500 HOPPER STREET, LOTS 5 & 6 (RIVERFRONT MIXED USE) AIR QUALITY AND GREENHOUSE GAS ASSESSMENT

Petaluma, California

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Introduction

The purpose of this report is to address the air quality and greenhouse gas (GHG) emission impacts associated with the construction and operation of the proposed mixed-use residential care facility on Lot 5 as well as mixed-use multi-family units to be located on Lot 6 at 500 Hopper Street in the City of Petaluma, California. Development of Lots 5 and 6 has been evaluated in the Environmental Impact Report for the Riverfront Mixed Use Project that was certified in 2014 (i.e., the Riverfront EIR). The air quality impacts from this project would be associated with construction of the new buildings and operation of the project. The Riverfront EIR addressed air quality impacts in terms of construction and operational emissions, health risk impacts, and exposure of new Project sensitive receptors to nearby sources of air pollution and contaminants. The Riverfront EIR also evaluated GHG emissions associated with the mixed use development.

The purpose of this air quality and GHG assessment is to evaluate changes in the Riverfront Mixed Use project against the findings in the Riverfront EIR and identify any new impacts and or mitigation measures.

Project Description

The development of Lots 5 and 6 at 500 Hopper Street was previously covered in the Riverfront Mixed-Use Project EIR, which was finalized in June 2014. The proposed use of the Project site evaluated at that time in the Riverfront EIR was for 100 apartments and 30,000 square feet (sf) of ground level commercial on both parcels. The Project evaluated in this assessment proposes include 106 residential care units for the elderly anticipated to accommodate 118 beds and 6 work-live units on Lot 5 as well as 120 residential apartments and 14 work-live units on Lot 6. Construction is proposed to begin in late 2023 and be completed in2025.

Air quality impacts associated with the Riverfront Mixed Use Project were specifically modeled in the Draft Environmental Impact Report (DEIR) and mitigation measures were identified.

Construction Emissions

Construction emissions from full build-out of the Riverfront Mixed Use Project were modeled using the CalEEMod model. Average daily emissions were found not to exceed thresholds recommended by the Bay Area Air Quality Management District (BAAQMD). The Riverfront EIR identified Mitigation Measures AIR-1 and AIR-2 to reduces emissions in accordance with BAAQMD basic and additional measures, and as recommended in the project air quality report and in accordance with General Plan Policy 4-P-16 to mitigate construction-related PM_{10} and $PM_{2.5}$ emissions to a less-than-significant level. The Mitigation Measures are consistent with measures required in Mitigation 11-1 in the Central Petaluma Specific Plan EIR.

MITIGATION AIR-1: Require implementation of the following measures during construction:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day or to a maintain a minimum soil moisture of 12%.

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
- 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.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt tracked-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 shall be prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- 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.
- All paving shall be completed as soon as possible after pipeline replacement work is finished.
- 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.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes (California airborne toxics control measure Title 13, section 2485 of California Code of Regulations (CCR) establishes a maximum idling time of 5 minutes). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
- 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.
- Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., Regulation 8, Rule 3: Architectural Coatings).

MITIGATION AIR-2: Include the following measures as part of the construction specifications (General Plan Policy 4-P-16):

- Maintain construction equipment engines in good condition and in proper tune per manufacturer's specification for the duration of construction;
- Use alternative fuel construction equipment if available (i.e., compressed natural gas, liquid petroleum gas);

- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM through the use of add-on control devices such as diesel oxidation catalysts or particulate filters; and
- Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Setting

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

Air Pollutants of Concern

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

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

Toxic Air Contaminants

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

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about three-quarters of the cancer risk from TACs (based on the Bay Area average). According to the California Air Resources Board (CARB), diesel exhaust is a complex mixture of gases, vapors, and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and

formaldehyde, have been previously identified as TACs by the CARB, and are listed as carcinogens either under the State's Proposition 65 or under the Federal Hazardous Air Pollutants programs.

Sensitive Receptors

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

Regulatory Setting

Federal Regulations

The United States Environmental Protection Agency (EPA) sets nationwide emission standards for mobile sources, which include on-road (highway) motor vehicles such trucks, buses, and automobiles, and non-road (off-road) vehicles and equipment used in construction, agricultural, industrial, and mining activities (such as bulldozers and loaders). The EPA also sets nationwide fuel standards. California also has the ability to set motor vehicle emission standards and standards for fuel used in California, as long as they are the same or more stringent than the federal standards.

In the past decade the EPA has established a number of emission standards for on- and non-road heavy-duty diesel engines used in trucks and other equipment. This was done in part because diesel engines are a significant source of NO_X and particulate matter (PM_{10} and $PM_{2.5}$) and because the EPA has identified DPM as a probable carcinogen. Implementation of the heavy-duty diesel on-road vehicle standards and the non-road diesel engine standards are estimated to reduce particulate matter and NO_X emissions from diesel engines up to 95 percent in 2030 when the heavy-duty vehicle fleet is completely replaced with newer heavy-duty vehicles that comply with these emission standards.[1]

In concert with the diesel engine emission standards, the EPA has also substantially reduced the amount of sulfur allowed in diesel fuels. The sulfur contained in diesel fuel is a significant contributor to the formation of particulate matter in diesel-fueled engine exhaust. The new standards reduced the amount of sulfur allowed by 97 percent for highway diesel fuel (from 500 parts per million by weight [ppmw] to 15 ppmw), and by 99 percent for off-highway diesel fuel (from about 3,000 ppmw to 15 ppmw). The low sulfur highway fuel (15 ppmw sulfur), also called ultra-low sulfur diesel (ULSD), is currently required for use by all vehicles in the U.S.

