809	0	0.15763	0	0.46078
Contra Co:	2022	LDT1	Aggregate	Aggregate	Diesel	20.6971	267.228	267.228	0	62.2424	0	1.57535	0	0
Contra Co:	2022	LDT1	Aggregate	Aggregate	Electricity	59.9901	2170.55	0	2170.55	282.666	838.012	0	0	0
Contra Co:	2022	LDT1	Aggregate	Aggregate	Plug-in Hy	12.3953	658.372	315.676	342.696	51.2545	103.504	0.00308	0	0.11603
Contra Co:	2022	LDT2	Aggregate	Aggregate	Gasoline	152545	6089113	6089113	0	712347	0	0.08411	0	0.39352
Contra Co:	2022	LDT2	Aggregate	Aggregate	Diesel	617.409	26019.3	26019.3	0	2945.7	0	0.05725	0	0
Contra Co:	2022	LDT2	Aggregate	Aggregate	Electricity	321.139	11813.7	0	11813.7	1653.63	4561.04	0	0	0
Contra Co:	2022	LDT2	Aggregate	Aggregate	Plug-in Hy	642.687	33021	16417.8	16603.3	2657.51	5014.68	0.00319	0	0.11603
Contra Co:	2022	LHDT1	Aggregate	Aggregate	Gasoline	12752.8	469718	469718	0	189998	0	0.22613	0.03907	0.69589
Contra Co:	2022	LHDT1	Aggregate	Aggregate	Diesel	8526.49	320735	320735	0	107252	0	2.28372	2.25005	0
Contra Co:	2022	LHDT2	Aggregate	Aggregate	Gasoline	1468.16	53325.8	53325.8	0	21873.4	0	0.21413	0.03873	0.68667
Contra Co:	2022	LHDT2	Aggregate	Aggregate	Diesel	3184.05	125313	125313	0	40051.3	0	1.63365	2.18189	0
Contra Co:	2022	MCY	Aggregate	Aggregate	Gasoline	18165.8	103207	103207	0	36331.7	0	0.66003	0	0.16835
Contra Co:	2022	MDV	Aggregate	Aggregate	Gasoline	101727	3770749	3770749	0	466583	0	0.14603	0	0.55451
Contra Co:	2022	MDV	Aggregate	Aggregate	Diesel	1626.04	66029.6	66029.6	0	7730.28	0	0.07492	0	0
Contra Co:	2022	MDV	Aggregate	Aggregate	Electricity	313.268	11548.5	0	11548.5	1614.35	4458.68	0	0	0
Contra Co:	2022	MDV	Aggregate	Aggregate	Plug-in Hy	467.071	22259.2	11487.6	10771.6	1931.34	3253.36	0.00332	0	0.11603
Contra Co:	2022	MH	Aggregate	Aggregate	Gasoline	1942.03	17479	17479	0	194.281	0	0.4536	0	0.41208
Contra Co:	2022	MH	Aggregate	Aggregate	Diesel	774.898	7470.6	7470.6	0	77.4898	0	4.60431	0	0
Contra Co:	2022	MHDT	Aggregate	Aggregate	Gasoline	760.233	36884	36884	0	15210.7	0	0.80633	0.08778	0.48592
Contra Co:	2022	MHDT	Aggregate	Aggregate	Diesel	5416.22	227902	227902	0	62339.1	0	1.88899	16.3805	1.4753
Contra Co:	2022	MHDT	Aggregate	Aggregate	Natural Ga	47.1858	2180.67	2180.67	0	450.673	0	0.16025	6.39293	0
Contra Co:	2022	OBUS	Aggregate	Aggregate	Gasoline	269.917	12629.3	12629.3	0	5400.5	0	0.72562	0.06513	0.44358
Contra Co:	2022	OBUS	Aggregate	Aggregate	Diesel	128.604	9060.97	9060.97	0	1493.98	0	2.58678	14.4808	1.33279
Contra Co:	2022	OBUS	Aggregate	Aggregate	Natural Ga	1.73309	87.739	87.739	0	15.4245	0	0.27394	1.56699	0
Contra Co:	2022	SBUS	Aggregate	Aggregate	Gasoline	69.534	3727.16	3727.16	0	278.136	0	0.23175	0.92561	0.6387
Contra Co:	2022	SBUS	Aggregate	Aggregate	Diesel	421.07	10044.5	10044.5	0	6097.1	0	3.28034	19.5586	0.53573
Contra Co:	2022	SBUS	Aggregate	Aggregate	Natural Ga	18.724	473.037	473.037	0	271.123	0	0.63512	5.31418	0
Contra Co:	2022	UBUS	Aggregate	Aggregate	Gasoline	101.802	5556.01	5556.01	0	407.209	0	0.13061	0	0.70443
Contra Co:	2022	UBUS	Aggregate	Aggregate	Diesel	226.967	23428.1	23428.1	0	907.868	0	1.56747	0	0
Contra Co:	2022	UBUS	Aggregate	Aggregate	Electricity	12.1122	336.065	0	336.065	48.4489	585.843	0	0	0
Contra Co:	2022	UBUS	Aggregate	Aggregate	Natural Ga	5.24646	329.159	329.159	0	20.9858	0	0.04644	0	0

Vehicle Ca	Fuel	PM2.5 RU	PM2.5 IDL	PM2.5 STI	PM2.5 PN	PM2.5 PN	PM10 RU	PM10 IDL	PM10 STR	PM10 PM	PM10 PM	CO2 RUNI	CO2 IDLE	CO2 STRE	CH4 RUNI	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE
HHDT	Gasoline	0.00469	0	0.00185	0.005	0.03489	0.0051	0	0.00201	0.02	0.09968	2292.4	0	50.2752	0.31701	0	0.00033	0.34068	0	0.03593	1.97054	0
HHDT	Diesel	0.02788	0.03664	0	0.00879	0.02807	0.02914	0.0383	0	0.03514	0.08019	1674.33	12669.2	0	0.00151	0.23651	0	0.26379	1.99603	0	0.03259	5.09209
HHDT	Natural Ga	0.00162	0.02165	0	0.009	0.04817	0.00176	0.02355	0	0.036	0.13762	1421.45	10306.6	0	2.64311	36.0187	0	0.28977	2.10107	0	0.05305	0.54426
LDA	Gasoline	0.00125	0	0.0021	0.002	0.00258	0.00136	0	0.00229	0.008	0.00736	288.267	0	73.9909	0.00287	0	0.08405	0.00541	0	0.03576	0.01144	0
LDA	Diesel	0.01693	0	0	0.002	0.00261	0.01769	0	0	0.008	0.00745	238.612	0	0	0.00131	0	0	0.03759	0	0	0.02829	0
LDA	Electricity	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.00071	0	0.00225	0.002	0.00134	0.00077	0	0.00245	0.008	0.00384	142.367	0	67.2753	0.00045	0	0.04317	0.00062	0	0.02132	0.00142	0
LDT1	Gasoline	0.0019	0	0.00313	0.002	0.00312	0.00207	0	0.0034	0.008	0.0089	340.474	0	91.8926	0.00758	0	0.12924	0.01122	0	0.04302	0.03398	0
LDT1	Diesel	0.21967	0	0	0.002	0.00357	0.2296	0	0	0.008	0.01021	416.212	0	0	0.01415	0	0	0.06557	0	0	0.30464	0
LDT1	Electricity	0	0	0	0.002	0.00154	0	0	0	0.008	0.0044	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.00042	0	0.00148	0.002	0.00135	0.00046	0	0.00161	0.008	0.00386	131.101	0	73.5389	0.00042	0	0.04349	0.00057	0	0.02162	0.0013	0
LDT2	Gasoline	0.00129	0	0.00205	0.002	0.003	0.0014	0	0.00223	0.008	0.00858	359.685	0	92.6559	0.0033	0	0.0953	0.00685	0	0.04121	0.01313	0
LDT2	Diesel	0.00579	0	0	0.002	0.00298	0.00605	0	0	0.008	0.00851	327.314	0	0	0.00064	0	0	0.05157	0	0	0.01388	0
LDT2	Electricity	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.00057	0	0.00192	0.002	0.00135	0.00062	0	0.00209	0.008	0.00385	135.944	0	80.0008	0.00043	0	0.04351	0.0006	0	0.02163	0.00135	0
LHDT1	Gasoline	0.00163	0	0.00034	0.002	0.0273	0.00177	0	0.00037	0.008	0.078	917.121	121.811	25.9285	0.00994	0.12032	0.03643	0.01272	0.00309	0.05379	0.04898	0.44757
LHDT1	Diesel	0.04725	0.02694	0	0.003	0.0273	0.04938	0.02816	0	0.012	0.078	643.271	136.136	0	0.01024	0.0051	0	0.10135	0.02145	0	0.2204	0.10976
LHDT2	Gasoline	0.00148	0	0.00029	0.002	0.03185	0.00161	0	0.00031	0.008	0.091	1027.39	140.616	26	0.00837	0.11977	0.03581	0.01251	0.00306	0.05293	0.03996	0.44393
LHDT2	Diesel	0.0402	0.02656	0	0.003	0.03185	0.04202	0.02776	0	0.012	0.091	781.108	216.626	0	0.00883	0.0051	0	0.12306	0.03413	0	0.19015	0.10976
MCY	Gasoline	0.0018	0	0.00366	0.001	0.0042	0.00191	0	0.00388	0.004	0.012	191.83	0	54.3804	0.19025	0	0.20939	0.04341	0	0.00966	1.30102	0
MDV	Gasoline	0.00137	0	0.00227	0.002	0.00309	0.00149	0	0.00246	0.008	0.00883	439.798	0	114.022	0.00528	0	0.12734	0.01009	0	0.04775	0.02285	0
MDV	Diesel	0.00623	0	0	0.002	0.00303	0.00651	0	0	0.008	0.00866	426.038	0	0	0.00059	0	0	0.06712	0	0	0.01272	0
MDV	Electricity	0	0	0	0.002	0.00152	0	0	0	0.008	0.00435	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.00075	0	0.00246	0.002	0.00134	0.00082	0	0.00268	0.008	0.00384	141.109	0	100.35	0.00045	0	0.04331	0.00061	0	0.02145	0.0014	0
MH	Gasoline	0.00163	0	0.00039	0.003	0.01576	0.00177	0	0.00043	0.012	0.04502	1947.66	0	31.7189	0.01643	0	0.038	0.02729	0	0.04286	0.07253	0
MH	Diesel	0.11346	0	0	0.004	0.01567	0.11859	0	0	0.016	0.04479	1079.51	0	0	0.006	0	0	0.17008	0	0	0.12924	0
MHDT	Gasoline	0.00147	0	0.00062	0.003	0.01576	0.00159	0	0.00068	0.012	0.04502	1831.31	546.091	49.2962	0.02614	0.24545	0.05406	0.03564	0.00652	0.03223	0.13355	1.00223
MHDT	Diesel	0.02261	0.04966	0	0.003	0.01587	0.02363	0.0519	0	0.012	0.04535	1155.39	2377.45	0	0.00266	0.01443	0	0.18203	0.37457	0	0.05719	0.3106
MHDT	Natural Ga	0.00101	0.01613	0	0.003	0.01596	0.00109	0.01754	0	0.012	0.04559	993.255	5164.02	0	0.7105	17.6484	0	0.20248	1.05272	0	0.01015	0.25216
OBUS	Gasoline	0.00079	0	0.00025	0.003	0.01568	0.00086	0	0.00027	0.012	0.0448	1815.38	386.088	32.7398	0.02036	0.19317	0.03915	0.03342	0.00504	0.03163	0.09973	0.74733
OBUS	Diesel	0.04239	0.01549	0	0.003	0.0201	0.04431	0.01619	0	0.012	0.05744	1423.94	2619.11	0	0.00569	0.03925	0	0.22434	0.41264	0	0.12247	0.84509
OBUS	Natural Ga	0.00066	0.00319	0	0.003	0.01615	0.00072	0.00347	0	0.012	0.04614	1080.03	1234.39	0	0.74403	4.60202	0	0.22017	0.25164	0	0.01063	0.06575
SBUS	Gasoline	0.00104	0	0.00069	0.002	0.01572	0.00113	0	0.00075	0.008	0.04492	796.223	2550.01	55.016	0.00575	2.50993	0.06324	0.01659	0.09332	0.06363	0.02681	10.6275
SBUS	Diesel	0.01668	0.01509	0	0.003	0.01572	0.01744	0.01577	0	0.012	0.04492	1141.29	2259.03	0	0.00234	0.00794	0	0.17981	0.35591	0	0.05041	0.171
SBUS	Natural Ga	0.00338	0.01032	0	0.003	0.01572	0.00367	0.01123	0	0.012	0.04492	1304.68	4068.97	0	3.62337	15.7911	0	0.26597	0.82949	0	0.05177	0.22562
UBUS	Gasoline	0.00113	0	0.00047	0.0025	0.0352	0.00123	0	0.00051	0.01001	0.10057	1389.81	0	71.6233	0.00301	0	0.08404	0.013	0	0.07271	0.00961	0
UBUS	Diesel	0.00681	0	0	0.00775	0.0385	0.00712	0	0	0.031	0.11	1387.04	0	0	0.00509	0	0	0.21853	0	0	0.10957	0
UBUS	Electricity	0	0	0	0.00575	0.01925	0	0	0	0.02301	0.055	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0.00025	0	0	0.00656	0.0385	0.00026	0	0	0.02624	0.11	1165.07	0	0	3.71199	0	0	0.23751	0	0	0.05304	0

Vehicle Ca	Fuel	ROG STRE	ROG HOT	ROG RUN	ROG DIUF	TOG RUN	TOG IDLE	TOG STRE	TOG HOT	TOG RUN	TOG DIUR	NH3 RUN	CO RUNE	CO_IDLEX	CO_STREX	SOx RUNE	SOx IDLEX	SOx_STREX
HHDT	Gasoline	0.00181	0.15541	1.39326	10.2595	2.8754	0	0.00198	0.15541	1.39326	10.2595	0.04063	80.5108	0	1.46023	0.02266	0	0.0005
HHDT	Diesel	0	0	0	0	0.0371	5.79696	0	0	0	0	0.20296	0.12933	70.1674	0	0.01585	0.11997	0
HHDT	Natural Ga	0	0	0	0	2.71491	36.7934	0	0	0	0	0.84575	14.809	72.1662	0	0	0	0
LDA	Gasoline	0.39991	0.10488	0.26851	1.6089	0.01668	0	0.43785	0.10488	0.26851	1.6089	0.03263	0.82682	0	3.83151	0.00285	0	0.00073
LDA	Diesel	0	0	0	0	0.0322	0	0	0	0	0	0.0031	0.33413	0	0	0.00226	0	0
LDA	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDA	Plug-in Hy	0.17431	0.04089	0.03554	0.45253	0.00207	0	0.19084	0.04089	0.03554	0.45253	0.01965	0.21793	0	1.35185	0.00141	0	0.00067
LDT1	Gasoline	0.68419	0.19932	0.58802	3.17178	0.04956	0	0.7491	0.19932	0.58802	3.17178	0.03518	1.63373	0	6.59059	0.00337	0	0.00091
LDT1	Diesel	0	0	0	0	0.34681	0	0	0	0	0	0.0031	1.90313	0	0	0.00394	0	0
LDT1	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT1	Plug-in Hy	0.17431	0.02532	0.02324	0.30085	0.0019	0	0.19084	0.02532	0.02324	0.30085	0.02014	0.20069	0	1.35185	0.0013	0	0.00073
LDT2	Gasoline	0.44858	0.09111	0.2366	1.4523	0.01916	0	0.49114	0.09111	0.2366	1.4523	0.03414	0.9254	0	4.22612	0.00356	0	0.00092
LDT2	Diesel	0	0	0	0	0.01581	0	0	0	0	0	0.0031	0.13302	0	0	0.0031	0	0
LDT2	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LDT2	Plug-in Hy	0.17431	0.02711	0.02555	0.3332	0.00197	0	0.19084	0.02711	0.02555	0.3332	0.02081	0.2081	0	1.35185	0.00134	0	0.00079
LHDT1	Gasoline	0.18222	0.05273	0.28031	2.91219	0.07147	0.65309	0.19951	0.05273	0.28031	2.91219	0.0449	1.21645	3.75173	3.01396	0.00907	0.0012	0.00026
LHDT1	Diesel	0	0	0	0	0.25092	0.12495	0	0	0	0	0.14889	0.63987	0.90975	0	0.0061	0.00129	0
LHDT2	Gasoline	0.17848	0.04946	0.25822	2.73416	0.05831	0.64779	0.19541	0.04946	0.25822	2.73416	0.04496	1.06698	3.75779	3.04973	0.01016	0.00139	0.00026
LHDT2	Diesel	0	0	0	0	0.21647	0.12495	0	0	0	0	0.16935	0.50594	0.90975	0	0.0074	0.00205	0
MCY	Gasoline	1.58391	3.59325	3.78519	4.34414	1.53796	0	1.7212	3.59325	3.78519	4.34414	0.00857	15.2433	0	8.40517	0.0019	0	0.00054
MDV	Gasoline	0.65662	0.11459	0.31706	1.86037	0.03329	0	0.71891	0.11459	0.31706	1.86037	0.03391	1.20593	0	4.90373	0.00435	0	0.00113
MDV	Diesel	0	0	0	0	0.01448	0	0	0	0	0	0.0031	0.20849	0	0	0.00404	0	0
MDV	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MDV	Plug-in Hy	0.17431	0.03132	0.0306	0.38937	0.00205	0	0.19084	0.03132	0.0306	0.38937	0.02168	0.21601	0	1.35185	0.0014	0	0.00099
MH	Gasoline	0.16159	12.5503	0.28362	4.51989	0.10583	0	0.17692	12.5503	0.28362	4.51989	0.04476	1.76969	0	3.5351	0.01925	0	0.00031
MH	Diesel	0	0	0	0	0.14713	0	0	0	0	0	0.13525	0.44008	0	0	0.01023	0	0
MHDT	Gasoline	0.31581	0.04761	0.39123	3.73191	0.19487	1.46246	0.34578	0.04761	0.39123	3.73191	0.04494	2.85432	14.9948	6.98058	0.0181	0.0054	0.00049
MHDT	Diesel	0	0	0	0	0.06511	0.3536	0	0	0	0	0.19295	0.18038	7.30148	0	0.01094	0.02251	0
MHDT	Natural Ga	0	0	0	0	0.72512	18.0115	0	0	0	0	1.06	2.95517	30.3904	0	0	0	0
OBUS	Gasoline	0.21006	0.03472	0.14679	2.64551	0.14552	1.0905	0.22999	0.03472	0.14679	2.64551	0.04494	2.25723	5.78109	4.38875	0.01795	0.00382	0.00032
OBUS	Diesel	0	0	0	0	0.13943	0.96208	0	0	0	0	0.1855	0.34372	12.1889	0	0.01348	0.0248	0
OBUS	Natural Ga	0	0	0	0	0.75934	4.6967	0	0	0	0	1.06	3.13102	5.76265	0	0	0	0
SBUS	Gasoline	0.34724	0.06774	0.14735	0.85737	0.03912	15.5076	0.38019	0.06774	0.14735	0.85737	0.045	0.63985	82.1569	8.97753	0.00787	0.02521	0.00054
SBUS	Diesel	0	0	0	0	0.05738	0.19467	0	0	0	0	0.15246	0.15941	4.93504	0	0.01081	0.02139	0
SBUS	Natural Ga	0	0	0	0	3.69792	16.116	0	0	0	0	1.06	12.5276	18.4189	0	0	0	0
UBUS	Gasoline	0.34734	0.03717	0.0926	0.48552	0.01402	0	0.38029	0.03717	0.0926	0.48552	0.045	0.42599	0	7.67969	0.01374	0	0.00071
UBUS	Diesel	0	0	0	0	0.12473	0	0	0	0	0	0.17608	0.13107	0	0	0.01314	0	0
UBUS	Electricity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UBUS	Natural Ga	0	0	0	0	3.78835	0	0	0	0	0	0.97	39.7207	0	0	0	0	0