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

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

State Regulations

To address the issue of diesel emissions in the state, CARB developed the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.[2] In addition to requiring more stringent emission standards for new on-road and off-road mobile sources and stationary diesel-fueled engines to reduce particulate matter emissions by 90 percent, a significant component of the plan involves application of emission control strategies to existing diesel vehicles and equipment. Many of the measures of the Diesel Risk Reduction Plan have been approved and adopted, including the federal on-road and non-road diesel engine emission standards for new engines, as well as adoption of regulations for low sulfur fuel in California.

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

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

Bay Area Air Quality Management District (BAAQMD)

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

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

BAAQMD is the lead agency in developing plans to address attainment and maintenance of the National Ambient Air Quality Standards and California Ambient Air Quality Standards. The District also has permit authority over most types of stationary equipment utilized for the proposed project. The BAAQMD is responsible for permitting and inspection of stationary sources; enforcement of regulations, including setting fees, levying fines, and enforcement actions; and ensuring that public nuisances are minimized.

BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposures to outdoor TACs in the Bay Area.[3] The program examines TAC emissions from point sources, area sources, and on-road and off-road mobile sources with an emphasis on diesel exhaust, which is a major contributor to airborne health risk in California. The CARE program is an on-going program that encourages community involvement and input. The technical analysis portion of the CARE program is being implemented in three phases that includes an assessment of the sources of TAC emissions, modeling and measurement programs to estimate concentrations of TAC, and an assessment of exposures and health risks. Throughout the program, information derived from the technical analyses will be used to focus emission reduction measures in areas with high TAC exposures and high density of sensitive populations. Risk reduction activities associated with the CARE program are focused on the most at-risk communities in the Bay Area. Overburdened communities are areas located (i) within a census tract identified by the California Communities Environmental Health Screening Tool (CalEnviroScreen), Version 4.0 implemented by OEHHA, as having an overall CalEnviroScreen score at or above the 70th percentile, or (ii) within 1,000 feet of any such census tract.[4] The BAAQMD has identified six communities as impacted: Concord, Richmond/San Pablo, Western Alameda County, San José, Redwood City/East Palo Alto, and Eastern San Francisco. The project site is not within a CARE area and not within a BAAQMD overburdened area as identified by CalEnviroScreen as the project site is scored at the 60th percentile.[5]

The BAAQMD California Environmental Quality Act (*CEQA) Air Quality Guidelines*[6] were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process consistent with CEQA requirements including thresholds of significance, mitigation measures, and background air quality information. They also include assessment methodologies for air toxics, odors, and greenhouse gas emissions. *Attachment 1* includes detailed community risk modeling methodology.

[3] See BAAQMD: https://www.baaqmd.gov/community-health/community-health-protection-program/community-air-risk-evaluation-care-program , accessed 2/18/2021.
[4] See BAAQMD: https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-2-permits/2021-amendments/documents/20210722_01_appendixd_mapsofoverburdenedcommunities-pdf.pdf?la=en , accessed 10/1/2021.
[5] OEHAA, CalEnviroScreen 4.0 Indicator Maps https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40
[6] Bay Area Air Quality Management District, 2017. *CEQA Air Quality Guidelines*. May.

City of Petaluma General Plan 2025

The City of Petaluma General Plan 2025[7] includes policies and programs to reduce exposure of the City's sensitive population to exposure of air pollution and TACs. The following policies and programs are applicable to the proposed project:

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

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

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

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

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

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

wood stoves and inserts in fireplaces approved by the federal Environmental Protection Agency, as well as fireplaces fueled by natural gas.

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

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

Significance Thresholds

The Riverfront EIR applied BAAQMD-recommended CEQA Air Quality significance thresholds that 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, which were used to evaluate air quality impacts (see Table 1). Impacts above these thresholds are considered potentially significant.

Table 1. BAAQMD CEQA 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 (local)	None	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust (PM_{10} and $PM_{2.5}$)	Construction Dust Ordinance or other Best Management Practices	None	
Health Risks and Hazards	**Single Sources Within 1,000-foot Zone of Influence***	**Combined Sources (Cumulative from all sources within 1,000-foot zone of influence)**	
Excess Cancer Risk	10 per one million	100 per one million	
Hazard Index	1.0	10.0	
Incremental annual $PM_{2.5}$	0.3 µg/m^3	0.8 µg/m^3	

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.
*Zone of influence is measured from the property line of a source or receptor.