Summary of Construction Traffic Emissions (EMFAC2021)

CATEGORY	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
						Grams								
Hauling	611.87	33715.37	12695.44	188.230	3623.88	1769.51	5393.4	545.28	782.75	1328.03	20689459.27	1589.604	3297.214	21711769
Vendor	6280.99	226096.59	118921.4	1083.970	20670.17	9704.95	30375.1	3110.20	4301.58	7411.78	122706658	17548.02	19417.45	128931759
Worker	45900.62	58893.23	354989.3	850.444	124711.70	11906.13	136617.8	18765.15	7361.99	26127.14	87002713.28	3124.927	3853.069	88229051
Total (g)	52793.48	318705.1942	486606.17	2122.644103	149005.753	23380.59264	172386.35	22420.63153	12446.3251	34866.95663	230398830.6	22262.55	26567.73	238872579
Total (lbs)	116.39	702.62	1072.78	4.68	328.50	51.5	380.05	49.43	27.44	76.87	507942.4739	49.08052	58.57183	526623.89
Total (tons)	0.0582	0.351	0.536	0.002	0.164	0.0258	0.1900	0.0247	0.014	0.038	253.97	0.02	0.03	263.31195
Total (MT)											230.40	0.02	0.03	238.87258

YEAR	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	NBio- CO2	CH4	N2O	CO2e
							Tons							
2022	0.0158	0.0957	0.1461	0.0006	0.0447	0.0070	0.0517	0.0067	0.0037	0.0105	62.7425	0.006063	0.007235	65.050122
2023	0.0423	0.2556	0.3903	0.0017	0.1195	0.0188	0.1383	0.0180	0.0100	0.0280	167.6563	0.0162	0.019333	173.82246

OPERATIONAL CalEEMod EMFAC2021 Fleet Mix Input

FleetMixLandUseSubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.508723	0.041426	0.232534	0.14247	0.028876	0.006688	0.009807	0.022559	0.000753	0.00107	0.003717	0.000527	0.000851

OPERATIONAL CalEEMod EMFAC2021 Emission Factors Input

Season	EmissionType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
A	CH4_IDLEX	0	0	0	0	0.005091	0.002896	0.014206	0.22896136	0.008876	0	0	0.073479	0
A	CH4_RUNEX	0.002114	0.006063	0.002727	0.004087	0.008572	0.007554	0.010345	0.118071114	0.013532	0.281021852	0.17822	0.120077	0.010715
A	CH4_STREX	0.069843	0.1141	0.084752	0.107923	0.021488	0.011345	0.009406	6.87739E-08	0.029201	0.026361422	0.19855	0.002802	0.025804
A	CO_IDLEX	0	0	0	0	0.186408	0.134147	0.694008	5.189925051	0.484177	0	0	1.28787	0
A	CO_RUNEX	0.663719	1.379618	0.802917	0.991876	0.880919	0.588973	0.398867	0.776396277	1.19071	3.315078728	14.15387	0.651451	0.977151
A	CO_STREX	3.159857	5.728785	3.739063	4.184243	1.959196	1.054213	1.170184	0.00053549	3.277633	2.230961981	8.307287	0.387214	2.309277
A	CO2_NBIO_IDLEX	0	0	0	0	8.969001	14.28531	168.4964	834.7668974	65.31404	0	0	181.2778	0
A	CO2_NBIO_RUNEX	262.1131	337.3576	350.0915	427.6922	781.1716	830.4592	1228.53	1615.138438	1610.848	1281.509708	190.319	1039.924	1673.661
A	CO2_NBIO_STREX	68.11276	89.96337	89.67303	108.931	16.44736	8.783669	8.845558	0.010476125	24.73572	21.04433967	51.99124	2.409291	21.74753
A	NOX_IDLEX	0	0	0	0	0.062105	0.106028	0.976583	4.138844748	0.250674	0	0	1.222768	0
A	NOX_RUNEX	0.039345	0.12647	0.065393	0.110057	0.876489	1.015962	1.20864	1.880488499	1.183775	0.292916603	0.622529	2.187886	1.639355
A	NOX_STREX	0.250352	0.412002	0.337733	0.456317	0.419696	0.223244	1.419127	2.711524951	0.695229	0.217465019	0.154855	0.533928	0.296977
A	PM10_IDLEX	0	0	0	0	0.000804	0.001451	0.002504	0.002302914	0.000293	0	0	0.000934	0
A	PM10_PMBW	0.007068	0.008903	0.008532	0.008753	0.077868	0.090836	0.045232	0.081501898	0.050098	0.116247365	0.012	0.044862	0.044944
A	PM10_PMTW	0.008	0.008	0.008	0.008	0.009615	0.010817	0.012	0.03518713	0.012	0.030536691	0.004	0.010864	0.013261
A	PM10_RUNEX	0.001218	0.00189	0.001335	0.001432	0.018724	0.027275	0.014244	0.02600939	0.018388	0.005209448	0.001905	0.011713	0.03573
A	PM10_STREX	0.002007	0.003049	0.002114	0.002203	0.000205	8.94E-05	0.000114	3.86836E-07	0.000214	0.000151371	0.003528	3.22E-05	0.00027
A	PM25_IDLEX	0	0	0	0	0.00077	0.001388	0.002395	0.002197519	0.00028	0	0	0.000893	0
A	PM25_PMBW	0.002474	0.003116	0.002986	0.003064	0.027254	0.031793	0.015831	0.028525664	0.017534	0.040686578	0.0042	0.015702	0.01573
A	PM25_PMTW	0.002	0.002	0.002	0.002	0.002404	0.002704	0.003	0.008796782	0.003	0.007634173	0.001	0.002716	0.003315
A	PM25_RUNEX	0.001121	0.001739	0.001228	0.001321	0.017877	0.026079	0.013619	0.024881102	0.017573	0.004975525	0.001784	0.011191	0.034143
A	PM25_STREX	0.001846	0.002804	0.001943	0.002026	0.000188	8.22E-05	0.000105	3.55682E-07	0.000197	0.00013918	0.003322	2.96E-05	0.000248
A	ROG_DIURN	0.306751	0.664254	0.29771	0.394501	0.120515	0.059696	0.030034	9.3011E-05	0.120744	0.037064573	4.350545	0.010489	30.74144
A	ROG_HTSK	0.09098	0.183349	0.084674	0.10595	0.031167	0.015477	0.007482	2.81847E-05	0.028602	0.0134673	3.594851	0.003139	8.058809
A	ROG_IDLEX	0	0	0	0	0.021312	0.015358	0.027971	0.33102935	0.045502	0	0	0.129756	0
A	ROG_RESTL	0.306751	0.664254	0.29771	0.394501	0.120515	0.059696	0.030034	9.3011E-05	0.120744	0.037064573	4.350545	0.010489	30.74144
A	ROG_RUNEX	0.008127	0.026784	0.010553	0.017317	0.103875	0.131317	0.042688	0.018863993	0.088342	0.053444495	1.196001	0.041465	0.07716
A	ROG_RUNLS	0.233656	0.530013	0.224502	0.304265	0.171247	0.08244	0.061652	0.000252657	0.134841	0.027233085	3.818752	0.006863	0.186677
A	ROG_STREX	0.323089	0.590829	0.389814	0.541493	0.106183	0.055732	0.053264	3.73517E-07	0.156312	0.109673643	1.490348	0.015315	0.107029
A	SO2_IDLEX	0	0	0	0	8.71E-05	0.000137	0.001566	0.007315911	0.000623	0	0	0.001617	0
A	SO2_RUNEX	0.002538	0.003267	0.00339	0.00414	0.007617	0.007988	0.011657	0.014631936	0.01564	0.011439937	0.001881	0.009537	0.016406
A	SO2_STREX	0.00066	0.000871	0.000869	0.001055	0.000163	8.68E-05	8.74E-05	1.03567E-07	0.000245	0.000208045	0.000514	2.38E-05	0.000215
A	TOG_DIURN	0.306751	0.664254	0.29771	0.394501	0.120515	0.059696	0.030034	9.3011E-05	0.120744	0.037064573	0.108376	0.010489	30.74144
A	TOG_HTSK	0.09098	0.183349	0.084674	0.10595	0.031167	0.015477	0.007482	2.81847E-05	0.028602	0.0134673	3.594851	0.003139	8.058809
A	TOG_IDLEX	0	0	0	0	0.030081	0.020571	0.045887	0.591505769	0.061659	0	0	0.230782	0
A	TOG_RESTL	0.306751	0.664254	0.29771	0.394501	0.120515	0.059696	0.030034	9.3011E-05	0.120744	0.037064573	0.108376	0.010489	30.74144
A	TOG_RUNEX	0.011837	0.039062	0.015382	0.025196	0.125873	0.152269	0.059106	0.139300936	0.117851	0.340864463	1.424317	0.166828	0.099828
A	TOG_RUNLS	0.233656	0.530013	0.224502	0.304265	0.171247	0.08244	0.061652	0.000252657	0.134841	0.027233085	3.818752	0.006863	0.186677
A	TOG_STREX	0.353741	0.646883	0.426797	0.592865	0.116257	0.061019	0.058317	4.08954E-07	0.171142	0.120078834	1.619841	0.016768	0.117183

Source: EMFAC2021 (v1.0.1) Emission Rates
Region Type: Sub-Area
Region: Contra Costa (SF)
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN

OPERATIONAL

Region	Calendar Y	Vehicle Ca	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips	Energy Co	NOx RUNI	NOx IDLE	NOx STRE	PM2.5 RU	PM2.5 IDL	PM2.5 STI	PM2.5 PN	PM2.5 PN	PM10 RU	PM10 IDL	PM10 STF	PM10 PM	PM10 PM	CO2 RUNI	CO2 IDLE	CO2 STRE	CH4 RUNI	CH4 IDLE	CH4 STRE	N2O RUN	N2O IDLE	N2O STRE	ROG RUN	ROG IDLE	ROG STRE	ROG HOT	ROG RUN	ROG DIUF	TOG RUN	TOG IDLE	TOG STRE	TOG HOT	TOG RUN	TOG DIUR	NH3 RUN	CO RUNE	CO_IDLEX	CO_STREX	SOx RUNE	SOx IDLEX	SOx_STREX
Contra Cos	2024	HHDT	Aggregate	Aggregate	Gasoline	0.81607	55.8723	55.8723	0	16.328	0	8.6939	0	1.87331	0.00313	0	0.00172	0.005	0.0327	0.00341	0	0.00187	0.02	0.09342	2106.93	0	50.6671	0.20075	0	0.00033	0.22707	0	0.03438	1.20229	0	0.00181	0.13631	1.22196	9.00043	1.75438	0	0.00198	0.13631	1.22196	9.00043	0.04227	57.5641	0	2.58986	0.02083	0	0.0005
Contra Cos	2024	HHDT	Aggregate	Aggregate	Diesel	5091.69	595372	595372	0	74503.9	0	1.93055	62.9633	2.87363	0.0262	0.03187	0	0.00879	0.02753	0.02738	0.03332	0	0.03515	0.07866	1631.92	11982.4	0	0.00081	0.23618	0	0.25711	1.88782	0	0.01745	5.08487	0	0	0	0	0.01987	5.78873	0	0	0	0	0.21471	0.08538	73.8413	0	0.01545	0.11347	0
Contra Cos	2024	HHDT	Aggregate	Aggregate	Electricity	16.2027	1607.76	0	1607.76	218.208	2965.2	0	0	0	0	0	0	0.00863	0.01415	0	0	0	0.03453	0.04043	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	HHDT	Aggregate	Aggregate	Natural Ga	463.32	31836.4	31836.4	0	4230.92	0	1.02738	13.4936	0	0.00152	0.02427	0	0.009	0.04784	0.00165	0.02639	0	0.036	0.13668	1382.06	10598.6	0	2.31677	36.4292	0	0.28174	2.16058	0	0.04409	0.54083	0	0	0	0	2.37696	37.2018	0	0	0	0	0.84842	13.6386	73.098	0	0	0	0
Contra Cos	2024	LDA	Aggregate	Aggregate	Gasoline	337675	1.3E+07	1.3E+07	0	1559344	0	0.04277	0	0.26975	0.00117	0	0.00196	0.002	0.00258	0.00127	0	0.00213	0.008	0.00736	279.142	0	71.1568	0.00232	0	0.07509	0.00472	0	0.03405	0.00887	0	0.34757	0.09805	0.25348	1.5303	0.01294	0	0.38054	0.09805	0.25348	1.5303	0.03453	0.72382	0	3.39638	0.00276	0	0.0007
Contra Cos	2024	LDA	Aggregate	Aggregate	Diesel	1353.06	39823.4	39823.4	0	5730.35	0	0.20168	0	0	0.01398	0	0	0.002	0.00263	0.01462	0	0	0.008	0.0075	235.584	0	0	0.00111	0	0	0.03712	0	0	0.02397	0	0	0	0	0	0.02729	0	0	0	0	0	0.0031	0.31371	0	0	0.00223	0	0
Contra Cos	2024	LDA	Aggregate	Aggregate	Electricity	19605.8	914777	0	914777	97154.5	353180	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00437	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	LDA	Aggregate	Aggregate	Plug-in Hy	8994.06	416941	206978	209964	37190.4	63415.2	0.00319	0	0.11603	0.0006	0	0.00203	0.002	0.00135	0.00066	0	0.00221	0.008	0.00387	135.739	0	65.7904	0.00043	0	0.04295	0.00058	0	0.02111	0.00135	0	0.17431	0.04207	0.03799	0.44841	0.00197	0	0.19084	0.04207	0.03799	0.44841	0.01936	0.20781	0	1.35185	0.00134	0	0.00065
Contra Cos	2024	LDT1	Aggregate	Aggregate	Gasoline	32588.8	1149589	1149589	0	143596	0	0.12661	0	0.41299	0.0017	0	0.00281	0.002	0.00312	0.00185	0	0.00306	0.008	0.00892	331.752	0	88.4099	0.00609	0	0.1145	0.00948	0	0.04086	0.02682	0	0.5923	0.18385	0.53152	2.93502	0.03913	0	0.64849	0.18385	0.53152	2.93502	0.03558	1.3792	0	5.72447	0.00328	0	0.00087
Contra Cos	2024	LDT1	Aggregate	Aggregate	Diesel	16.6614	204.939	204.939	0	48.221	0	1.56453	0	0	0.21868	0	0	0.002	0.00357	0.22857	0	0	0.008	0.01019	415.805	0	0	0.01406	0	0	0.06551	0	0	0.30271	0	0	0	0	0	0.34462	0	0	0	0	0	0.0031	1.88576	0	0	0.00394	0	0
Contra Cos	2024	LDT1	Aggregate	Aggregate	Electricity	76.8535	3197.23	0	3197.23	366.338	1234.4	0	0	0	0	0	0	0.002	0.00154	0	0	0	0.008	0.00439	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	LDT1	Aggregate	Aggregate	Plug-in Hy	34.4059	1835.08	820.548	1014.53	142.268	306.419	0.00287	0	0.11603	0.00037	0	0.00139	0.002	0.00137	0.0004	0	0.00151	0.008	0.0039	122.266	0	71.3982	0.00039	0	0.04315	0.00053	0	0.0213	0.00122	0	0.17431	0.02433	0.021	0.27913	0.00177	0	0.19084	0.02433	0.021	0.27913	0.01878	0.18718	0	1.35185	0.00121	0	0.00071
Contra Cos	2024	LDT2	Aggregate	Aggregate	Gasoline	156321	6370854	6370854	0	728853	0	0.06623	0	0.34198	0.00122	0	0.00196	0.002	0.00301	0.00132	0	0.00214	0.008	0.00859	346.522	0	88.7715	0.00277	0	0.08583	0.00589	0	0.03844	0.01066	0	0.3945	0.08577	0.22769	1.40659	0.01556	0	0.43193	0.08577	0.22769	1.40659	0.03586	0.81113	0	3.77354	0.00343	0	0.00088
Contra Cos	2024	LDT2	Aggregate	Aggregate	Diesel	646.578	27148.8	27148.8	0	3058.02	0	0.04703	0	0	0.00495	0	0	0.002	0.00301	0.00517	0	0	0.008	0.00861	319.571	0	0	0.00059	0	0	0.05035	0	0	0.01267	0	0	0	0	0	0.01442	0	0	0	0	0	0.0031	0.12999	0	0	0.00303	0	0
Contra Cos	2024	LDT2	Aggregate	Aggregate	Electricity	793.66	29152.9	0	29152.9	4055.08	11255.4	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	LDT2	Aggregate	Aggregate	Plug-in Hy	1079.61	55187.6	25870.7	29316.9	4464.18	8854.59	0.00301	0	0.11603	0.00047	0	0.00168	0.002	0.00136	0.00051	0	0.00183	0.008	0.00389	128.181	0	78.1146	0.00041	0	0.04317	0.00055	0	0.02132	0.00127	0	0.17431	0.02618	0.02375	0.30855	0.00186	0	0.19084	0.02618	0.02375	0.30855	0.01965	0.19624	0	1.35185	0.00127	0	0.00077
Contra Cos	2024	LHDT1	Aggregate	Aggregate	Gasoline	12544.5	477190	477190	0	186894	0	0.1829	0.03714	0.66073	0.00152	0	0.0003	0.002	0.0273	0.00166	0	0.00032	0.008	0.078	883.356	119.879	25.8932	0.00818	0.11596	0.03383	0.01036	0.00304	0.05253	0.04007	0.42555	0.16716	0.04907	0.2696	2.82667	0.05846	0.62096	0.18302	0.04907	0.2696	2.82667	0.04493	1.10082	3.75625	3.08438	0.00873	0.00119	0.00026
Contra Cos	2024	LHDT1	Aggregate	Aggregate	Diesel	8493.03	325050	325050	0	106832	0	1.90209	2.09669	0	0.04204	0.02666	0	0.003	0.0273	0.04394	0.02787	0	0.012	0.078	637.732	133.653	0	0.00922	0.0051	0	0.10047	0.02106	0	0.19842	0.10976	0	0	0	0	0.22589	0.12495	0	0	0	0	0.16167	0.56551	0.90975	0	0.00604	0.00127	0
Contra Cos	2024	LHDT1	Aggregate	Aggregate	Electricity	36.0144	2734.93	0	2734.93	503.099	1790.29	0	0	0	0	0	0	0.002	0.01365	0	0	0	0.008	0.039	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	LHDT2	Aggregate	Aggregate	Gasoline	1457.07	54488.4	54488.4	0	21708.2	0	0.1695	0.03647	0.65113	0.00136	0	0.00024	0.002	0.03185	0.00148	0	0.00026	0.008	0.091	992.057	138.412	25.619	0.00635	0.11425	0.03309	0.01019	0.00297	0.05135	0.02958	0.41819	0.16255	0.04514	0.24045	2.59403	0.04316	0.61022	0.17797	0.04514	0.24045	2.59403	0.04498	0.91236	3.76397	3.07478	0.00981	0.00137	0.00025
Contra Cos	2024	LHDT2	Aggregate	Aggregate	Diesel	3307.74	131282	131282	0	41607.2	0	1.37247	2.01348	0	0.03647	0.02656	0	0.003	0.03185	0.03812	0.02777	0	0.012	0.091	767.631	212.473	0	0.00809	0.0051	0	0.12094	0.03348	0	0.17421	0.10976	0	0	0	0	0.19833	0.12495	0	0	0	0	0.1789	0.45776	0.90975	0	0.00727	0.00201	0
Contra Cos	2024	LHDT2	Aggregate	Aggregate	Electricity	9.32166	670.702	0	670.702	123.391	432.406	0	0	0	0	0	0	0.002	0.01593	0	0	0	0.008	0.0455	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	MCY	Aggregate	Aggregate	Gasoline	18015.4	103611	103611	0	36030.9	0	0.62253	0	0.15485	0.00178	0	0.00332	0.001	0.0042	0.0019	0	0.00353	0.004	0.012	190.319	0	51.9912	0.17822	0	0.19855	0.0418	0	0.00896	1.196	0	1.49035	3.59485	3.81875	4.35055	1.42432	0	1.61984	3.59485	3.81875	4.35055	0.00869	14.1539	0	8.30729	0.00188	0	0.00051
Contra Cos	2024	MDV	Aggregate	Aggregate	Gasoline	101284	3842162	3842162	0	463945	0	0.11252	0	0.46964	0.00125	0	0.00208	0.002	0.00309	0.00136	0	0.00226	0.008	0.00883	424.933	0	109.534	0.00421	0	0.11111	0.00836	0	0.04372	0.01767	0	0.55713	0.10904	0.31352	1.86066	0.02577	0	0.60999	0.10904	0.31352	1.86066	0.03537	1.01554	0	4.29089	0.0042	0	0.00108
Contra Cos	2024	MDV	Aggregate	Aggregate	Diesel	1627.3	64623	64623	0	7621.12	0	0.06448	0	0	0.00587	0	0	0.002	0.00309	0.00613	0	0	0.008	0.00883	419.221	0	0	0.00056	0	0	0.06605	0	0	0.01209	0	0	0	0	0	0.01376	0	0	0	0	0	0.0031	0.20834	0	0	0.00397	0	0
Contra Cos	2024	MDV	Aggregate	Aggregate	Electricity	849.928	31289.9	0	31289.9	4345.87	12080.5	0	0	0	0	0	0	0.002	0.00153	0	0	0	0.008	0.00436	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	MDV	Aggregate	Aggregate	Plug-in Hy	698.731	33546	16194.3	17351.8	2889.25	5240.75	0.0031	0	0.11603	0.00059	0	0.00206	0.002	0.00136	0.00064	0	0.00224	0.008	0.00388	132.001	0	97.2648	0.00042	0	0.043	0.00057	0	0.02116	0.00131	0	0.17431	0.03172	0.02771	0.35018	0.00191	0	0.19084	0.03172	0.02771	0.35018	0.02028	0.20209	0	1.35185	0.0013	0	0.00096
Contra Cos	2024	MH	Aggregate	Aggregate	Gasoline	1757.82	16248.6	16248.6	0	175.852	0	0.37633	0	0.42839	0.0015	0	0.00036	0.003	0.01576	0.00163	0	0.00039	0.012	0.04502	1946.72	0	31.3712	0.01295	0	0.03722	0.02413	0	0.04558	0.05456	0	0.15439	11.625	0.26928	4.43627	0.07962	0	0.16904	11.625	0.26928	4.43627	0.0449	1.23056	0	3.33117	0.01925	0	0.00031
Contra Cos	2024	MH	Aggregate	Aggregate	Diesel	778.173	7477.58	7477.58	0	77.8173	0	4.38387	0	0	0.10507	0	0	0.004	0.01567	0.10982	0	0	0.016	0.04479	1080.3	0	0	0.00586	0	0	0.1702	0	0	0.12626	0	0	0	0	0	0.14374	0	0	0	0	0	0.14385	0.42651	0	0	0.01024	0	0
Contra Cos	2024	MHDT	Aggregate	Aggregate	Gasoline	739.495	38664.3	38664.3	0	14795.8	0	0.55459	0.08824	0.46086	0.00138	0	0.00056	0.003	0.01576	0.00151	0	0.00061	0.012	0.04502	1775.67	535.332	47.2501	0.01775	0.25472	0.05024	0.02623	0.00704	0.03299	0.08904	1.00901	0.28452	0.03997	0.32933	3.20988	0.12993	1.47234	0.31151	0.03997	0.32933	3.20988	0.04498	1.87362	15.0734	6.25075	0.01755	0.00529	0.00047
Contra Cos	2024	MHDT	Aggregate	Aggregate	Diesel	5511.49	231443	231443	0	63571	0	1.33374	13.933	1.65707	0.01584	0.03418	0	0.003	0.01587	0.01656	0.03572	0	0.012	0.04535	1144.49	2295.79	0	0.00165	0.01224	0	0.18031	0.3617	0	0.03544	0.26347	0	0	0	0	0.04035	0.29994	0	0	0	0	0.20849	0.12759	7.60778	0	0.01084	0.02174	0
Contra Cos	2024	MHDT	Aggregate	Aggregate	Electricity	15.9389	898.224	0	898.224	202.794	999.289	0	0	0	0	0	0	0.003	0.00794	0	0	0	0.012	0.02268	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	MHDT	Aggregate	Aggregate	Natural Ga	50.6988	2393.49	2393.49	0	464.978	0	0.1309	6.45054	0	0.00117	0.01822	0	0.003	0.01596	0.00127	0.01982	0	0.012	0.04561	977.491	5284.91	0	0.73577	17.0997	0	0.19927	1.07736	0	0.01051	0.24432	0	0	0	0	0.75091	17.4515	0	0	0	0	1.06	2.9576	34.9858	0	0	0	0
Contra Cos	2024	OBUS	Aggregate	Aggregate	Gasoline	253.148	11671.6	11671.6	0	5064.98	0	0.62997	0.06514	0.43994	0.00087	0	0.00026	0.003	0.01568	0.00095	0	0.00028	0.012	0.0448	1775.4	381.757	32.2434	0.01757	0.19381	0.03806	0.02942	0.00511	0.03166	0.08624	0.74743	0.20376	0.03728	0.17577	3.14909	0.12584	1.09064	0.22309	0.03728	0.17577	3.14909	0.04494	1.91137	5.78166	4.27245	0.01755	0.00377	0.00032
Contra Cos	2024	OBUS	Aggregate	Aggregate	Diesel	129.949	9209.19	9209.19	0	1517.36	0	1.89764	12.5971	1.55653	0.03894	0.01421	0	0.003	0.01995	0.0407	0.01486	0	0.012	0.05699	1414.54	2565.23	0	0.00427	0.03973	0	0.22286	0.40415	0	0.09195	0.85531	0	0	0	0	0.10467	0.9737	0	0	0	0	0.20736	0.27285	13.2848	0	0.01339	0.02429	0
Contra Cos	2024	OBUS	Aggregate	Aggregate	Electricity	0.55296	51.9021	0	51.9021	11.0636	57.4996	0	0	0	0	0	0	0.003	0.00784	0	0	0	0.012	0.0224	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	OBUS	Aggregate	Aggregate	Natural Ga	0.9984	52.0948	52.0948	0	8.88574	0	0.24486	1.54899	0	0.0008	0.00362	0	0.003	0.01615	0.00087	0.00394	0	0.012	0.04614	1052.79	1234.27	0	0.75997	4.37981	0	0.21462	0.25161	0	0.01086	0.06258	0	0	0	0	0.7756	4.46992	0	0	0	0	1.06	3.17396	6.73055	0	0	0	0
Contra Cos	2024	SBUS	Aggregate	Aggregate	Gasoline	75.7911	4157.44	4157.44	0	303.165	0	0.21645	0.92653	0.65672	0.00098	0	0.00066	0.002	0.01572	0.00107	0	0.00072	0.008	0.04492	787.109	2523.75	54.1204	0.00455	2.52509	0.06294	0.01593	0.09353	0.06561	0.02094	10.6415	0.34403	0.07052	0.15415	0.94249	0.03056	15.5281	0.37667	0.07052	0.15415	0.94249	0.045	0.49603	82.2409	8.69808	0.00778	0.02495	0.00054
Contra Cos	2024	SBUS	Aggregate	Aggregate	Diesel	428.989	10014.8	10014.8	0	6211.76	0	3.09019	19.0056	0.5533	0.01585	0.01368	0	0.003	0.01572	0.01656	0.0143	0	0.012	0.04492	1136.38	2245.9	0	0.00231	0.00788	0	0.17904	0.35384	0	0.04968	0.16957	0	0	0	0	0.05656	0.19305	0	0	0	0	0.15686	0.15896	5.04088	0	0.01076	0.02127	0
Contra Cos	2024	SBUS	Aggregate	Aggregate	Electricity	1.03574	35.8757	0	35.8757	11.8196	37.7934	0	0	0	0	0	0	0.00254	0.00786	0	0	0	0.01015	0.02246	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	SBUS	Aggregate	Aggregate	Natural Ga	19.5655	483.537	483.537	0	283.309	0	0.61266	5.30043	0	0.00338	0.01065	0	0.003	0.01572	0.00367	0.01159	0	0.012	0.04492	1293.02	4076.99	0	3.56148	15.6213	0	0.26359	0.83112	0	0.05089	0.2232	0	0	0	0	3.63475	15.9427	0	0	0	0	1.06	12.2363	19.1584	0	0	0	0
Contra Cos	2024	UBUS	Aggregate	Aggregate	Gasoline	102.407	5589.01	5589.01	0	409.628	0	0.14929	0	0.73938	0.00113	0	0.00047	0.0025	0.0352	0.00123	0	0.00051	0.01001	0.10057	1389.55	0	71.5508	0.00296	0	0.08963	0.01433	0	0.07394	0.0095	0	0.37289	0.04579	0.09259	0.50408	0.01386	0	0.40827	0.04579	0.09259	0.50408	0.045	0.44425	0	7.58527	0.01374	0	0.00071
Contra Cos	2024	UBUS	Aggregate	Aggregate	Diesel	211.734	21902.9	21902.9	0	846.936	0	0.3556	0	0	0.00646	0	0	0.00772	0.0385	0.00675	0	0	0.03087	0.11	1274.08	0	0	0.00302	0	0	0.20073	0	0	0.06494	0	0	0	0	0	0.07393	0	0	0	0	0	0.22	0.07314	0	0	0.01207	0	0
Contra Cos	2024	UBUS	Aggregate	Aggregate	Electricity	12.1122	336.065	0	336.065	48.4489	585.843	0	0	0	0	0	0	0.00575	0.01925	0	0	0	0.02301	0.055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contra Cos	2024	UBUS	Aggregate	Aggregate	Natural Ga	21.9304	1997.38	1997.38	0	87.7216	0	0.05668	0	0	0.00028	0	0	0.00791	0.0385	0.00029	0	0	0.03162	0.11	1276.32	0	0	4.15494	0	0	0.26019	0	0	0.05937	0	0	0	0	0	4.24042	0	0	0	0	0	0.97	47.4565	0	0	0	0	0

Attachment 4: Construction Health Risk Calculations

Jones Road Condos, Walnut Creek, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2022	Construction	0.0457	Point	972	91.4	0.02781	3.50E-03	3.605E-06
2023	Construction	0.0754	Point	972	150.8	0.04590	5.78E-03	5.95E-06
Total		***0.1211***			***242.1***	***0.0737***	***0.0093***	

Emissions assumed to be evenly distributed over each construction areas

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

DPM Construction Emissions and Modeling Emission Rates - With Mitigation

Construction Year	Activity	DPM (ton/year)	Source Type	No. Sources	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Emissions per Point Source (g/s)
2022	Construction	0.0034	Point	972	6.9	0.00209	2.63E-04	2.70E-07
2023	Construction	0.0098	Point	972	19.5	0.00595	7.50E-04	7.71E-07
Total		***0.0132***			***26.4***	***0.0080***	***0.0010***	

Emissions assumed to be evenly distributed over each construction areas

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

Jones Road Condos, Walnut Creek, CA

PM2.5 Fugitive Dust Construction Emissions for Modeling

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)	Emission Rate $g/s/m^2$
2022	Construction	CON_FUG	0.0878	175.5	0.05343	6.73E-03	24410.9	2.76E-07
2023	Construction	CON_FUG	0.0018	3.5	0.00107	1.35E-04	24410.9	5.52E-09
Total			***0.0895***	***179.0***	***0.0545***	***0.0069***		

Emissions assumed to be evenly distributed over each construction areas

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

PM2.5 Fugitive Dust Construction Emissions for Modeling - With Mitigation

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)	Emission Rate $g/s/m^2$
2022	Construction	CON_FUG	0.0395	79.0	0.02405	3.03E-03	24410.9	1.24E-07
2023	Construction	CON_FUG	0.0008	1.6	0.00050	6.26E-05	24410.9	2.57E-09
Total			***0.0403***	***80.6***	***0.0245***	***0.0031***		

Emissions assumed to be evenly distributed over each construction areas

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

Jones Road Condos, Walnut Creek, 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-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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Modeled DPM Conc (ug/m3) Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2022	0.0299	10	0.41	2022	0.0299	-	-			
1	1	0 - 1	2022	0.0299	10	4.92	2022	0.0299	1	0.09	0.006	0.4169	0.4468
2	1	1 - 2	2023	0.0494	10	8.12	2023	0.0494	1	0.14	0.010	0.0084	0.0578
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
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						**13.4**				**0.23**			

* Third trimester of pregnancy

Jones Road Condos, Walnut Creek, 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-day)[1]
ASF = Age sensitivity factor for specified age group
ED = Exposure duration (years)
AT = Averaging time for lifetime cancer risk (years)
FAH = Fraction of time spent at home (unitless)

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

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

Values

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

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

Construction Cancer Risk by Year - Maximum Impact Receptor Location

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Infant/Child - Exposure Information: DPM Conc (ug/m3) Annual	Infant/Child - Exposure Information: Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Annual	Adult - Exposure Information: Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2022	0.0365	10	0.50	2022	0.0365	-	-			
1	1	0 - 1	2022	0.0365	10	5.99	2022	0.0365	1	0.10	0.007	0.2908	0.3272
2	1	1 - 2	2023	0.0596	10	9.79	2023	0.0596	1	0.17	0.012	0.0059	0.0655
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
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						**16.3**				**0.28**			