Construction Period Emissions

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from on-site construction activity, construction vehicle trips, and evaporative emissions. The project land use types and size, and anticipated construction schedule were input to CalEEMod. For comparison to the Riverfront EIR, the land uses for the Project site that were included in the air quality modeling for that DEIR were also modeled using CalEEMod. The CalEEMod model output along with construction inputs are included in *Attachment 1*.

<u>CalEEMod Modeling</u>

Land Use Inputs

The proposed project land uses and those modeled for the Riverfront EIR were entered into CalEEMod as described in Table 2.

Table 2. Summary of Project Land Use Inputs

Project Land Uses	Size	Units	Square Feet (sf)	Acreage
Building 1				
Residential – Apartment Mid Rise	120	Dwelling Unit	104,259	4.0*
Residential – Apartment Low Rise	14	Dwelling Unit	18,856	
Parking Lot	102	Space	9,577	
Building 2				
Residential – Congregate Care (Assisted Living)	106	Dwelling Unit	68,497	6.6*
Residential – Apartment Mid Rise	6	Dwelling Unit	9,190	
Parking Lot	34	Space	2,980	
Riverfront EIR Land Uses	**Size**	**Units**	**Square Feet (sf)**	**Acreage**
Residential – Apartment Low Rise	14	Dwelling Unit	18,856	~2
Retail – Strip Mall	30	1,000 sf	30,000	

*Using CalEEMod defaulted acreage to simulate multi-story building construction

Construction Inputs

CalEEMod computes annual emissions for construction that are based on the project type, size, and acreage. The model provides emission estimates for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling, and vendor traffic. The construction build-out scenario for both phases, including equipment list and schedule, were based on default values assigned by CalEEMod along with schedule and anticipated soil hauling volumes provided by the applicant. While the site has been graded and roadways constructed, the modeling included site preparation, grading, and trenching phases. Two construction projects were modeled, one for each building.

The construction schedule assumed that the earliest possible start date would be November 2023 and would be built out over a period of approximately 23 months. The earliest year of full operation was assumed to be 2025. Average daily construction emissions were computed by dividing annual emissions by the number of workdays in that year.

Summary of Computed Construction Period Emissions

Average daily emissions were annualized for each year of construction by dividing the annual construction emissions and dividing those emissions by the number of active workdays during that year. Table 3 shows the annualized average daily construction emissions of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust during construction of the project. As indicated in Table 3, predicted annualized project construction emissions would not exceed the BAAQMD significance thresholds during any year of construction.

Construction emissions reported for build-out of the Riverfront Mixed Use Project are also shown in Table 3. In addition, emissions associated with just the construction of the land uses for the Project site that were analyzed in the Riverfront EIR are also shown for comparison.

Table 3. Construction Period Emissions

Year	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Proposed Project				
Annual Construction Emissions Per Year (Tons)				
2022	0.0824	0.7794	0.0379	0.0352
2023	0.7635 0.0432	1.7522 0.3766	0.0822 0.0169	0.0772 0.0158
2024	1.0615	1.5288	0.0664	0.0624
Average Daily Construction Emissions Per Year (pounds/day)				
2023 (44 construction workdays)	3.7	35.4	1.7	1.6
2023 (261 construction workdays)	6.2	16.3	0.8	0.7
2024 (198 construction workdays)	10.7	15.5	0.7	0.6
BAAQMD Thresholds (pounds per day)	*54* lbs./day	*54* lbs./day	*82* lbs./day	*54* lbs./day
Exceed Threshold?	No	No	No	No
River Front EIR Average Daily Emission	13.9	40.3	2.1	2.0
Project Site Land Uses in Riverfront EIR Average Daily Emissions	9.3	12.1	1.4	1.3

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.

Implementation of Riverfront EIR Mitigation Measures AIR-1 and AIR-2 would be consistent with those measures listed as "Enhanced" measures in the BAAQMD CEQA Guidelines. Such measures would be consistent with the recommendations in the BAAQMD CEQA Air Quality Guidelines and would reduce fugitive dust emissions by over 50 percent and up to about 80 percent.

Mitigation Measure AIR-2 requires all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM through the use of add-on control devices such as diesel oxidation catalysts or particulate filters; and that all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines. The best achievable control technology in practice today is considered engines that meet U.S. EPA's tier 4 standards. This mitigation measure would reduce NOx emissions by over 30 percent and PM_{10} and $PM_{2.5}$ emissions by about 85 percent below those levels reported in Table 3.

Operational Period Air Pollutant Emissions

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

CalEEMod Inputs

Land Uses

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

Model Year

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

Traffic Information

CalEEMod allows the user to enter specific vehicle trip generation rates. CalEEMod default trip rates were used for this project, which are the same as those used in the Project traffic study.[8] The default trip lengths and trip types specified by CalEEMod were used.

Energy

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. 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 120 pounds of CO_2 per megawatt of electricity produced, which is based on Sonoma Clean Power's 2019 emissions rate.

Since the Riverfront EIR was certified, the City has adopted and "All-Electric Code" that would prohibit new natural gas infrastructure. Since Petaluma bans natural gas in new residential buildings,[9] all Title 24 and Non-Title 24 natural gas intensity was changed to zero. As a result, the Proposed Project would have all electric appliances and no emissions from combustion of natural gas.