* Third trimester of pregnancy

Jones Road Condos, Walnut Creek, CA - Construction Impacts - With 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

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information Modeled DPM Conc (ug/m3) Year	Annual	Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2022	0.0023	10	0.03	2022	0.0023	-	-			
1	1	0 - 1	2022	0.0023	10	0.37	2022	0.0023	1	0.01	0.000	0.1877	0.1900
2	1	1 - 2	2023	0.0064	10	1.05	2023	0.0064	1	0.02	0.001	0.0039	0.0103
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
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						**1.5**				**0.02**			

* Third trimester of pregnancy

Jones Road Condos, Walnut Creek, CA - Construction Impacts - With 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

Exposure Year	Exposure Duration (years)	Age	Infant/Child - Exposure Information: DPM Conc (ug/m3) Year	Infant/Child - Exposure Information: DPM Conc (ug/m3) Annual	Infant/Child - Exposure Information: Age Sensitivity Factor	Infant/Child Cancer Risk (per million)	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Year	Adult - Exposure Information: Modeled DPM Conc (ug/m3) Annual	Adult - Exposure Information: Age Sensitivity Factor	Adult Cancer Risk (per million)	Maximum Hazard Index	Maximum Fugitive PM2.5	Maximum Total PM2.5
0	0.25	-0.25 - 0*	2022	0.0027	10	0.04	2022	0.0027	-	-			
1	1	0 - 1	2022	0.0027	10	0.45	2022	0.0027	1	0.01	0.001	0.1309	0.1337
2	1	1 - 2	2023	0.0078	10	1.28	2023	0.0078	1	0.02	0.002	0.0027	0.0105
3	1	2 - 3		0.0000	3	0.00		0.0000	1	0.00			
4	1	3 - 4		0.0000	3	0.00		0.0000	1	0.00			
5	1	4 - 5		0.0000	3	0.00		0.0000	1	0.00			
6	1	5 - 6		0.0000	3	0.00		0.0000	1	0.00			
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**				**0.03**			

* Third trimester of pregnancy

Attachment 5: Cumulative Source Emissions Modeling

Road Link	Description	Direction	No. Lanes	Link Length (miles)	Link Width (ft)	Link Width (m)	Release Height (ft)	Release Height (m)	Initial Vertical Dimention (m)	Initial Vertical Dispersion (m)	Average Speed (mph)	Average Vehicles per Day
NB_680_DPM	Northbound I-680 DPM	N	5	0.46	60	14.29	11.15	3.4	6.8	3.16	65mph off peak, 65mph AM Peak, 30mph PM peak period	157,373
SB_680_DPM	Southbound I-680 DPM	S	6	0.46	72	15.95	11.15	3.4	6.8	3.16	65mph off peak, 25mph AM Peak, 60mph PM peak period	145,267
NB_680_XXX	Northbound I-680 XXX	N	5	0.46	60	14.29	4.27	1.3	2.73	1.27	65mph off peak, 65mph AM Peak, 30mph PM peak period	157,373
SB_680_XXX	Southbound I-680 XXX	S	6	0.46	72	15.95	4.27	1.3	2.73	1.27	65mph off peak, 25mph AM Peak, 60mph PM peak period	145,267
NB_OAK_DPM	Northbound Oak Road DPM	N	2	0.48	24	7.32	11.15	3.4	6.8	3.16	35mph off peak, 30mph AM Peak, 30mph PM peak period	10,000
SB_OAK_DPM	Southbound Oak Road DPM	S	2	0.47	24	7.32	11.15	3.4	6.8	3.16	35mph off peak, 30mph AM Peak, 30mph PM peak period	10,000
NB_OAK_XXX	Northbound Oak Road XXX	N	2	0.48	24	7.32	4.27	1.3	2.73	1.27	35mph off peak, 30mph AM Peak, 30mph PM peak period	10,000
SB_OAK_XXX	Southbound Oak Road XXX	S	2	0.47	24	7.32	4.27	1.3	2.73	1.27	35mph off peak, 30mph AM Peak, 30mph PM peak period	10,000
EB_TRT_DPM	Eastbound Treat Blvd. DPM	E	4	0.40	48	14.63	11.15	3.4	6.8	3.16	35mph off peak, 25mph AM Peak, 25mph PM peak period	20,000
WB_TRT_DPM	Westbound Treat Blvd. DPM	W	4	0.39	48	14.63	11.15	3.4	6.8	3.16	35mph off peak, 25mph AM Peak, 25mph PM peak period	20,000
EB_TRT_XXX	Eastbound Treat Blvd. XXX	E	4	0.40	48	14.63	4.27	1.3	2.73	1.27	35mph off peak, 25mph AM Peak, 25mph PM peak period	20,000
WB_TRT_XXX	Westbound Treat Blvd. XXX	W	4	0.39	48	14.63	4.27	1.3	2.73	1.27	35mph off peak, 25mph AM Peak, 25mph PM peak period	20,000
NB_OFF_DPM	Northbound I680 Off Ramp DPM	N	2	0.28	24	7.32	11.15	3.4	6.8	3.16	35mph	21,487
NB_WS_DPM	Northbound Weigh Station DPM	N	1	0.28	12	3.66	11.15	3.4	6.8	3.16	10mph	688
NB_OFF_XXX	Northbound I680 Off Ramp XXX	N	2	0.28	24	7.32	4.27	1.3	2.73	1.27	35mph	21,487
NB_WS_XXX	Northbound Weigh Station XXX	N	1	0.28	12	3.66	4.27	1.3	2.73	1.27	10mph	688

Emission Factors		WS					
	Speed Category	1	2	3	5	6	7
	Travel Speed (mph)	10	25	30	35	60	65
Emisions per vehicle (g/VMT)	DPM	0.009702	0.00042	0.00038	0.00037	0.000622	0.000721
	PM2.5	0.009681	0.00224	0.00180	0.00153	0.001596	0.001834
	TOG Exhaust	0.124958	0.04556	0.03623	0.03030	0.026175	0.029613
	TOG Evap	0.01957	0.05972	0.04976	0.04265	0.0248813	0.022967

	Freeway	Major/Cc	Local Urban
Fugitive PM2.5	0.026269	0.03363	1.09614

		I-680		Oak Road		Treat Blvd.		NB Off Ramp	
Vehicle Type	Truck 1 (MDT)	4,540			300		600	322	
	Truck 2 (HDT)	5,145			340		680	365	
	Non-Truck	292,956			19,360		38,720	20800	
Total	2023 ADT		302,640		20,000		40,000		21,487
	Directional Volume	**145,267**	**157,373**	**10,000**	**10,000**	**20000**	**20000**	**21487**	**688**
	Average Veh/Hour/Dir	6,053	6,557	417	417	833	833	895	29

2023 Hourly Traffic Volumes and DPM Emisssions - Northbound I-680 DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	2,649	0.000246	8	0.0496547	7814	0.000726723	16	0.06396647	10067	0.000490814
1	0.0103436	1628	0.0001514	9	0.0496941	7821	0.000727299	17	0.06161021	9696	0.000472734
2	0.00787276	1239	0.0001152	10	0.0524778	8259	0.00076804	18	0.06241599	9823	0.00091349
3	0.00582967	917	8.532E-05	11	0.0578364	9102	0.000846465	19	0.0569003	8955	0.000832765
4	0.00668128	1051	9.778E-05	12	0.0642607	10113	0.000940489	20	0.04795353	7547	0.000701824
5	0.01152229	1813	0.0001686	13	0.0681977	10732	0.000998108	21	0.04270681	6721	0.000625036
6	0.0240534	3785	0.000352	14	0.0689006	10843	0.001008396	22	0.03476998	5472	0.000508876
7	0.0429856	6765	0.0006291	15	0.0661384	10408	0.00096797	23	0.02639671	4154	0.000386329
									TOTAL	157,373	

2023 Hourly Traffic Volumes and DPM Emisssions - Southbound I-680 DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01481049	2151	0.0002	8	0.0600046	8717	0.000466349	16	0.05509767	8004	0.000641804
1	0.0142615	2072	0.0001926	9	0.055076	8001	0.000743664	17	0.05352202	7775	0.00062345
2	0.01479093	2149	0.0001997	10	0.0559088	8122	0.000754908	18	0.04561318	6626	0.000615891
3	0.0178104	2587	0.0002405	11	0.0566642	8231	0.000765107	19	0.03763954	5468	0.000508227
4	0.02883464	4189	0.0003893	12	0.0582255	8458	0.00078619	20	0.03123322	4537	0.000421726
5	0.04555944	6618	0.0006152	13	0.0604508	8782	0.000816237	21	0.02735541	3974	0.000369366
6	0.0522093	7584	0.000705	14	0.059742	8679	0.000806666	22	0.02360854	3430	0.000318774
7	0.05817081	8450	0.0004521	15	0.055626	8081	0.00075109	23	0.01778489	2584	0.00024014
									TOTAL	145,267	

2023 Hourly Traffic Volumes and DPM Emisssions - Northbound Oak Road DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.000008	8	0.0548297	548	2.75651E-05	16	0.05953207	595	2.99292E-05
1	0.01230255	123	6.005E-06	9	0.0523851	524	2.55697E-05	17	0.05756611	576	2.89408E-05
2	0.01133185	113	5.531E-06	10	0.0541933	542	2.64523E-05	18	0.05401459	540	2.63651E-05
3	0.01182004	118	5.769E-06	11	0.0572503	573	2.79444E-05	19	0.04726992	473	2.30729E-05
4	0.01775796	178	8.668E-06	12	0.0612431	612	2.98934E-05	20	0.03959337	396	1.93259E-05
5	0.02854086	285	1.393E-05	13	0.0643243	643	3.13973E-05	21	0.03503111	350	1.7099E-05
6	0.03813135	381	1.861E-05	14	0.0643213	643	3.13959E-05	22	0.02918926	292	1.42476E-05
7	0.0505782	506	2.543E-05	15	0.0608822	609	2.97172E-05	23	0.0220908	221	1.07827E-05
									TOTAL	10,000	

2023 Hourly Traffic Volumes and DPM Emisssions - Southbound Oak Road DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	7.526E-06	8	0.0548297	548	2.68656E-05	16	0.05953207	595	2.91697E-05
1	0.01230255	123	5.853E-06	9	0.0523851	524	2.49208E-05	17	0.05756611	576	2.82064E-05
2	0.01133185	113	5.391E-06	10	0.0541933	542	2.5781E-05	18	0.05401459	540	2.5696E-05
3	0.01182004	118	5.623E-06	11	0.0572503	573	2.72353E-05	19	0.04726992	473	2.24874E-05
4	0.01775796	178	8.448E-06	12	0.0612431	612	2.91348E-05	20	0.03959337	396	1.88355E-05
5	0.02854086	285	1.358E-05	13	0.0643243	643	3.06006E-05	21	0.03503111	350	1.66651E-05
6	0.03813135	381	1.814E-05	14	0.0643213	643	3.05992E-05	22	0.02918926	292	1.3886E-05
7	0.0505782	506	2.478E-05	15	0.0608822	609	2.89631E-05	23	0.0220908	221	1.05091E-05
									TOTAL	10,000	

2023 Hourly Traffic Volumes and DPM Emisssions - Eastbound Treat Blvd. DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.000013	8	0.0548297	1097	5.03123E-05	16	0.05953207	1191	5.46273E-05
1	0.01230255	246	9.983E-06	9	0.0523851	1048	4.25093E-05	17	0.05756611	1151	5.28233E-05
2	0.01133185	227	9.196E-06	10	0.0541933	1084	4.39767E-05	18	0.05401459	1080	4.38316E-05
3	0.01182004	236	9.592E-06	11	0.0572503	1145	4.64573E-05	19	0.04726992	945	3.83585E-05
4	0.01775796	355	1.441E-05	12	0.0612431	1225	4.96974E-05	20	0.03959337	792	3.21291E-05
5	0.02854086	571	2.316E-05	13	0.0643243	1286	5.21977E-05	21	0.03503111	701	2.8427E-05
6	0.03813135	763	3.094E-05	14	0.0643213	1286	5.21953E-05	22	0.02918926	584	2.36864E-05
7	0.0505782	1012	4.641E-05	15	0.0608822	1218	4.94046E-05	23	0.0220908	442	1.79262E-05
									TOTAL	20,000	

2023 Hourly Traffic Volumes and DPM Emisssions - Westbound Treat Blvd. DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	1.268E-05	8	0.0548297	1097	4.96803E-05	16	0.05953207	1191	5.3941E-05
1	0.01230255	246	9.858E-06	9	0.0523851	1048	4.19753E-05	17	0.05756611	1151	5.21597E-05
2	0.01133185	227	9.08E-06	10	0.0541933	1084	4.34242E-05	18	0.05401459	1080	4.3281E-05
3	0.01182004	236	9.471E-06	11	0.0572503	1145	4.58737E-05	19	0.04726992	945	3.78766E-05
4	0.01775796	355	1.423E-05	12	0.0612431	1225	4.90731E-05	20	0.03959337	792	3.17255E-05
5	0.02854086	571	2.287E-05	13	0.0643243	1286	5.1542E-05	21	0.03503111	701	2.80698E-05
6	0.03813135	763	3.055E-05	14	0.0643213	1286	5.15396E-05	22	0.02918926	584	2.33889E-05
7	0.0505782	1012	4.583E-05	15	0.0608822	1218	4.87839E-05	23	0.0220908	442	1.7701E-05
									TOTAL	20,000	

2023 Hourly Traffic Volumes and DPM Emisssions - Northbound I680 Off Ramp DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	362	0.000010	8	0.0496547	1067	3.05557E-05	16	0.06396647	1374	3.93626E-05
1	0.0103436	222	6.365E-06	9	0.0496941	1068	3.05799E-05	17	0.06161021	1324	3.79126E-05
2	0.00787276	169	4.845E-06	10	0.0524778	1128	3.22929E-05	18	0.06241599	1341	3.84084E-05
3	0.00582967	125	3.587E-06	11	0.0578364	1243	3.55903E-05	19	0.0569003	1223	3.50143E-05
4	0.00668128	144	4.111E-06	12	0.0642607	1381	3.95436E-05	20	0.04795353	1030	2.95088E-05
5	0.01152229	248	7.09E-06	13	0.0681977	1465	4.19663E-05	21	0.04270681	918	2.62802E-05
6	0.0240534	517	1.48E-05	14	0.0689006	1480	4.23988E-05	22	0.03476998	747	2.13961E-05
7	0.0429856	924	2.645E-05	15	0.0661384	1421	4.06991E-05	23	0.02639671	567	1.62435E-05
									TOTAL	21,487	

2023 Hourly Traffic Volumes and DPM Emisssions - Northbound Weigh Station DPM

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	12	8.651E-06	8	0.0496547	34	2.55229E-05	16	0.06396647	44	3.28792E-05
1	0.0103436	7	5.317E-06	9	0.0496941	34	2.55431E-05	17	0.06161021	42	3.1668E-05
2	0.00787276	5	4.047E-06	10	0.0524778	36	2.69739E-05	18	0.06241599	43	3.20822E-05
3	0.00582967	4	2.996E-06	11	0.0578364	40	2.97283E-05	19	0.0569003	39	2.92471E-05
4	0.00668128	5	3.434E-06	12	0.0642607	44	3.30304E-05	20	0.04795353	33	2.46484E-05
5	0.01152229	8	5.923E-06	13	0.0681977	47	3.5054E-05	21	0.04270681	29	2.19516E-05
6	0.0240534	17	1.236E-05	14	0.0689006	47	3.54154E-05	22	0.03476998	24	1.7872E-05
7	0.0429856	30	2.209E-05	15	0.0661384	45	3.39956E-05	23	0.02639671	18	1.35681E-05
									TOTAL	688	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Northbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	2,649	0.000627	8	0.0496547	7814	0.001848557	16	0.06396647	10067	0.002334612
1	0.0103436	1628	0.0003851	9	0.0496941	7821	0.001850022	17	0.06161021	9696	0.002248614
2	0.00787276	1239	0.0002931	10	0.0524778	8259	0.001953654	18	0.06241599	9823	0.002323635
3	0.00582967	917	0.000217	11	0.0578364	9102	0.002153143	19	0.0569003	8955	0.002118295
4	0.00668128	1051	0.0002487	12	0.0642607	10113	0.002392311	20	0.04795353	7547	0.001785223
5	0.01152229	1813	0.000429	13	0.0681977	10732	0.002538876	21	0.04270681	6721	0.001589897
6	0.0240534	3785	0.0008955	14	0.0689006	10843	0.002565046	22	0.03476998	5472	0.001294424
7	0.0429856	6765	0.0016003	15	0.0661384	10408	0.002462214	23	0.02639671	4154	0.000982702
									TOTAL	157,373	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Southbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01481049	2151	0.0005087	8	0.0600046	8717	0.002512667	16	0.05509767	8004	0.001646814
1	0.0142615	2072	0.0004898	9	0.055076	8001	0.001891649	17	0.05352202	7775	0.00159972
2	0.01479093	2149	0.000508	10	0.0559088	8122	0.00192025	18	0.04561318	6626	0.001566636
3	0.0178104	2587	0.0006117	11	0.0566642	8231	0.001946195	19	0.03763954	5468	0.001292773
4	0.02883464	4189	0.0009904	12	0.0582255	8458	0.001999822	20	0.03123322	4537	0.00107274
5	0.04555944	6618	0.0015648	13	0.0604508	8782	0.002076252	21	0.02735541	3974	0.000939552
6	0.0522093	7584	0.0017932	14	0.059742	8679	0.002051907	22	0.02360854	3430	0.000810862
7	0.05817081	8450	0.0024359	15	0.055626	8081	0.001910539	23	0.01778489	2584	0.000610842
									TOTAL	145,267	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Northbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.000032	8	0.0548297	548	0.000131116	16	0.05953207	595	0.000142361
1	0.01230255	123	2.51E-05	9	0.0523851	524	0.000106877	17	0.05756611	576	0.00013766
2	0.01133185	113	2.312E-05	10	0.0541933	542	0.000110566	18	0.05401459	540	0.000110202
3	0.01182004	118	2.412E-05	11	0.0572503	573	0.000116803	19	0.04726992	473	9.6441E-05
4	0.01775796	178	3.623E-05	12	0.0612431	612	0.000124949	20	0.03959337	396	8.07792E-05
5	0.02854086	285	5.823E-05	13	0.0643243	643	0.000131236	21	0.03503111	350	7.14712E-05
6	0.03813135	381	7.78E-05	14	0.0643213	643	0.00013123	22	0.02918926	292	5.95525E-05
7	0.0505782	506	0.0001209	15	0.0608822	609	0.000124213	23	0.0220908	221	4.50701E-05
									TOTAL	10,000	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Southbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	3.146E-05	8	0.0548297	548	0.000127789	16	0.05953207	595	0.000138749
1	0.01230255	123	2.446E-05	9	0.0523851	524	0.000104165	17	0.05756611	576	0.000134167
2	0.01133185	113	2.253E-05	10	0.0541933	542	0.000107761	18	0.05401459	540	0.000107405
3	0.01182004	118	2.35E-05	11	0.0572503	573	0.000113839	19	0.04726992	473	9.39938E-05
4	0.01775796	178	3.531E-05	12	0.0612431	612	0.000121779	20	0.03959337	396	7.87293E-05
5	0.02854086	285	5.675E-05	13	0.0643243	643	0.000127905	21	0.03503111	350	6.96575E-05
6	0.03813135	381	7.582E-05	14	0.0643213	643	0.0001279	22	0.02918926	292	5.80413E-05
7	0.0505782	506	0.0001179	15	0.0608822	609	0.000121061	23	0.0220908	221	4.39264E-05
									TOTAL	10,000	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Eastbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.000054	8	0.0548297	1097	0.00027108	16	0.05953207	1191	0.000294329
1	0.01230255	246	4.173E-05	9	0.0523851	1048	0.000177682	17	0.05756611	1151	0.000284609
2	0.01133185	227	3.844E-05	10	0.0541933	1084	0.000183815	18	0.05401459	1080	0.000183209
3	0.01182004	236	4.009E-05	11	0.0572503	1145	0.000194184	19	0.04726992	945	0.000160332
4	0.01775796	355	6.023E-05	12	0.0612431	1225	0.000207727	20	0.03959337	792	0.000134295
5	0.02854086	571	9.681E-05	13	0.0643243	1286	0.000218178	21	0.03503111	701	0.00011882
6	0.03813135	763	0.0001293	14	0.0643213	1286	0.000218168	22	0.02918926	584	9.90054E-05
7	0.0505782	1012	0.0002501	15	0.0608822	1218	0.000206503	23	0.0220908	442	7.49286E-05
									TOTAL	20,000	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Westbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	5.299E-05	8	0.0548297	1097	0.000267675	16	0.05953207	1191	0.000290632
1	0.01230255	246	4.12E-05	9	0.0523851	1048	0.00017545	17	0.05756611	1151	0.000281034
2	0.01133185	227	3.795E-05	10	0.0541933	1084	0.000181506	18	0.05401459	1080	0.000180907
3	0.01182004	236	3.959E-05	11	0.0572503	1145	0.000191744	19	0.04726992	945	0.000158318
4	0.01775796	355	5.948E-05	12	0.0612431	1225	0.000205118	20	0.03959337	792	0.000132607
5	0.02854086	571	9.559E-05	13	0.0643243	1286	0.000215437	21	0.03503111	701	0.000117327
6	0.03813135	763	0.0001277	14	0.0643213	1286	0.000215427	22	0.02918926	584	9.77616E-05
7	0.0505782	1012	0.0002469	15	0.0608822	1218	0.000203909	23	0.0220908	442	7.39873E-05
									TOTAL	20,000	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Northbound I680 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	362	0.000043	8	0.0496547	1067	0.000127718	16	0.06396647	1374	0.000164529
1	0.0103436	222	2.66E-05	9	0.0496941	1068	0.000127819	17	0.06161021	1324	0.000158468
2	0.00787276	169	2.025E-05	10	0.0524778	1128	0.000134979	18	0.06241599	1341	0.000160541
3	0.00582967	125	1.499E-05	11	0.0578364	1243	0.000148762	19	0.0569003	1223	0.000146354
4	0.00668128	144	1.719E-05	12	0.0642607	1381	0.000165286	20	0.04795353	1030	0.000123342
5	0.01152229	248	2.964E-05	13	0.0681977	1465	0.000175412	21	0.04270681	918	0.000109847
6	0.0240534	517	6.187E-05	14	0.0689006	1480	0.00017722	22	0.03476998	747	8.94324E-05
7	0.0429856	924	0.0001106	15	0.0661384	1421	0.000170116	23	0.02639671	567	6.78954E-05
									TOTAL	21,487	

2023 Hourly Traffic Volumes and PM2.5 Emisssions - Northbound Weigh Station XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	12	8.632E-06	8	0.0496547	34	2.54676E-05	16	0.06396647	44	3.2808E-05
1	0.0103436	7	5.305E-06	9	0.0496941	34	2.54878E-05	17	0.06161021	42	3.15995E-05
2	0.00787276	5	4.038E-06	10	0.0524778	36	2.69155E-05	18	0.06241599	43	3.20128E-05
3	0.00582967	4	2.99E-06	11	0.0578364	40	2.96639E-05	19	0.0569003	39	2.91838E-05
4	0.00668128	5	3.427E-06	12	0.0642607	44	3.29589E-05	20	0.04795353	33	2.45951E-05
5	0.01152229	8	5.91E-06	13	0.0681977	47	3.49782E-05	21	0.04270681	29	2.19041E-05
6	0.0240534	17	1.234E-05	14	0.0689006	47	3.53387E-05	22	0.03476998	24	1.78333E-05
7	0.0429856	30	2.205E-05	15	0.0661384	45	3.3922E-05	23	0.02639671	18	1.35387E-05
									TOTAL	688	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssions - Northbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	2,649	0.010117	8	0.0496547	7814	0.02984804	16	0.06396647	10067	0.047044115
1	0.0103436	1628	0.0062177	9	0.0496941	7821	0.029871699	17	0.06161021	9696	0.045311207
2	0.00787276	1239	0.0047324	10	0.0524778	8259	0.031545013	18	0.06241599	9823	0.037518969
3	0.00582967	917	0.0035043	11	0.0578364	9102	0.0347661	19	0.0569003	8955	0.034203424
4	0.00668128	1051	0.0040162	12	0.0642607	10113	0.038627862	20	0.04795353	7547	0.02882542
5	0.01152229	1813	0.0069262	13	0.0681977	10732	0.040994402	21	0.04270681	6721	0.025671554
6	0.0240534	3785	0.0144588	14	0.0689006	10843	0.041416957	22	0.03476998	5472	0.020900637
7	0.0429856	6765	0.0258391	15	0.0661384	10408	0.039756569	23	0.02639671	4154	0.015867367
									TOTAL	157,373	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssions - Southbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01481049	2151	0.0082135	8	0.0600046	8717	0.051191664	16	0.05509767	8004	0.027008375
1	0.0142615	2072	0.0079091	9	0.055076	8001	0.030543841	17	0.05352202	7775	0.026236002
2	0.01479093	2149	0.0082027	10	0.0559088	8122	0.031005658	18	0.04561318	6626	0.025295966
3	0.0178104	2587	0.0098772	11	0.0566642	8231	0.031424576	19	0.03763954	5468	0.020873977
4	0.02883464	4189	0.015991	12	0.0582255	8458	0.032290478	20	0.03123322	4537	0.017321185
5	0.04555944	6618	0.0252662	13	0.0604508	8782	0.033524569	21	0.02735541	3974	0.015170648
6	0.0522093	7584	0.028954	14	0.059742	8679	0.033131473	22	0.02360854	3430	0.013092723
7	0.05817081	8450	0.0496272	15	0.055626	8081	0.03084885	23	0.01778489	2584	0.009863071
									TOTAL	145,267	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssions - Northbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.000637	8	0.0548297	548	0.002642091	16	0.05953207	595	0.002868686
1	0.01230255	123	0.0004957	9	0.0523851	524	0.002110857	17	0.05756611	576	0.002773952
2	0.01133185	113	0.0004566	10	0.0541933	542	0.002183719	18	0.05401459	540	0.002176518
3	0.01182004	118	0.0004763	11	0.0572503	573	0.0023069	19	0.04726992	473	0.001904742
4	0.01775796	178	0.0007156	12	0.0612431	612	0.002467793	20	0.03959337	396	0.001595415
5	0.02854086	285	0.0011501	13	0.0643243	643	0.002591946	21	0.03503111	350	0.001411579
6	0.03813135	381	0.0015365	14	0.0643213	643	0.002591828	22	0.02918926	292	0.001176182
7	0.0505782	506	0.0024372	15	0.0608822	609	0.00245325	23	0.0220908	221	0.000890149
									TOTAL	10,000	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssions - Southbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.0006213	8	0.0548297	548	0.002575045	16	0.05953207	595	0.00279589
1	0.01230255	123	0.0004832	9	0.0523851	524	0.002057292	17	0.05756611	576	0.00270356
2	0.01133185	113	0.000445	10	0.0541933	542	0.002128305	18	0.05401459	540	0.002121287
3	0.01182004	118	0.0004642	11	0.0572503	573	0.00224836	19	0.04726992	473	0.001856407
4	0.01775796	178	0.0006974	12	0.0612431	612	0.00240517	20	0.03959337	396	0.00155493
5	0.02854086	285	0.0011209	13	0.0643243	643	0.002526173	21	0.03503111	350	0.001375759
6	0.03813135	381	0.0014975	14	0.0643213	643	0.002526058	22	0.02918926	292	0.001146335
7	0.0505782	506	0.0023754	15	0.0608822	609	0.002390997	23	0.0220908	221	0.000867561
									TOTAL	10,000	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssi Eastbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.001060	8	0.0548297	1097	0.005522839	16	0.05953207	1191	0.005996497
1	0.01230255	246	0.0008241	9	0.0523851	1048	0.003509278	17	0.05756611	1151	0.005798471
2	0.01133185	227	0.0007591	10	0.0541933	1084	0.003630411	18	0.05401459	1080	0.003618439
3	0.01182004	236	0.0007918	11	0.0572503	1145	0.003835197	19	0.04726992	945	0.003166613
4	0.01775796	355	0.0011896	12	0.0612431	1225	0.00410268	20	0.03959337	792	0.002652361
5	0.02854086	571	0.001912	13	0.0643243	1286	0.004309084	21	0.03503111	701	0.002346735
6	0.03813135	763	0.0025544	14	0.0643213	1286	0.004308887	22	0.02918926	584	0.001955389
7	0.0505782	1012	0.0050946	15	0.0608822	1218	0.004078503	23	0.0220908	442	0.001479864
									TOTAL	20,000	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssi Westbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.0010465	8	0.0548297	1097	0.005453456	16	0.05953207	1191	0.005921164
1	0.01230255	246	0.0008138	9	0.0523851	1048	0.003465192	17	0.05756611	1151	0.005725626
2	0.01133185	227	0.0007496	10	0.0541933	1084	0.003584803	18	0.05401459	1080	0.003572981
3	0.01182004	236	0.0007819	11	0.0572503	1145	0.003787016	19	0.04726992	945	0.003126832
4	0.01775796	355	0.0011747	12	0.0612431	1225	0.004051139	20	0.03959337	792	0.00261904
5	0.02854086	571	0.0018879	13	0.0643243	1286	0.00425495	21	0.03503111	701	0.002317254
6	0.03813135	763	0.0025223	14	0.0643213	1286	0.004254755	22	0.02918926	584	0.001930824
7	0.0505782	1012	0.0050306	15	0.0608822	1218	0.004027265	23	0.0220908	442	0.001461272
									TOTAL	20,000	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssi Northbound I680 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	362	0.000855	8	0.0496547	1067	0.002522466	16	0.06396647	1374	0.003249502
1	0.0103436	222	0.0005255	9	0.0496941	1068	0.002524465	17	0.06161021	1324	0.003129804
2	0.00787276	169	0.0003999	10	0.0524778	1128	0.002665877	18	0.06241599	1341	0.003170738
3	0.00582967	125	0.0002961	11	0.0578364	1243	0.002938092	19	0.0569003	1223	0.00289054
4	0.00668128	144	0.0003394	12	0.0642607	1381	0.003264451	20	0.04795353	1030	0.002436044
5	0.01152229	248	0.0005853	13	0.0681977	1465	0.003464448	21	0.04270681	918	0.00216951
6	0.0240534	517	0.0012219	14	0.0689006	1480	0.003500158	22	0.03476998	747	0.001766318
7	0.0429856	924	0.0021837	15	0.0661384	1421	0.003359838	23	0.02639671	567	0.001340955
									TOTAL	21,487	

2023 Hourly Traffic Volumes and TOG Exhaust Emisssi Northbound Weigh Station XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	12	0.0001114	8	0.0496547	34	0.000328725	16	0.06396647	44	0.000423471
1	0.0103436	7	6.848E-05	9	0.0496941	34	0.000328985	17	0.06161021	42	0.000407872
2	0.00787276	5	5.212E-05	10	0.0524778	36	0.000347414	18	0.06241599	43	0.000413207
3	0.00582967	4	3.859E-05	11	0.0578364	40	0.000382888	19	0.0569003	39	0.000376692
4	0.00668128	5	4.423E-05	12	0.0642607	44	0.000425419	20	0.04795353	33	0.000317462
5	0.01152229	8	7.628E-05	13	0.0681977	47	0.000451482	21	0.04270681	29	0.000282728
6	0.0240534	17	0.0001592	14	0.0689006	47	0.000456136	22	0.03476998	24	0.000230184
7	0.0429856	30	0.0002846	15	0.0661384	45	0.00043785	23	0.02639671	18	0.000174752
									TOTAL	688	

2023 Hourly Traffic Volumes and TOG Evaporative Emisssions - Northbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	2,649	0.007847	8	0.0496547	7814	0.023149616	16	0.06396647	10067	0.064614124
1	0.0103436	1628	0.0048223	9	0.0496941	7821	0.023167966	17	0.06161021	9696	0.062234011
2	0.00787276	1239	0.0036704	10	0.0524778	8259	0.024465759	18	0.06241599	9823	0.029099054
3	0.00582967	917	0.0027179	11	0.0578364	9102	0.026963977	19	0.0569003	8955	0.026527576
4	0.00668128	1051	0.0031149	12	0.0642607	10113	0.029959092	20	0.04795353	7547	0.02235649
5	0.01152229	1813	0.0053718	13	0.0681977	10732	0.031794539	21	0.04270681	6721	0.019910406
6	0.0240534	3785	0.011214	14	0.0689006	10843	0.032122265	22	0.03476998	5472	0.016210167
7	0.0429856	6765	0.0200404	15	0.0661384	10408	0.030834497	23	0.02639671	4154	0.012306451
									TOTAL	157,373	

2023 Hourly Traffic Volumes and TOG Evaporative Emisssions - Southbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01481049	2151	0.0063703	8	0.0600046	8717	0.06710377	16	0.05509767	8004	0.025673451
1	0.0142615	2072	0.0061341	9	0.055076	8001	0.023689267	17	0.05352202	7775	0.024939254
2	0.01479093	2149	0.0063619	10	0.0559088	8122	0.024047444	18	0.04561318	6626	0.019619107
3	0.0178104	2587	0.0076606	11	0.0566642	8231	0.02437235	19	0.03763954	5468	0.01618949
4	0.02883464	4189	0.0124023	12	0.0582255	8458	0.025043928	20	0.03123322	4537	0.013434007
5	0.04555944	6618	0.019596	13	0.0604508	8782	0.026001067	21	0.02735541	3974	0.011766088
6	0.0522093	7584	0.0224562	14	0.059742	8679	0.025696189	22	0.02360854	3430	0.010154486
7	0.05817081	8450	0.065053	15	0.055626	8081	0.023925827	23	0.01778489	2584	0.007649624
									TOTAL	145,267	

2023 Hourly Traffic Volumes and TOG Evaporative Emisssions - Northbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.000897	8	0.0548297	548	0.003628857	16	0.05953207	595	0.003940081
1	0.01230255	123	0.0006979	9	0.0523851	524	0.002971768	17	0.05756611	576	0.003809965
2	0.01133185	113	0.0006428	10	0.0541933	542	0.003074347	18	0.05401459	540	0.003064209
3	0.01182004	118	0.0006705	11	0.0572503	573	0.003247767	19	0.04726992	473	0.002681589
4	0.01775796	178	0.0010074	12	0.0612431	612	0.00347428	20	0.03959337	396	0.002246104
5	0.02854086	285	0.0016191	13	0.0643243	643	0.003649069	21	0.03503111	350	0.00198729
6	0.03813135	381	0.0021632	14	0.0643213	643	0.003648903	22	0.02918926	292	0.001655886
7	0.0505782	506	0.0033475	15	0.0608822	609	0.003453806	23	0.0220908	221	0.001253195
									TOTAL	10,000	

2023 Hourly Traffic Volumes and TOG Evaporative Emisssions - Southbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.0008747	8	0.0548297	548	0.003536771	16	0.05953207	595	0.003840097
1	0.01230255	123	0.0006802	9	0.0523851	524	0.002896357	17	0.05756611	576	0.003713284
2	0.01133185	113	0.0006265	10	0.0541933	542	0.002996333	18	0.05401459	540	0.002986452
3	0.01182004	118	0.0006535	11	0.0572503	573	0.003165352	19	0.04726992	473	0.002613541
4	0.01775796	178	0.0009818	12	0.0612431	612	0.003386116	20	0.03959337	396	0.002189107
5	0.02854086	285	0.001578	13	0.0643243	643	0.00355647	21	0.03503111	350	0.001936861
6	0.03813135	381	0.0021083	14	0.0643213	643	0.003556308	22	0.02918926	292	0.001613866
7	0.0505782	506	0.0032625	15	0.0608822	609	0.003366162	23	0.0220908	221	0.001221394
									TOTAL	10,000	