[8] W-Trans. 2022. Draft *Focused Traffic Study for the 500 Hopper Street Project*. July 25.
[9] https://cityofpetaluma.org/all-electric-building-rules/#:~:text=The%20City%20of%20Petaluma%20is,our%20community's%20greenhouse%20gas%20emissions.

Other Inputs

Default model assumptions for emissions associated with solid waste generation use were applied to the project. Water/wastewater use were changed to 100% aerobic conditions to represent wastewater treatment plant conditions. Further, it was assumed that no hearths or fireplaces would be installed as part of the project per BAAQMD Regulation 6, Rule 3, which requires that new building construction not install a wood-burning device (effective as of November 1, 2016).

Approved Land Uses

The land uses approved in the Riverfront EIR on the project site include 30,000 square feet of retail and 120 residential apartments. These were modeled using CalEEMod to provide a comparison of emissions with the Proposed Project.

Summary of Computed Operational Period Emissions

Annual emissions were predicted using CalEEMod. The daily emissions were estimated 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 are compared against those that would occur with the approved uses under the Riverfront EIR and found to be similar or lower.

Table 4. Operational Period Emissions

Scenario	ROG	NOx	PM_{10}	$PM_{2.5}$
Annual Emissions (*tons/year*)				
2025 Project Operational Emissions	1.46 tons	0.64 tons	0.84 tons	0.24 tons
2025 Riverfront Mixed Uses	1.46 tons	1.06 tons	1.27 tons	0.35 tons
	0.00 tons	-0.42 tons	-0.43 tons	-0.11 tons
BAAQMD Thresholds (tons /year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Thresholds?	No	No	No	No
2025 Project Operational Emissions (*lbs./day*)[1]	8.0 lbs.	3.5 lbs.	4.6 lbs.	1.3 lbs.
	8.0 lbs.	5.8 lbs.	7.0 lbs.	1.9 lbs.
	0.0 lbs.	-2.3 lbs.	-2.4 lbs.	-0.6 lbs.
BAAQMD Thresholds (lbs./day)	*54 lbs.*	*54 lbs.*	*82 lbs.*	*54 lbs.*
Exceed Threshold?	No	No	No	No

Notes: [1] Assumes 365-day operation.

Community Health Risks

The Riverfront EIR included a health risk assessment that evaluated the increase in cancer risk, annual $PM_{2.5}$ concentration, and health hazards associated with construction activity upon nearby sensitive receptors. The Riverfront EIR predicted significant cancer risk from construction of the mixed-use portions of the project upon single-family homes constructed as part of the project. Note that increase annual $PM_{2.5}$ concentrations and health hazards (as described by the Health Index) would not be significant. Mitigation Measure AIR-3 was specifically identified to ensure construction impacts would be reduced below the thresholds. Construction was assumed to occur in 2016 and that measure was considered to reduce DPM emissions by 60 percent, making the impact less-than-significant.

Since the time of the analysis, newer construction equipment that has substantially lower emissions has become available. Since 2012, new diesel-powered off-road equipment has had to meet U.S. EPA Tier 4 standards. This equipment has emissions about 60 to 80 percent lower than emissions from Tier 2 equipment that was required by Mitigation Measure AIR-3 to mitigate health risk impacts. State law has required that operators of construction equipment fleets (including rental or leased fleets) phase in new equipment over the period 2014 to 2023, such that most equipment meets the newer Tier 4 standards. Furthermore, Riverfront EIR Mitigation Measure AIR-2 requires all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM through the use of add-on control devices such as diesel oxidation catalysts or particulate filters; and that all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines. Incorporation of equipment meeting the requirements of Mitigation Measure AIR-2 would result in emissions that would be much below the mitigated levels identified in the Riverfront EIR. In addition, implementation of Mitigation Measure AIR-1, combined with AIR-2 would reduce annual $PM_{2.5}$ concentrations caused by the Proposed Project substantially below those levels predicted in the Riverfront EIR.

The CalEEMod model provided total annual PM_{10} exhaust emissions (assumed to be DPM) for the off-road construction equipment and for exhaust emissions from on-road vehicles, with total emissions from all construction stages as 0.137 tons (274 pounds), including on-road emissions are a result of haul truck travel during grading activities, worker travel, and vendor deliveries during construction. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.177 tons (354 pounds) for the overall construction period. Implementation of Mitigation Measures AIR-1 and AIR-2 required under the Riverfront EIR would reduce these emissions substantially. Assuming Tier 4 engines for construction equipment and the required dust control measures, DPM emissions would be reduced about 85 percent and fugitive dust emissions would be reduced by 50 to 80 percent.

Operation of the Proposed Project is not anticipated to have substantial TAC emissions. Operational emissions from the Project site are predicted to be lower than those emissions than those predicted in the Riverfront EIR.

GREENHOUSE GAS EMISSIONS

Setting

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

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

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

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

Federal and Statewide GHG Emissions

The U.S. EPA reported that in 2018, total gross nationwide GHG emissions were 6,676.6 million metric tons (MMT) carbon dioxide equivalent (CO_2e).[10] These emissions were lower than peak levels of 7,416 MMT that were emitted in 2007. CARB updates the statewide GHG emission

[10] 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

inventory on an annual basis where the latest inventory includes 2000 through 2017 emissions.[11] 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.[12] The Bay Area GHG emission were 87 MMT. As a point of comparison, statewide emissions were about 444 MMT in 2011

Recent Regulatory Actions for GHG Emissions

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

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

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

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

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

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 million metric tons (MMT) of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector- or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast, in light of the economic downturn, to 545 MMT of CO_2e. Two GHG emissions reduction

[11] 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

[12] 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.

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

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

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

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

[13] 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

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

Executive Order B-55-18 – Carbon Neutrality

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

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

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

Senate Bill 350 - Renewable Portfolio Standards

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

Senate Bill 100 – Current Renewable Portfolio Standards

In September 2018, SB 100 was signed by Governor Brown to revise California's RPS program goals, furthering California's focus on using renewable energy and carbon-free power sources for its energy needs. The bill would require all California utilities to supply a specific percentage of their retail sales from renewable resources by certain target years. By December 31, 2024, 44 percent of the retails sales would need to be from renewable energy sources, by December 31, 2026 the target would be 40 percent, by December 31, 2017 the target would be 52 percent, and

by December 31, 2030 the target would be 60 percent. By December 31, 2045, all California utilities would be required to supply retail electricity that is 100 percent carbon-free and sourced from eligible renewable energy resource to all California end-use customers.

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

The California Green Building Standards Code (CALGreen Code) is part of the California Building Standards Code under Title 24, Part 11.[14] 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.[15]

CEC studies have identified the most aggressive electrification scenario as putting the building sector on track to reach the carbon neutrality goal by 2045.[16] Installing new natural gas infrastructure in new buildings will interfere with this goal. To meet the State's goal, communities have been adopting "Reach" codes that prohibit natural gas connections in new and remodeled buildings.

Requirements for electric vehicle (EV) charging infrastructure are set forth in Title 24 of the California Code of Regulations and are regularly updated on a 3-year cycle. The CALGreen standards consist of a set of mandatory standards required for new development, as well as two more voluntary standards known as Tier 1 and Tier 2. The CalGreen standards have recently been updated (2022 version) to require deployment of additional EV chargers in various building types, including multifamily residential and nonresidential land uses. They include requirements for both EV capable parking spaces and the installation of Level 2 EV supply equipment for multifamily residential and nonresidential buildings. The 2022 CALGreen standards include requirements for both EV readiness and the actual installation of EV chargers. The 2022 CALGreen standards include both mandatory requirements and more aggressive voluntary Tier 1 and Tier 2 provisions. Providing EV charging infrastructure that meets current CALGreen requirements will not be

[14] 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.
[15] See: https://www.energy.ca.gov/sites/default/files/2020-03/Title_24_2019_Building_Standards_FAQ_ada.pdf
[16] California Energy Commission. 2021. F*inal Commission Report: California Building Decarbonization Assessment. Publication Number CEC-400-2021-006-CMF*.August

sufficient to power the anticipated more extensive level of EV penetration in the future that is needed to meet SB 30 climate goals.

SB 743 Transportation Impacts

Senate Bill 743 required lead agencies to abandon the old "level of service" metric for evaluating a project's transportation impacts, which was based solely on the amount of delay experienced by motor vehicles. In response, the Governor's Office of Planning and Research (OPR) developed a VMT metric that considered other factors such as reducing GHG emissions and developing multimodal transportation[17]. A VMT-per-capita metric was adopted into the CEQA Guidelines Section 15064.3 in November 2017. Given current baseline per-capita VMT levels computed by CARB in the 2030 Scoping Plan of 22.24 miles per day for light-duty vehicles and 24.61 miles per day for all vehicle types, the reductions needed to achieve the 2050 climate goal are 16.8 percent for light-duty vehicles and 14.3 percent for all vehicle types combined. *Based on this analysis (as well as other factors), OPR recommended using a 15-percent reduction in per capita VMT as an appropriate threshold of significance for evaluating transportation impacts.*

Petaluma Vehicle Miles Traveled CEQA Threshold

The City of Petaluma identifies VMT significance criteria in the *Senate Bill 743 Vehicle Miles Traveled Implementation Guidelines*[18], dated July 2021, indicating that a significant traffic VMT impact may occur at residential developments if a project's total home-based VMT per resident exceeds 16.8 percent below the citywide average. The current Citywide home-based VMT per capita is 19.3 miles, which translates to a significance threshold of 16.1 VMT per capita.