2023 Hourly Traffic Volumes and TOG Evaporative Em Eastbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.001492	8	0.0548297	1097	0.007239525	16	0.05953207	1191	0.007860411
1	0.01230255	246	0.0011603	9	0.0523851	1048	0.004940533	17	0.05756611	1151	0.007600833
2	0.01133185	227	0.0010687	10	0.0541933	1084	0.00511107	18	0.05401459	1080	0.005094215
3	0.01182004	236	0.0011148	11	0.0572503	1145	0.005399378	19	0.04726992	945	0.004458113
4	0.01775796	355	0.0016748	12	0.0612431	1225	0.005775953	20	0.03959337	792	0.003734124
5	0.02854086	571	0.0026917	13	0.0643243	1286	0.006066539	21	0.03503111	701	0.003303849
6	0.03813135	763	0.0035962	14	0.0643213	1286	0.006066262	22	0.02918926	584	0.002752893
7	0.0505782	1012	0.0066782	15	0.0608822	1218	0.005741916	23	0.0220908	442	0.002083424
									TOTAL	20,000	

2023 Hourly Traffic Volumes and TOG Evaporative Em Westbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.0014733	8	0.0548297	1097	0.007148576	16	0.05953207	1191	0.007761663
1	0.01230255	246	0.0011457	9	0.0523851	1048	0.004878466	17	0.05756611	1151	0.007505345
2	0.01133185	227	0.0010553	10	0.0541933	1084	0.005046861	18	0.05401459	1080	0.005030218
3	0.01182004	236	0.0011008	11	0.0572503	1145	0.005331547	19	0.04726992	945	0.004402107
4	0.01775796	355	0.0016537	12	0.0612431	1225	0.005703391	20	0.03959337	792	0.003687213
5	0.02854086	571	0.0026579	13	0.0643243	1286	0.005990326	21	0.03503111	701	0.003262343
6	0.03813135	763	0.0035511	14	0.0643213	1286	0.005990053	22	0.02918926	584	0.002718309
7	0.0505782	1012	0.0065943	15	0.0608822	1218	0.005669781	23	0.0220908	442	0.002057251
									TOTAL	20,000	

2023 Hourly Traffic Volumes and TOG Evaporative Em Northbound I680 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	362	0.001204	8	0.0496547	1067	0.003551251	16	0.06396647	1374	0.004574808
1	0.0103436	222	0.0007398	9	0.0496941	1068	0.003554066	17	0.06161021	1324	0.004406291
2	0.00787276	169	0.0005631	10	0.0524778	1128	0.003753153	18	0.06241599	1341	0.00446392
3	0.00582967	125	0.0004169	11	0.0578364	1243	0.00413639	19	0.0569003	1223	0.004069444
4	0.00668128	144	0.0004778	12	0.0642607	1381	0.004595853	20	0.04795353	1030	0.003429582
5	0.01152229	248	0.0008241	13	0.0681977	1465	0.004877419	21	0.04270681	918	0.003054342
6	0.0240534	517	0.0017203	14	0.0689006	1480	0.004927694	22	0.03476998	747	0.002486709
7	0.0429856	924	0.0030743	15	0.0661384	1421	0.004730144	23	0.02639671	567	0.001887863
									TOTAL	21,487	

2023 Hourly Traffic Volumes and TOG Evaporative Em Northbound Weigh Station XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	12	1.745E-05	8	0.0496547	34	5.14819E-05	16	0.06396647	44	6.63202E-05
1	0.0103436	7	1.072E-05	9	0.0496941	34	5.15227E-05	17	0.06161021	42	6.38773E-05
2	0.00787276	5	8.162E-06	10	0.0524778	36	5.44088E-05	18	0.06241599	43	6.47127E-05
3	0.00582967	4	6.044E-06	11	0.0578364	40	5.99646E-05	19	0.0569003	39	5.89941E-05
4	0.00668128	5	6.927E-06	12	0.0642607	44	6.66253E-05	20	0.04795353	33	4.97181E-05
5	0.01152229	8	1.195E-05	13	0.0681977	47	7.07071E-05	21	0.04270681	29	4.42783E-05
6	0.0240534	17	2.494E-05	14	0.0689006	47	7.1436E-05	22	0.03476998	24	3.60494E-05
7	0.0429856	30	4.457E-05	15	0.0661384	45	6.85721E-05	23	0.02639671	18	2.7368E-05
									TOTAL	688	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Northbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	2,649	0.008975	8	0.0496547	7814	0.026477499	16	0.06396647	10067	0.034108963
1	0.0103436	1628	0.0055155	9	0.0496941	7821	0.026498486	17	0.06161021	9696	0.032852532
2	0.00787276	1239	0.004198	10	0.0524778	8259	0.027982844	18	0.06241599	9823	0.0332822
3	0.00582967	917	0.0031086	11	0.0578364	9102	0.030840195	19	0.0569003	8955	0.030341058
4	0.00668128	1051	0.0035627	12	0.0642607	10113	0.034265874	20	0.04795353	7547	0.025570356
5	0.01152229	1813	0.0061441	13	0.0681977	10732	0.036365176	21	0.04270681	6721	0.022772635
6	0.0240534	3785	0.012826	14	0.0689006	10843	0.036740015	22	0.03476998	5472	0.018540466
7	0.0429856	6765	0.0229213	15	0.0661384	10408	0.035267123	23	0.02639671	4154	0.01407557
									TOTAL	157,373	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Southbound I-680 XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01481049	2151	0.007286	8	0.0600046	8717	0.029519346	16	0.05509767	8004	0.027105368
1	0.0142615	2072	0.007016	9	0.055076	8001	0.027094728	17	0.05352202	7775	0.026330221
2	0.01479093	2149	0.0072764	10	0.0559088	8122	0.027504395	18	0.04561318	6626	0.02243946
3	0.0178104	2587	0.0087618	11	0.0566642	8231	0.027876007	19	0.03763954	5468	0.018516817
4	0.02883464	4189	0.0141852	12	0.0582255	8458	0.028644128	20	0.03123322	4537	0.015365219
5	0.04555944	6618	0.022413	13	0.0604508	8782	0.029738861	21	0.02735541	3974	0.013457527
6	0.0522093	7584	0.0256844	14	0.059742	8679	0.029390155	22	0.02360854	3430	0.011614248
7	0.05817081	8450	0.0286172	15	0.055626	8081	0.027365294	23	0.01778489	2584	0.008749299
									TOTAL	145,267	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Northbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.000708	8	0.0548297	548	0.002452635	16	0.05953207	595	0.002662982
1	0.01230255	123	0.0005503	9	0.0523851	524	0.002343283	17	0.05756611	576	0.002575041
2	0.01133185	113	0.0005069	10	0.0541933	542	0.002424169	18	0.05401459	540	0.002416174
3	0.01182004	118	0.0005287	11	0.0572503	573	0.002560913	19	0.04726992	473	0.002114473
4	0.01775796	178	0.0007943	12	0.0612431	612	0.002739521	20	0.03959337	396	0.001771086
5	0.02854086	285	0.0012767	13	0.0643243	643	0.002877345	21	0.03503111	350	0.001567008
6	0.03813135	381	0.0017057	14	0.0643213	643	0.002877214	22	0.02918926	292	0.001305691
7	0.0505782	506	0.0022625	15	0.0608822	609	0.002723377	23	0.0220908	221	0.000988163
									TOTAL	10,000	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emisssions - Southbound Oak Road XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	158	0.0006897	8	0.0548297	548	0.002390397	16	0.05953207	595	0.002595406
1	0.01230255	123	0.0005364	9	0.0523851	524	0.00228382	17	0.05756611	576	0.002509697
2	0.01133185	113	0.000494	10	0.0541933	542	0.002362653	18	0.05401459	540	0.002354862
3	0.01182004	118	0.0005153	11	0.0572503	573	0.002495927	19	0.04726992	473	0.002060816
4	0.01775796	178	0.0007742	12	0.0612431	612	0.002670003	20	0.03959337	396	0.001726143
5	0.02854086	285	0.0012443	13	0.0643243	643	0.00280433	21	0.03503111	350	0.001527243
6	0.03813135	381	0.0016624	14	0.0643213	643	0.002804202	22	0.02918926	292	0.001272558
7	0.0505782	506	0.002205	15	0.0608822	609	0.002654269	23	0.0220908	221	0.000963088
									TOTAL	10,000	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emi Eastbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.001177	8	0.0548297	1097	0.004077481	16	0.05953207	1191	0.00442718
1	0.01230255	246	0.0009149	9	0.0523851	1048	0.003895684	17	0.05756611	1151	0.004280979
2	0.01133185	227	0.0008427	10	0.0541933	1084	0.004030155	18	0.05401459	1080	0.004016865
3	0.01182004	236	0.000879	11	0.0572503	1145	0.00425749	19	0.04726992	945	0.003515289
4	0.01775796	355	0.0013206	12	0.0612431	1225	0.004554425	20	0.03959337	792	0.002944413
5	0.02854086	571	0.0021225	13	0.0643243	1286	0.004783557	21	0.03503111	701	0.002605134
6	0.03813135	763	0.0028357	14	0.0643213	1286	0.004783338	22	0.02918926	584	0.002170697
7	0.0505782	1012	0.0037613	15	0.0608822	1218	0.004527586	23	0.0220908	442	0.001642811
									TOTAL	20,000	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emi Westbound Treat Blvd. XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.0158207	316	0.0011617	8	0.0548297	1097	0.004026256	16	0.05953207	1191	0.004371562
1	0.01230255	246	0.0009034	9	0.0523851	1048	0.003846744	17	0.05756611	1151	0.004227198
2	0.01133185	227	0.0008321	10	0.0541933	1084	0.003979525	18	0.05401459	1080	0.003966402
3	0.01182004	236	0.000868	11	0.0572503	1145	0.004204004	19	0.04726992	945	0.003471127
4	0.01775796	355	0.001304	12	0.0612431	1225	0.004497209	20	0.03959337	792	0.002907423
5	0.02854086	571	0.0020958	13	0.0643243	1286	0.004723462	21	0.03503111	701	0.002572406
6	0.03813135	763	0.0028001	14	0.0643213	1286	0.004723246	22	0.02918926	584	0.002143427
7	0.0505782	1012	0.0037141	15	0.0608822	1218	0.004470707	23	0.0220908	442	0.001622173
									TOTAL	20,000	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emi Northbound I680 Off Ramp XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	362	0.000741	8	0.0496547	1067	0.002187103	16	0.06396647	1374	0.002817479
1	0.0103436	222	0.0004556	9	0.0496941	1068	0.002188836	17	0.06161021	1324	0.002713695
2	0.00787276	169	0.0003468	10	0.0524778	1128	0.002311448	18	0.06241599	1341	0.002749187
3	0.00582967	125	0.0002568	11	0.0578364	1243	0.002547471	19	0.0569003	1223	0.002506242
4	0.00668128	144	0.0002943	12	0.0642607	1381	0.00283044	20	0.04795353	1030	0.002112171
5	0.01152229	248	0.0005075	13	0.0681977	1465	0.003003848	21	0.04270681	918	0.001881072
6	0.0240534	517	0.0010595	14	0.0689006	1480	0.00303481	22	0.03476998	747	0.001531485
7	0.0429856	924	0.0018934	15	0.0661384	1421	0.002913146	23	0.02639671	567	0.001162675
									TOTAL	21,487	

2023 Hourly Traffic Volumes and Fugitive PM2.5 Emi Northbound Weigh Station XXX

Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s	Hour	Fraction Per Hour	VPH	g/s
0	0.01683092	12	0.0009774	8	0.0496547	34	0.002883602	16	0.06396647	44	0.003714727
1	0.0103436	7	0.0006007	9	0.0496941	34	0.002885888	17	0.06161021	42	0.003577892
2	0.00787276	5	0.0004572	10	0.0524778	36	0.003047546	18	0.06241599	43	0.003624686
3	0.00582967	4	0.0003385	11	0.0578364	40	0.003358733	19	0.0569003	39	0.003304373
4	0.00668128	5	0.000388	12	0.0642607	44	0.003731815	20	0.04795353	33	0.002784807
5	0.01152229	8	0.0006691	13	0.0681977	47	0.003960446	21	0.04270681	29	0.002480114
6	0.0240534	17	0.0013969	14	0.0689006	47	0.004001268	22	0.03476998	24	0.002019198
7	0.0429856	30	0.0024963	15	0.0661384	45	0.003840859	23	0.02639671	18	0.001532937
									TOTAL	688	

WS Idle

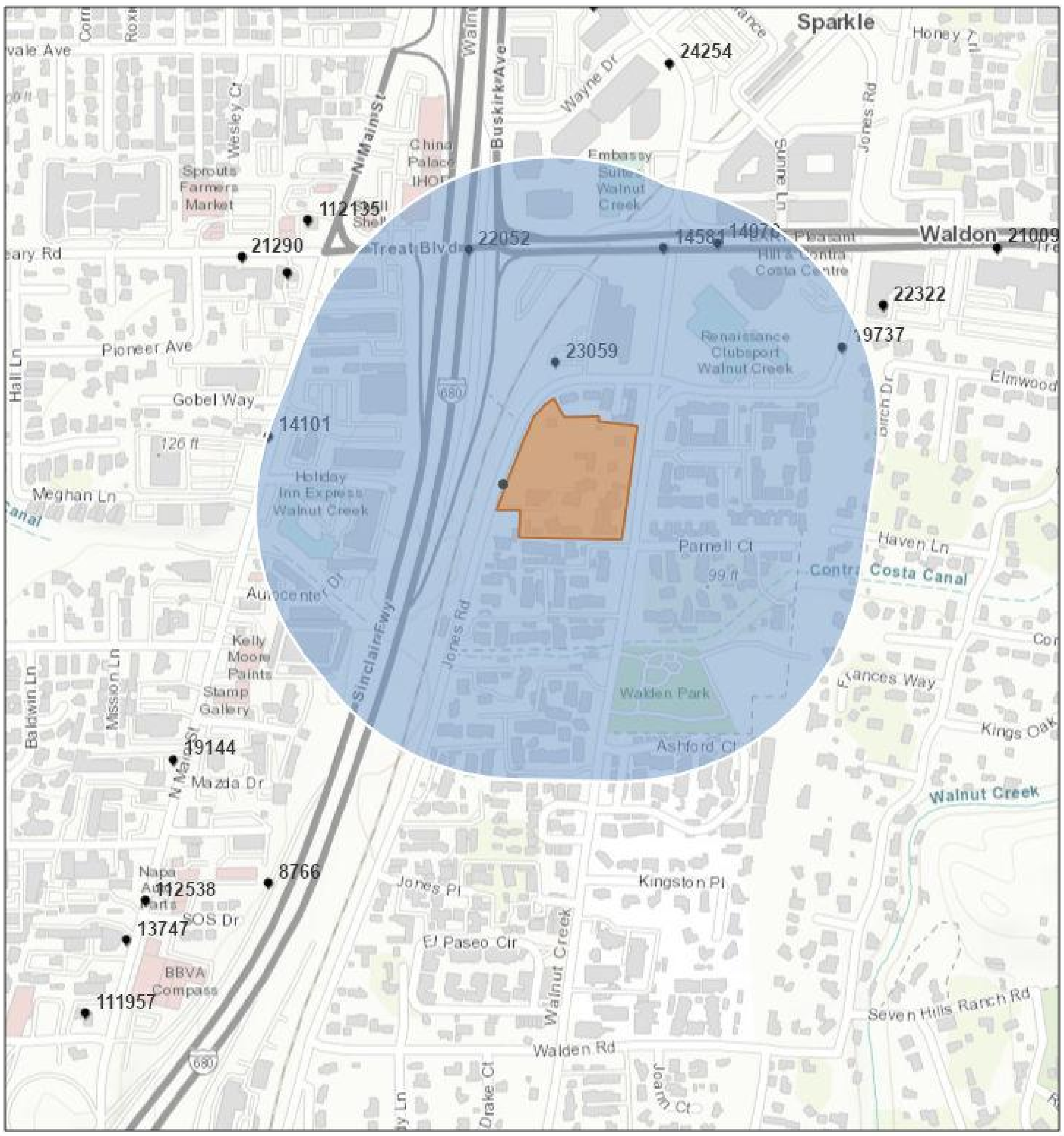
g/veh mile @5 mph	g/hr	g/min	veh/day	Idel Time	g/day	g/hr	g/min	g/s
0.011113	0.002223	3.70433E-05	344	1	0.012735	0.000531	8.84407E-06	1.47401E-07

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 5,541,789.99 ft²

Jan 6 2021 10:37:19 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	6	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	14070	S F Bay Area Rapid Transit District	1365 Treat Boulevard	Walnut Creek	CA
2	14101	AT&T Services, Inc	2741 N Main Street	Walnut Creek	CA
3	14581	Jones Lang LaSalle	1350 Treat Boulevard	Walnut Creek	CA
4	19737	Avalon Bay Communities, Inc	Harvey Rd, Parel # 148 221 042	Walnut Creek	CA
5	22052	MLM Treat Towers Property, LLC c/o CBRE, Inc	1255 Treat Boulevard	Walnut Creek	CA
6	23059	Level 3 Communications LLC	1340 Treat Boulevard	Walnut Creek	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94596	Contra Costa	49.550	0.130	0.060	Generators	1
2	94596	Contra Costa	1.260	0.060	0.050	Generators	1
3	94597	Contra Costa	1.840	0.000	0.000	Generators	1
4	94596	Contra Costa	1.830	0.000	0.000	Generators	1
5	94597	Contra Costa	5.440	0.010	0.010	Generators	1
6	94597	Contra Costa	2.380	0.000	0.000	Generators	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.

Attachment 6: Cumulative Source Health Risk Calculations

Jones Road Condo Project, Walnut Creek - Roadway Impacts to Construction MEI - PM2.5
AERMOD Risk Modeling Parameters and Maximum Concentrations
1st Floor MEI Receptors

Emissions Years	2023
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	1.5 (1st Floor)
Receptor Distances =	Construction MEI Location
Meteorological Conditions	
BAAQMD Concord Met Data	2012 - 2015, 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

I-680 - Construction MEI Maximum Concentrations - Floor 1

Meteorological Data Years	PM2.5 Concentrations (μg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2012 - 2015, 2017	0.64091	0.59908	0.04183

Oak Road - Construction MEI Maximum Concentrations - Floor 1

Meteorological Data Years	PM2.5 Concentrations (μg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2012 - 2015, 2017	0.21945	0.20963	0.00982

Treat Blvd. - Construction MEI Maximum Concentrations - Floor 1

Meteorological Data Years	PM2.5 Concentrations (μg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2012 - 2015, 2017	0.05831	0.05538	0.00293

NB Off Ramp - Construction MEI Maximum Concentrations - Floor 1

Meteorological Data Years	PM2.5 Concentrations (μg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2012 - 2015, 2017	0.04858	0.0459	0.00268

Weigh Station - Construction MEI Maximum Concentrations - Floor 1

Meteorological Data Years	PM2.5 Concentrations (μg/m^3)		
	Total PM2.5	Fugitive PM2.5	Vehicle PM2.5
2012 - 2015, 2017	0.00046	0	0.00046

Jones Road Condo Project, Walnut Creek - Roadway Impacts to Construction MEI - Cancer & HI
AERMOD Risk Modeling Parameters and Maximum Concentrations
2nd Floor MEI Receptors

Emissions Years	2023
Receptor Information	
Number of Receptors	
Receptor Height (in m) =	4.55 (2nd Floor)
Receptor Distances =	Construction MEI Location
Meteorological Conditions	
BAAQMD Concord Met Data	2012 - 2015, 2017
Land Use Classification	urban
Wind Speed =	variable
Wind Direction =	variable

I-680 - Construction MEI Maximum Concentrations - Floor 2

Meteorological	TAC Concentrations ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2012 - 2015, 2017	0.01655	0.74532	0.64407

Oak Road - Construction MEI Maximum Concentrations - Floor 2

Meteorological	TAC Concentrations ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2012 - 2015, 2017	0.00144	0.12687	0.17778

Treat Blvd. - Construction MEI Maximum Concentrations - Floor 2

Meteorological	TAC Concentrations ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2012 - 2015, 2017	0.00029	0.02776	0.03782

NB Off Ramp - Construction MEI Maximum Concentrations - Floor 2

Meteorological	TAC Concentrations ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2012 - 2015, 2017	0.00061	0.05046	0.07104

Weigh Station - Construction MEI Maximum Concentrations - Floor 2

Meteorological	TAC Concentrations ($\mu g/m^3$)		
Data Years	DPM	Exhaust TOG	Evaporative TOG
2012 - 2015, 2017	0.00035		

Jones Road Condo Project, Walnut Creek - I-680 Impacts to Construction MEI
Maximum DPM Cancer Risk and PM2.5 Calculations
4.55 meter receptor height

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 --> Parameter	3rd Trimester	0 - 2	2 - 16	16 - 30
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	Maximum Hazard Index
0	0.25	-0.25 - 0*	2023	10	0.0166	0.7453	0.6441	0.225	0.058	0.0029	0.29	
1	1	0 - 1	2023	10	0.0166	0.7453	0.6441	2.718	0.699	0.0356	3.45	0.0033
2	1	1 - 2	2024	10	0.0166	0.7453	0.6441	2.718	0.699	0.0356	3.45	
3	1	2 - 3	2025	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
4	1	3 - 4	2026	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
5	1	4 - 5	2027	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
6	1	5 - 6	2028	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
7	1	6 - 7	2029	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
8	1	7 - 8	2030	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
9	1	8 - 9	2031	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
10	1	9 - 10	2032	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
11	1	10 - 11	2033	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
12	1	11 - 12	2034	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
13	1	12 - 13	2035	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
14	1	13 - 14	2036	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
15	1	14 - 15	2037	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
16	1	15 - 16	2038	3	0.0166	0.7453	0.6441	0.428	0.110	0.0056	0.54	
17	1	16-17	2039	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
18	1	17-18	2040	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
19	1	18-19	2041	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
20	1	19-20	2042	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
21	1	20-21	2043	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
22	1	21-22	2044	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
23	1	22-23	2045	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
24	1	23-24	2046	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
25	1	24-25	2047	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
26	1	25-26	2048	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
27	1	26-27	2049	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
28	1	27-28	2050	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
29	1	28-29	2051	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
30	1	29-30	2052	1	0.0166	0.7453	0.6441	0.048	0.012	0.0006	0.060	
Total Increased Cancer Risk								12.32	3.167	0.161	**15.6**	

* Third trimester of pregnancy

Jones Road Condo Project, Walnut Creek - NB Off Ramp Impacts to Construction MEI
Maximum DPM Cancer Risk and PM2.5 Calculations
4.55 meter receptor height

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**	**Maximum Hazard Index**
0	0.25	-0.25 - 0*	2023	10	0.0006	0.0505	0.0710	0.008	0.004	0.0003	0.01	
1	1	0 - 1	2023	10	0.0006	0.0505	0.0710	0.100	0.047	0.0039	0.15	0.0001
2	1	1 - 2	2024	10	0.0006	0.0505	0.0710	0.100	0.047	0.0039	0.15	
3	1	2 - 3	2025	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
4	1	3 - 4	2026	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
5	1	4 - 5	2027	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
6	1	5 - 6	2028	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
7	1	6 - 7	2029	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
8	1	7 - 8	2030	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
9	1	8 - 9	2031	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
10	1	9 - 10	2032	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
11	1	10 - 11	2033	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
12	1	11 - 12	2034	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
13	1	12 - 13	2035	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
14	1	13 - 14	2036	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
15	1	14 - 15	2037	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
16	1	15 - 16	2038	3	0.0006	0.0505	0.0710	0.016	0.007	0.0006	0.02	
17	1	16-17	2039	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
18	1	17-18	2040	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
19	1	18-19	2041	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
20	1	19-20	2042	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
21	1	20-21	2043	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
22	1	21-22	2044	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
23	1	22-23	2045	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
24	1	23-24	2046	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
25	1	24-25	2047	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
26	1	25-26	2048	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
27	1	26-27	2049	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
28	1	27-28	2050	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
29	1	28-29	2051	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
30	1	29-30	2052	1	0.0006	0.0505	0.0710	0.002	0.001	0.0001	0.003	
Total Increased Cancer Risk								0.45	0.214	0.018	**0.7**	

* Third trimester of pregnancy

Jones Road Condo Project, Walnut Creek - Oak Road Impacts to Construction MEI
Maximum DPM Cancer Risk and PM2.5 Calculations
4.55 meter receptor height

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	Maximum Hazard Index
0	0.25	-0.25 - 0*	2023	10	0.0014	0.1269	0.1778	0.020	0.010	0.0008	0.03	
1	1	0 - 1	2023	10	0.0014	0.1269	0.1778	0.237	0.119	0.0098	0.37	0.0003
2	1	1 - 2	2024	10	0.0014	0.1269	0.1778	0.237	0.119	0.0098	0.37	
3	1	2 - 3	2025	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
4	1	3 - 4	2026	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
5	1	4 - 5	2027	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
6	1	5 - 6	2028	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
7	1	6 - 7	2029	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
8	1	7 - 8	2030	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
9	1	8 - 9	2031	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
10	1	9 - 10	2032	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
11	1	10 - 11	2033	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
12	1	11 - 12	2034	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
13	1	12 - 13	2035	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
14	1	13 - 14	2036	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
15	1	14 - 15	2037	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
16	1	15 - 16	2038	3	0.0014	0.1269	0.1778	0.037	0.019	0.0015	0.06	
17	1	16-17	2039	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
18	1	17-18	2040	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
19	1	18-19	2041	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
20	1	19-20	2042	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
21	1	20-21	2043	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
22	1	21-22	2044	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
23	1	22-23	2045	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
24	1	23-24	2046	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
25	1	24-25	2047	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
26	1	25-26	2048	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
27	1	26-27	2049	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
28	1	27-28	2050	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
29	1	28-29	2051	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
30	1	29-30	2052	1	0.0014	0.1269	0.1778	0.004	0.002	0.0002	0.006	
Total Increased Cancer Risk								1.07	0.539	0.045	**1.7**	

* Third trimester of pregnancy

Jones Road Condo Project, Walnut Creek - Treat Blvd. Impacts to Construction MEI
Maximum DPM Cancer Risk and PM2.5 Calculations
4.55 meter receptor height

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*	2023	10	0.0003	0.0278	0.0378	0.004	0.002	0.0002	0.01
1	1	0 - 1	2023	10	0.0003	0.0278	0.0378	0.048	0.026	0.0021	0.08
2	1	1 - 2	2024	10	0.0003	0.0278	0.0378	0.048	0.026	0.0021	0.08
3	1	2 - 3	2025	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
4	1	3 - 4	2026	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
5	1	4 - 5	2027	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
6	1	5 - 6	2028	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
7	1	6 - 7	2029	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
8	1	7 - 8	2030	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
9	1	8 - 9	2031	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
10	1	9 - 10	2032	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
11	1	10 - 11	2033	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
12	1	11 - 12	2034	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
13	1	12 - 13	2035	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
14	1	13 - 14	2036	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
15	1	14 - 15	2037	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
16	1	15 - 16	2038	3	0.0003	0.0278	0.0378	0.007	0.004	0.0003	0.01
17	1	16-17	2039	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
18	1	17-18	2040	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
19	1	18-19	2041	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
20	1	19-20	2042	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
21	1	20-21	2043	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
22	1	21-22	2044	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
23	1	22-23	2045	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
24	1	23-24	2046	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
25	1	24-25	2047	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
26	1	25-26	2048	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
27	1	26-27	2049	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
28	1	27-28	2050	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
29	1	28-29	2051	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
30	1	29-30	2052	1	0.0003	0.0278	0.0378	0.001	0.000	0.0000	0.001
Total Increased Cancer Risk								0.22	0.118	0.009	**0.3**

* Third trimester of pregnancy

Maximum Hazard Index
0.0001

Jones Road Condo Project, Walnut Creek - Weigh Station Impacts to Construction MEI
Maximum DPM Cancer Risk and PM2.5 Calculations
4.55 meter receptor height

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		Maximum
0	0.25	-0.25 - 0*	2023	10	0.0004	0.0000	0.0000	0.005	0.000	0.0000	0.00	Hazard Index
1	1	0 - 1	2023	10	0.0004	0.0000	0.0000	0.057	0.000	0.0000	0.06	0.0001
2	1	1 - 2	2024	10	0.0004	0.0000	0.0000	0.057	0.000	0.0000	0.06	
3	1	2 - 3	2025	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
4	1	3 - 4	2026	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
5	1	4 - 5	2027	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
6	1	5 - 6	2028	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
7	1	6 - 7	2029	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
8	1	7 - 8	2030	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
9	1	8 - 9	2031	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
10	1	9 - 10	2032	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
11	1	10 - 11	2033	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
12	1	11 - 12	2034	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
13	1	12 - 13	2035	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
14	1	13 - 14	2036	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
15	1	14 - 15	2037	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
16	1	15 - 16	2038	3	0.0004	0.0000	0.0000	0.009	0.000	0.0000	0.01	
17	1	16-17	2039	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
18	1	17-18	2040	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
19	1	18-19	2041	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
20	1	19-20	2042	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
21	1	20-21	2043	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
22	1	21-22	2044	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
23	1	22-23	2045	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
24	1	23-24	2046	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
25	1	24-25	2047	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
26	1	25-26	2048	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
27	1	26-27	2049	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
28	1	27-28	2050	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
29	1	28-29	2051	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
30	1	29-30	2052	1	0.0004	0.0000	0.0000	0.001	0.000	0.0000	0.001	
Total Increased Cancer Risk								0.26	0.000	0.000	**0.3**	

* Third trimester of pregnancy

Diesel Internal Combustion (IC) Engine Distance Multiplier Tool: This distance multiplier tool refines t values for cancer risk and PM2.5 concentrations found in the District's Stationary Source Screening Anal permitted facilities which contain only diesel IC engines, to represent adjusted risk and hazard impacts t expected with farther distances from the source of emissions.

Diesel Backup Generator

Distance (meters)	Distance (feet)	**Distance adjustment multiplier**	**Enter Risk or Hazard**	**Adjusted Risk or Hazard**	**Enter PM2.5 Concentration**
0	0.0	1.000		0	
5	16.4	1.000		0	
10	32.8	1.000		0	
15	49.2	1.000		0	
20	65.6	1.000		0	
25	82.0	0.85		0	
30	98.4	0.73		0	
35	114.8	0.64		0	
40	131.2	0.58		0	
50	164.0	0.5		0	
60	196.9	0.41		0	
70	229.7	0.31		0	
80	262.5	0.28		0	
90	295.3	0.25		0	
100	328.1	0.22		0	
110	360.9	0.18		0	
120	393.7	0.16		0	
130	426.5	0.15		0	
140	459.3	0.14		0	
150	492.1	0.12		0	
160	524.9	0.1		0	
180	590.6	0.09		0	
200	656.2	0.08		0	
220	721.8	0.07		0	
240	787.4	0.06		0	
260	853.0	0.05		0	
280	918.6	0.04	49.55	1.982	

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	**1/6/2021**
Contact Name	Casey Divine
Affiliation	Illingworth & Rodkin, Inc.
Phone	707-794-0400 x103
Email	cdivine@illingworthrodkin.com
Project Name	2740 Jones Rd
Address	2740 Jones Rd
City	Walnut Creek
County	Contra Costa
Type (residential, commercial, mixed use, industrial, etc.)	Residential
Project Size (# of units or building square feet)	125du
Comments:	

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

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

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

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

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

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

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

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

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

Submit forms, maps, and questions to Areana Flores at 415-749-4616, or aflores@baaqmd.gov

Table B: Google Earth data

Distance from Receptor (feet) or MEI[1]	Plant No.	Facility Name	Address	Cancer Risk[2]	Hazard Risk[2]	$PM_{2.5}$[2]	Source No.[3]	Type of Source[4]	Fuel Code[5]	Status/Comments
	14070	S F Bay Area Rapid Transit District	1365 Treat Boulevard	49.55	0.13	0.06		Generators		2018 Dataset
	14101	AT&T Services, Inc	2741 N Main Street	1.26	0.06	0.05		Generators		2018 Dataset
	14581	Jones Lang LaSalle	1350 Treat Boulevard	1.84	--	--		Generators		2018 Dataset
	19737	Avalon Bay Communities, Inc	Harvey Rd, Parel # 148 221 042	1.83	--	--		Generators		2018 Dataset
	22052	MLM Treat Towers Property, LLC c/o CBRE, Inc	1255 Treat Boulevard	5.44	0.01	0.01		Generators		2018 Dataset
	23059	Level 3 Communications LLC	1340 Treat Boulevard	2.38	--	--		Generators		2018 Dataset

Construction MEI

Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
0.04	2.0	0.005	0.00
0.04	0.1	0.002	0.00
0.07	0.1		
0.04	0.1		
0.04	0.2	0.000	0.00
0.28	0.7		

Footnotes:

1. Maximally exposed individual

Project Site

Distance from Receptor (feet) or MEI[1]	FACID (Plant No.)	Distance Adjustment Multiplier	Adjusted Cancer Risk Estimate	Adjusted Hazard Risk	Adjusted PM2.5
920+	14070	0.04	1.98	0.01	0.002
920+	14101	0.04	0.05	0.002	0.002
751	14581	0.07	0.13		
920+	19737	0.04	0.07		
920+	22052	0.04	0.22	0.000	0.000
282	23059	0.28	0.67		

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

Date last updated:
03/13/2018

Attachment 7: Contra Costa County – CAP Development Checklist

Development Checklist

DEVELOPMENT CHECKLIST

Project Description Characteristics

Please identify the applicable land uses included in the proposed project and provide a brief description of the proposed project (or the project description to be used for the associated environmental document).

1) What is the size of the project (in acres)?:

2) Identify the applicable land uses:

- ☐ Residential
- ☐ Commercial
- ☐ Industrial
- ☐ Manufacturing
- ☐ Other

3) If there is a residential component to the project, how many units are being proposed?

SINGLE-FAMILY RESIDENCES:	
MULTI-FAMILY RESIDENCES:	

4) Please provide a brief project description:

5) Does the project require any amendments to the General Plan or specific plans?

☐ Yes ☐ No

If yes, please explain:

Development Checklist

6) Is the project located in a specific plan area?

☐ Yes ☐ No

If yes, which one?

7) Please complete the following table to identify project compliance with any applicable CAP measures.