City of Petaluma General Plan 2025

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

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

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

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

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

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

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

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

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

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

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

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

City of Petaluma Greenhouse Gas Emissions Reduction Action Plan

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

The Sonoma County Regional Climate Action Plan, developed in 2016, includes 2020 GHG emission reduction measures for Petaluma.[19] This plan is an advisory document that the City uses to assist in achieving reduction of GHG emissions. Development projects within the City of Petaluma are encouraged to comply with the intent of the Climate Action Plan and realize GHG reductions through voluntary application of reduction measures. The reduction measures are categorized by goals for State and Regional Measures and then by Local Measures. Under a Business as Usual scenario, emissions in Petaluma would be 542,970 metric tons (MT) in 2020. State measures (e.g., vehicle reduction, cap and trade, renewable portfolios) would reduce these emissions by 119,660 MT. Regional measures are anticipated to reduce emissions by another 28,200 MT and Local Measures would reduce emissions by 18,490 MT. Under this plan, Petaluma's GHG emissions would be reduced to 376,620 MT in 2020. These emissions would be 31 percent below business as usual projection and below estimated 1990 emission of 387,020 MT.

Petaluma Climate Action Framework

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

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

Mitigation and Sequestration Goals

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

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

Mitigation and Sequestration Action Items

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

BAAQMD GHG Significance Thresholds

The BAAQMD's 201 CEQA Air Quality Guidelines that were used in the Riverfront EIR 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.

Recently and well after the Riverfront EIR was certified, BAAQMD adopted new thresholds of significance for operational GHG emissions from land use projects for projects beginning the CEQA process. The following framework is how BAAQMD will determine GHG significance moving forward.[20] Note BAAQMD intends that the thresholds apply to projects that begin the CEQA process after adoption of the thresholds, unless otherwise directed by the lead agency. The air quality and GHG assessment was originally completed prior to adoption of these thresholds.

A. Projects must include, at a minimum, the following project design elements:
   a. Buildings
      i. The project will not include natural gas appliances or natural gas plumbing (in both residential and non-residential development).
      ii. The project will not result in any wasteful, inefficient, or unnecessary energy usage as determined by the analysis required under CEQA Section 21100(b)(3) and Section 15126.2(b) of the State CEQA Guidelines.
   b. Transportation
      i. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
         1. Residential Projects: 15 percent (16.8 percent in Petaluma) below the existing VMT per capita
         2. Office Projects: 15 percent (16.8 percent in Petaluma) below the existing VMT per employee
         3. Retail Projects: no net increase in existing VMT
      ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.

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

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

For projects that these thresholds apply, new proposed land use projects would have to include either section A or B from the above list, not both, to be considered in compliance for GHG emissions from project operation. The City of Petaluma has not adopted a GHG reduction strategy that meets the CEQA; therefore, the thresholds for A are not applicable.

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

Riverfront Mixed Use GHG Emissions

The Riverfront EIR identified GHG emissions from build-out of the entire development as 4,324 MT per year in 2020. The per capita emissions were computed as 4.06 MT per year and compared against the BAAQMD-recommended threshold of 4.6 MT per capita. Hence, GHG emissions were found to be less-than-significant.

Proposed Project GHG Emissions

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 and the City's Climate Action Plan.

CalEEMod Modeling

CalEEMod was used to predict GHG emissions from operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above within the operational period emissions. Note that existing emissions from the one single-family home on the site were not considered in this analysis. CalEEMod output is included in *Attachment 2*.

Construction GHG Emissions

GHG emissions associated with construction were computed at 898 MT of CO_2e for the total construction period. These are the emissions from on-site operation of construction equipment, vendor and hauling truck trips, and worker trips. Neither the City nor BAAQMD have an adopted threshold of significance for construction-related GHG emissions, though BAAQMD recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable.

Operational GHG Emissions

The CalEEMod model was used to estimate annual emissions associated with operation of the Proposed Project. As shown in Table 5, net annual GHG emissions resulting from operation of the proposed project are predicted to be 945 metric tons (MT) of CO_2e in 2025. The land uses approved for the Project site under the Riverfront EIR would have emissions of 1,303 MT. The Proposed Project would result in a reduction of GHG emissions from the Project site of 358 MT per year, when compared to emissions from the approved land uses.

Table 5. Annual Project GHG Emissions (CO_2e) in Metric Tons - Year 2025

Source Category	Proposed Project	Riverfront EIR Project
Area	3.1	5.3
Energy Consumption	86.8	96.5
Mobile	747.9	1,146.7
Solid Waste Generation	81.0	39.0
Water Usage	25.7	15.6
Total (MT CO_{2e}/year)	945	1,303
Net Total (MT CO_{2e}/year)		**-358**

GHG Analysis Using BAAQMD April 2022 Thresholds

Unlike the previous GHG thresholds, BAAQMD did not identify screening sizes or emissions levels that indicate a project would have de minimus effects.

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

1. Avoid construction of new natural gas connections for residential and office buildings,
   Conforms – compliance with the City's Reach Code would prohibit natural gas infrastructure in new buildings.

   Note – please ensure plans do not show natural gas infrastructure.

2. Avoid wasteful or inefficient use of electricity,
   Conforms – the Project would meet CALGreen Building Standards Code requirements that are considered to be energy efficient.

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

   Note – please ensure plans show that 15 percent or more of the parking spaces are capable of charging EVs.