Table E.1. Standards for CAP Consistency – New Development

Reduction Measure and Applicable Standard	Does the Project Comply?	Notes & Comments
EE 1 & EE 6. New residential development will install high-efficiency appliances and insulation to prepare for the statewide transition to zero net energy.	☐ Yes ☐ No ☐ N/A	Additional Notes:
EE 1. New nonresidential development will install high-efficiency appliances and insulation.	☐ Yes ☐ No ☐ N/A	Additional Notes:
RE 1. New residential and nonresidential development will meet the standards to be solar ready as defined by the California Building Standards Code.	☐ Yes ☐ No ☐ N/A	If yes, how many kW of solar will be installed? Additional Notes:
LUT 2. New single-family houses and multi-family units with private attached garages or carports will provide prewiring for EV charging stations inside the garage or carport.	☐ Yes ☐ No ☐ N/A	If yes, how many spaces are prewired? Additional Notes:
LUT 2. New multi-family (greater than five units) and nonresidential (greater than 10,000 square feet) developments will provide EV charging stations in designated parking spots.	☐ Yes ☐ No ☐ N/A	If yes, how many spaces are prewired? Additional Notes:
LUT 4. New residential and nonresidential development will be located within one half-mile of a BART or Amtrak station, or within one quarter-mile of bus station.	☐ Yes ☐ No ☐ N/A	If yes, what is the vehicle miles traveled reduction from the project? Additional Notes:

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B.2 - Energy Supporting Material

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Appendix B2: Energy Supporting Information

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Oak Road Solar Calculation

According to project information provided by the project applicant, each dwelling unit would include solar panel electricity generation in compliance with the California Building Code. According to the California Code of Regulations, Title 24, Part 6, Subchapter 8 – Low-Rise Residential Building – Performance and Prescriptive Compliance Approaches, "[a]ll low-rise residential buildings shall have a photovoltaic (PV) system meeting the minimum qualification requirements as specified in Joint Appendix JA11, with annual electrical output equal or greater than the dwelling's annual electrical usage as determined by Equation 150.1-C:"

Equation 150.1-C Annual Photovoltaic Electrical Output

$$kW_{PV} = (CFA \times A)/1{,}000 + (NDwell \times B)$$

Where:

kW_{PV} = kWdc size of the PV system

CFA = conditioned floor area

NDwell = number of dwelling units

A = Adjustment factor from Table 150.1-C

B = Dwelling adjustment factor from Table 150.1-C

As the project is located in climate zone 12, the A adjustment factor mentioned above is identified as 0.613 and the B adjustment factor mentioned above is identified as 1.40. The conditioned floor area is drawn from the project site plans.

Therefore:

$$kW_{PV} = (292{,}965 \times 0.613)/1{,}000 + (125 \times 1.40) = 354.59$$

While this accounts for the entire project's kW PV system, it does not provide the annual production rate that would be generated by this size of system. Therefore, the total kW PV system was reduced to a per-dwelling-unit kW PV system to determine the expected annual production rate. 354.59 kW PV divided by 125 dwelling units results in an average 2.84 kW PV system per dwelling unit.

According to TheEcoExperts.com,[1] a 3-kW PV system has an average annual production rate of 2,550 kWh/year. The below equation proportionally applies the same average annual production rate to the calculated 2.84-kW system per each dwelling unit.

$$(2.84/3) * 2{,}550 \text{ kWh/year} = 2{,}411 \text{ kWh/year}$$

Therefore, the proposed project is expected to result in an average on-site electricity generation rate of 2,411 kWh per dwelling unit per year. The following equation converts this to total annual on-site electricity generation.

Therefore:

$$2{,}411 \text{ kWh/year} * 125 \text{ Residences} = 301{,}399 \text{ kWh/year}$$

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[1] TheEcoExperts. 2016. "Solar Panel Output." Website: http://www.theecoexperts.com/solar-panel-output/. Accessed June 9, 2021.

Jones Energy Use Summary

Summary of Energy Use During Construction		(Annually)
Construction vehicle fuel	23,042	gallons (gasoline, diesel)
Construction equipment fuel	36,941	gallons (diesel)
Total construction fuel	59,983	gallons (gasoline, diesel)
Construction office electricity	15,722	kilowatt hours
Summary of Energy Use During Operations		(Annually)
Operation vehicle fuel	63,021	gallons (gasoline, diesel)
Operation natural gas	0	kilo-British Thermal Units
Operation electricity	635,439	kilowatt hours

Construction Vehicle Fuel Calculations

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

VMT = Vehicle Miles Traveled
FE = Fuel Economy

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: CONTRA COSTA
Calendar Year: 2022
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

										Calculations	
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT (mi/day)	Trips	Fuel_Consumption (1000 gallons/day)	FE (mi/gallon)	VMT*FE
Contra Costa	2022	HHDT	Aggregate	Aggregate	Gasoline	0.9496099	42.91312698	18.99979	0.011546	3.716791577	159.4991489
Contra Costa	2022	HHDT	Aggregate	Aggregate	Diesel	4876.6404	585418.4295	71120.8	102.6014	5.705754004	3340253.548
Contra Costa	2022	LDA	Aggregate	Aggregate	Gasoline	342251.92	12704198.87	1582160	439.292	28.9197147	367401806.8
Contra Costa	2022	LDA	Aggregate	Aggregate	Diesel	1556.0913	46980.82767	6671.794	1.103856	42.56066547	1999535.29
Contra Costa	2022	LDT1	Aggregate	Aggregate	Gasoline	34814.393	1206518.068	153809	49.39174	24.42752764	29472253.44
Contra Costa	2022	LDT1	Aggregate	Aggregate	Diesel	20.697141	267.2282897	62.24244	0.010952	24.39979	6520.314151
Contra Costa	2022	LDT2	Aggregate	Aggregate	Gasoline	152545.32	6089112.878	712346.6	262.2508	23.21866188	141381053
Contra Costa	2022	LDT2	Aggregate	Aggregate	Diesel	617.40941	26019.32464	2945.699	0.838609	31.02676557	807295.4859
Contra Costa	2022	LHDT1	Aggregate	Aggregate	Gasoline	12752.806	469718.3997	189997.8	50.82692	9.241527444	4340915.482
Contra Costa	2022	LHDT1	Aggregate	Aggregate	Diesel	8526.488	320734.9157	107252.5	20.43036	15.69893672	5035197.147
Contra Costa	2022	LHDT2	Aggregate	Aggregate	Gasoline	1468.157	53325.83918	21873.35	6.458318	8.256924265	440307.4155
Contra Costa	2022	LHDT2	Aggregate	Aggregate	Diesel	3184.0487	125312.5525	40051.33	9.706323	12.91040436	1617835.724
Contra Costa	2022	MHDT	Aggregate	Aggregate	Gasoline	760.23264	36884.00474	15210.73	7.986769	4.618138374	170335.4377
Contra Costa	2022	MHDT	Aggregate	Aggregate	Diesel	5416.2207	227901.6607	62339.09	27.19626	8.379891178	1909791.116
										Worker	
										Sum of VMT*FE (Column BI)	**541068464.4**
										Total VMT	**20073097.2**
										Weighted Average FE	**26.95490681**
										Vendor	
										Sum of VMT*FE (Column BI)	**16854795.37**
										Total VMT	**1819338.715**
										Weighted Average FE	**9.264242677**
										Haul	
										Sum of VMT*FE (Column BI)	**3340413.047**
										Total VMT	**585461.3426**
										Weighted Average FE	**5.705608217**

Construction Schedule	**Phase Name**	**Phase Type**	**Start Date**	**End Date**	**Num Days Week**	**Num Days**
	Demolition	Demolition	9/1/2022	9/28/2022	5	20
	Site Preparation	Site Preparation	9/29/2022	10/12/2022	5	10
	Grading / Trenching	Grading	10/13/2022	11/9/2022	5	20
	Building Construction	Building Construction	11/10/2022	9/27/2023	5	230
	Paving	Paving	9/28/2023	10/25/2023	5	20
	Architectural Coating	Architectural Coating	10/26/2023	11/22/2023	5	20

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 Ve**	**Num Days**	**Worker Trip Number**	**Vendor Trip Number**	**Hauling Trip Number**	**Worker Trips**	**Vendor Trips**	**Hauling Trips**	**Worker Trips**	**Vendor Trips**	**Hauling Trips**
	Demolition	15	0	356	10.8	7.3	20	HDT_Mix	20	300	0	356	3,240	0	7,120	120.20	0.00	62.39
	Site Preparation	18	0	0	10.8	7.3	20	HDT_Mix	10	180	0	0	1,944	0	0	72.12	0.00	0.00
	Grading / Trenching	20	2	250	10.8	7.3	20	HDT_Mix	20	400	40	250	4,320	292	5,000	160.27	31.52	43.82
	Building Construction	160	41	0	10.8	7.3	20	HDT_Mix	230	36,800	9,430	0	397,440	68,839	0	14,744.63	7,430.61	0.00
	Paving	15	0	0	10.8	7.3	20	HDT_Mix	20	300	0	0	3,240	0	0	120.20	0.00	0.00
	Architectural Coating	32	0	0	10.8	7.3	20	HDT_Mix	20	640	0	0	6,912	0	0	256.43	0.00	0.00

On-site Total Construction VMT (miles)
498,347

On-Site Total Fuel Consumption (gallons)
23,042

Construction Equipment Fuel Calculation

On-site

Source: AQ/GHG Appendix, CalEEMod Output

Palmer School Site Housing - Construction Only - Contra Costa County, Annual

Date: 5/17/2021 11:06 AM

Construction Schedule	**Phase Name**	**Phase Type**	**Start Date**	**End Date**	**Num Days Week**	**Num Days**
	Demolition	Demolition	9/1/2022	9/28/2022	5	20
	Site Preparation	Site Preparation	9/29/2022	10/12/2022	5	10
	Grading / Trenching	Grading	10/13/2022	11/9/2022	5	20
	Building Construction	Building Construction	11/10/2022	9/27/2023	5	230
	Paving	Paving	9/28/2023	10/25/2023	5	20
	Architectural Coating	Architectural Coating	10/26/2023	11/22/2023	5	20

Construction Equipment	**Phase Name**	**Offroad Equipment Type**	**Amount**	**Usage Hours**	**Horse Power**	**Load Factor**	**Number of Days**	**HP Hours**	**Diesel Fuel Usage**
	Demolition	Concrete/Industrial Saws	1	8	81	0.73	20	9,460.80	473.04
	Demolition	Excavators	3	8	158	0.38	20	28,819.20	1,440.96
	Demolition	Rubber Tired Dozers	2	8	247	0.4	20	31,616.00	1,580.80
	Site Preparation	Rubber Tired Dozers	3	8	247	0.4	10	23,712.00	1,185.60
	Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37	10	11,484.80	574.24
	Grading	Excavators	1	8	158	0.38	20	9,606.40	480.32
	Grading	Graders	1	8	187	0.41	20	12,267.20	613.36
	Grading	Rubber Tired Dozers	1	8	247	0.4	20	15,808.00	790.40
	Grading	Tractors/Loaders/Backhoes	3	8	97	0.37	20	17,227.20	861.36
	Building Construction	Cranes	1	7	231	0.29	230	107,853.90	5,392.70
	Building Construction	Forklifts	3	8	89	0.2	230	98,256.00	4,912.80
	Building Construction	Generator Sets	1	8	84	0.74	230	114,374.40	5,718.72
	Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37	230	173,348.70	8,667.44
	Building Construction	Welders	1	8	46	0.45	230	38,088.00	1,904.40
	Paving	Pavers	2	8	130	0.42	20	17,472.00	873.60
	Paving	Paving Equipment	2	8	132	0.36	20	15,206.40	760.32
	Paving	Rollers	2	8	80	0.38	20	9,728.00	486.40
	Architectural Coating	Air Compressors	1	6	78	0.48	20	4,492.80	224.64

Construction Equipment Fuel Consumption **36,941.09 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 June 14, 2021.

__**Construction Office Electricity Calculation**__

Energy Appendix: CalEEMod Typical Construction Trailer
Typical Construction Trailer - Contra Costa County, Annual
Date: 6/21/2021 4:29 PM

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12837.6	1.2228	1.7000e-004	3.0000e-005	1.2375
Total		**1.2228**	**1.7000e-004**	**3.0000e-005**	**1.2375**

kWh/yr = kilowatt hours per year

Energy by Land Use - Electricity

Annual	12,838	kWh/yr
Total Over Construction	**15,722**	**kWh**

Total Construction Schedule	
Start	9/1/2022
End	11/22/2023
Total Calendar Days	447
Years	1.22

Proposed Operation Fuel Calculation

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

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Contra Costa
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/year for CVMT and EVMT, trips/year for Trips, kWh/year for Energy Consumption, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

VMT = Vehicle Miles Traveled
FE = Fuel Economy

Given									*Calculations*	
Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Fuel Consumption	FE	VMT*FE
Contra Costa	2023	HHDT	Aggregate	Aggregate	Gasoline	0.930309911	50.36094261	0.012994029	3.875699	195.1838513
Contra Costa	2023	HHDT	Aggregate	Aggregate	Diesel	4942.555358	589482.4647	101.9570264	5.781676	3408196.458
Contra Costa	2023	LDA	Aggregate	Aggregate	Gasoline	339848.9588	12783778.95	434.9196535	29.39343	375759069.6
Contra Costa	2023	LDA	Aggregate	Aggregate	Diesel	1457.686208	43468.16807	1.01514636	42.81961	1861289.87
Contra Costa	2023	LDT1	Aggregate	Aggregate	Gasoline	33659.33047	1179551.067	47.65602434	24.75135	29195484.47
Contra Costa	2023	LDT1	Aggregate	Aggregate	Diesel	18.53994299	234.1818834	0.009595366	24.40573	5715.378862
Contra Costa	2023	LDT2	Aggregate	Aggregate	Gasoline	154436.7581	6246459.649	263.9203589	23.66797	147841031.7
Contra Costa	2023	LDT2	Aggregate	Aggregate	Diesel	633.6788971	26711.66129	0.851044888	31.3869	838396.2574
Contra Costa	2023	LHDT1	Aggregate	Aggregate	Gasoline	12655.98857	475389.2814	50.45098161	9.422795	4479495.972
Contra Costa	2023	LHDT1	Aggregate	Aggregate	Diesel	8519.363379	324282.1544	20.56247885	15.77058	5114116.661
Contra Costa	2023	LHDT2	Aggregate	Aggregate	Gasoline	1464.123804	54160.16187	6.440933891	8.408744	455418.9165
Contra Costa	2023	LHDT2	Aggregate	Aggregate	Diesel	3253.077449	128992.0835	9.900338363	13.02906	1680645.348
Contra Costa	2023	MCY	Aggregate	Aggregate	Gasoline	18091.30846	103634.3955	2.524818346	41.04628	4253806.201
Contra Costa	2023	MDV	Aggregate	Aggregate	Gasoline	101543.9793	3817544.234	197.9205868	19.28826	73633795.33
Contra Costa	2023	MDV	Aggregate	Aggregate	Diesel	1630.416635	65604.49048	2.731255437	24.0199	1575813.493
Contra Costa	2023	MH	Aggregate	Aggregate	Gasoline	1847.486714	16879.83318	3.821072381	4.417564	74567.74949
Contra Costa	2023	MH	Aggregate	Aggregate	Diesel	776.6234936	7486.650414	0.796124298	9.403871	70403.49678
Contra Costa	2023	MHDT	Aggregate	Aggregate	Gasoline	750.2651295	37968.8458	8.08396006	4.696813	178332.555
Contra Costa	2023	MHDT	Aggregate	Aggregate	Diesel	5453.025857	229950.9685	27.25182838	8.438001	1940326.615
Contra Costa	2023	OBUS	Aggregate	Aggregate	Gasoline	261.9126556	12187.45084	2.574760221	4.733431	57688.46236
Contra Costa	2023	OBUS	Aggregate	Aggregate	Diesel	127.7261233	9153.783371	1.311106915	6.981722	63909.16641
Contra Costa	2023	SBUS	Aggregate	Aggregate	Gasoline	72.51601679	3942.491811	0.385709981	10.22139	40297.74294
Contra Costa	2023	SBUS	Aggregate	Aggregate	Diesel	424.700768	10038.86013	1.220418929	8.225749	82577.14647
Contra Costa	2023	UBUS	Aggregate	Aggregate	Gasoline	102.1046403	5572.509057	0.903534331	6.167457	34368.20951
Contra Costa	2023	UBUS	Aggregate	Aggregate	Diesel	225.1598912	23149.45204	3.127387738	7.402169	171356.1524

Vehicles		
Sum of VMT*FE	**652816298.1**	
Total VMT	**26195674.15**	
Weighted Average FE	**24.92076723**	**miles/gallon**

Total VMT

Source: AQ/GHG Appendix, CalEEMod Output
Palmer School Site Housing - Unmitigated Operation - Contra Costa County, Annual
Date: 5/17/2021 11:06 AM

	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	680.00	680.00	680.00	1,570,533	1,570,533
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	680.00	680.00	680.00	1,570,533	1,570,533

	Annual VMT (miles)	Fuel Consumption	
Total VMT	1,570,533	**63,021**	**gallons per year**

Operation Electricity Use

Source: AQ/GHG Appendix, CalEEMod Output

Palmer School Site Housing - Unmitigated Operation - Contra Costa County, Annual

Date: 5/17/2021 11:06 AM

Project Electricity Use

kWh/yr = kilowatt hours per year

Land Use	Electricity Use (kWh/yr)
Condo/Townhouse	630,679
Parking Lot	4,760
Total	**635,439 kWh/yr**

	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	630679	60.0749	8.3000e-003	1.7200e-003	60.7938
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	4760	0.4534	6.0000e-005	1.0000e-005	0.4588
Total		**60.5283**	**8.3600e-003**	**1.7300e-003**	**61.2527**

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**	2022
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 - Typical construction trailer for estimate of energy usage
CO2 Intensity Factor adjusted to reflect PGE'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 -

Consumer Products -

Area Coating -

Landscape Equipment -

Energy Use -

Water And Wastewater -

Area Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	0.00
tblConstructionPhase	PhaseEndDate	9/7/2022	8/31/2022
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	210

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12837.6	1.2228	1.7000e-004	3.0000e-005	1.2375
Total		**1.2228**	**1.7000e-004**	**3.0000e-005**	**1.2375**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	12837.6	1.2228	1.7000e-004	3.0000e-005	1.2375
Total		**1.2228**	**1.7000e-004**	**3.0000e-005**	**1.2375**