4. Reduce VMT per capita by 15 percent over baseline conditions.

   Conforms – The traffic study prepared for the Proposed Project found that the VMT per capita and per employee would not exceed the City's VMT threshold of 16.8 percent below citywide/regional average trip length.

   VMT thresholds and impacts are described in the Focused Traffic Study prepared by W-Trans[21]. The City's transportation policies identified the Citywide baseline VMT rate as 19.3 miles per capita for residential home-based travel. The VMT threshold of 16.8 percent below baseline is 16.1 miles per capita and 18.9 miles per employee. Based on data from the Sonoma County Transportation Authority (SCTA) travel demand model, the Proposed Project site is located within traffic analysis zone (TAZ) 888, which has a baseline VMT per capita of 12.6 miles and per employee rate of 7.9 miles. The Proposed Project VMT rate is below the City's threshold of 16.1 miles per capita and 18.9 miles per employee.

Supporting Documentation

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

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

[21] W-Trans. 2022. Draft *Focused Traffic Study for the 500 Hopper Street Project*. July 25.

Attachment 1: CalEEMod Modeling Input Assumptions and Output

500 Hopper - Bldng 1 - Sonoma-San Francisco County, Annual

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

500 Hopper - Bldng 1

Sonoma-San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	102.00	Space	0.00	9,577.00	0
Apartments Low Rise	14.00	Dwelling Unit	0.88	18,856.00	40
Apartments Mid Rise	120.00	Dwelling Unit	3.16	104,259.00	343

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - default acreage. Parking is with stackers. Added live work as apts that provides approximate sf

Construction Phase - added utilities/trenching

Off-road Equipment - added

Trips and VMT - cement

Grading - Possibly remove 2" top soil and replace with more stable = 260cy import/export

Vehicle Trips - Trafic Report rate MF = 4.54/4.10/3.41 Live Work = 9.95/8.98/7.48

Woodstoves - no hearth

Energy Use - No natural gas so adjust electricity Apt Low = 2045, 4,097.76 Apt Mid = 1603, 3,978

Construction Off-road Equipment Mitigation - City BMPs and Best Available Control Technology equipment

Water Mitigation -

Waste Mitigation -

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

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
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 Final
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	11/17/2023	12/15/2023
tblEnergyUse	NT24E	3,172.76	4,097.76
tblEnergyUse	NT24E	3,054.10	3,978.00

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tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	77.89	2,045.00
tblEnergyUse	T24E	70.89	1,602.89
tblEnergyUse	T24NG	6,712.79	0.00
tblEnergyUse	T24NG	5,226.68	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	2.10	0.00
tblFireplaces	NumberGas	18.00	0.00
tblFireplaces	NumberNoFireplace	0.56	0.00
tblFireplaces	NumberNoFireplace	4.80	0.00
tblFireplaces	NumberWood	2.38	0.00
tblFireplaces	NumberWood	20.40	0.00
tblGrading	MaterialExported	0.00	260.00
tblGrading	MaterialImported	0.00	260.00
tblLandUse	LandUseSquareFeet	40,800.00	9,577.00
tblLandUse	LandUseSquareFeet	14,000.00	18,856.00
tblLandUse	LandUseSquareFeet	120,000.00	104,259.00
tblLandUse	LotAcreage	0.92	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	20.00
tblVehicleTrips	ST_TR	8.14	8.98
tblVehicleTrips	ST_TR	4.91	4.10
tblVehicleTrips	SU_TR	6.28	7.48
tblVehicleTrips	SU_TR	4.09	3.41
tblVehicleTrips	WD_TR	7.32	9.95
tblVehicleTrips	WD_TR	5.44	4.54
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

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

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					
2023	0.0432	0.3766	0.3970	8.0000e-004	0.0923	0.0169	0.1093	0.0430	0.0158	0.0588	0.0000	70.6462	70.6462	0.0149	1.3700e-003	71.4274
2024	1.0615	1.5288	2.0282	3.9200e-003	0.0926	0.0664	0.1590	0.0249	0.0624	0.0873	0.0000	344.7590	344.7590	0.0623	6.7600e-003	348.3321
Maximum	**1.0615**	**1.5288**	**2.0282**	**3.9200e-003**	**0.0926**	**0.0664**	**0.1590**	**0.0430**	**0.0624**	**0.0873**	**0.0000**	**344.7590**	**344.7590**	**0.0623**	**6.7600e-003**	**348.3321**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0171	0.2248	0.4502	8.0000e-004	0.0451	1.7900e-003	0.0469	0.0192	1.7800e-003	0.0210	0.0000	70.6462	70.6462	0.0149	1.3700e-003	71.4273
2024	0.9557	1.0643	2.2109	3.9200e-003	0.0926	9.6400e-003	0.1023	0.0249	9.5900e-003	0.0345	0.0000	344.7587	344.7587	0.0623	6.7600e-003	348.3318
Maximum	**0.9557**	**1.0643**	**2.2109**	**3.9200e-003**	**0.0926**	**9.6400e-003**	**0.1023**	**0.0249**	**9.5900e-003**	**0.0345**	**0.0000**	**344.7587**	**344.7587**	**0.0623**	**6.7600e-003**	**348.3318**

	ROG	NOx	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

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

Percent Reduction	**11.93**	**32.35**	**-9.73**	**0.00**	**25.56**	**86.28**	**44.41**	**35.04**	**85.46**	**62.04**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	11-1-2023	1-31-2024	0.6050	0.3643
2	2-1-2024	4-30-2024	0.5233	0.3437
3	5-1-2024	7-31-2024	0.5327	0.3492
4	8-1-2024	9-30-2024	0.3532	0.2315
		Highest	0.6050	0.3643

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	0.5982	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	46.7689	46.7689	0.0129	1.5600e-003	47.5552
Mobile	0.3228	0.4176	2.8081	5.3300e-003	0.5524	5.0100e-003	0.5574	0.1481	4.6900e-003	0.1528	0.0000	492.3082	492.3082	0.0358	0.0271	501.2751
Waste						0.0000	0.0000		0.0000	0.0000	12.5124	0.0000	12.5124	0.7395	0.0000	30.9989
Water						0.0000	0.0000		0.0000	0.0000	2.7698	3.6194	6.3892	0.2855	6.8400e-003	15.5640
Total	**0.9210**	**0.4290**	**3.8031**	**5.3800e-003**	**0.5524**	**0.0105**	**0.5629**	**0.1481**	**0.0102**	**0.1583**	**15.2822**	**544.3236**	**559.6058**	**1.0752**	**0.0355**	**597.0593**

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

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

Category	tons/yr										MT/yr					
Area	0.5982	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	46.7689	46.7689	0.0129	1.5600e-003	47.5552
Mobile	0.3228	0.4176	2.8081	5.3300e-003	0.5524	5.0100e-003	0.5574	0.1481	4.6900e-003	0.1528	0.0000	492.3082	492.3082	0.0358	0.0271	501.2751
Waste						0.0000	0.0000		0.0000	0.0000	12.5124	0.0000	12.5124	0.7395	0.0000	30.9989
Water						0.0000	0.0000		0.0000	0.0000	2.2159	2.5810	4.7969	0.2283	5.4600e-003	12.1314
Total	**0.9210**	**0.4290**	**3.8031**	**5.3800e-003**	**0.5524**	**0.0105**	**0.5629**	**0.1481**	**0.0102**	**0.1583**	**14.7282**	**543.2852**	**558.0134**	**1.0180**	**0.0341**	**593.6267**

	ROG	NOx	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**	**3.62**	**0.19**	**0.28**	**5.32**	**3.89**	**0.57**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2023	11/7/2023	5	5	
2	Grading	Grading	11/8/2023	11/17/2023	5	8	
3	trenching	Trenching	11/18/2023	12/15/2023	5	20	
4	Building Construction	Building Construction	11/18/2023	10/4/2024	5	230	
5	Paving	Paving	10/5/2024	10/30/2024	5	18	
6	Architectural Coating	Architectural Coating	10/31/2024	11/25/2024	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 0

Residential Indoor: 249,308; Residential Outdoor: 83,103; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 575 (Architectural

Date: 8/5/2022 12:22 PM

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	65.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
trenching			0.00	0.00	10.80	7.30				
Building Construction	9	101.00	16.00	20.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6500e-003	0.0688	0.0456	1.0000e-004		3.1700e-003	3.1700e-003		2.9100e-003	2.9100e-003	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**6.6500e-003**	**0.0688**	**0.0456**	**1.0000e-004**	**0.0491**	**3.1700e-003**	**0.0523**	**0.0253**	**2.9100e-003**	**0.0282**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

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	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	3.5000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2859	0.2859	1.0000e-005	1.0000e-005	0.2889
Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2859**	**0.2859**	**1.0000e-005**	**1.0000e-005**	**0.2889**

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

Mitigated Construction 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					0.0192	0.0000	0.0192	9.8500e-003	0.0000	9.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7400e-003	0.0304	0.0574	1.0000e-004		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	8.3627	8.3627	2.7000e-003	0.0000	8.4303
Total	**1.7400e-003**	**0.0304**	**0.0574**	**1.0000e-004**	**0.0192**	**1.6000e-004**	**0.0193**	**9.8500e-003**	**1.6000e-004**	**0.0100**	**0.0000**	**8.3627**	**8.3627**	**2.7000e-003**	**0.0000**	**8.4303**

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	1.6000e-004	1.1000e-004	1.2400e-003	0.0000	3.5000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2859	0.2859	1.0000e-005	1.0000e-005	0.2889
Total	**1.6000e-004**	**1.1000e-004**	**1.2400e-003**	**0.0000**	**3.5000e-004**	**0.0000**	**3.6000e-004**	**9.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.2859**	**0.2859**	**1.0000e-005**	**1.0000e-005**	**0.2889**

3.3 Grading - 2023

Unmitigated Construction On-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0284	0.0000	0.0284	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8400e-003	0.0717	0.0590	1.2000e-004		3.1000e-003	3.1000e-003		2.8500e-003	2.8500e-003	0.0000	10.4243	10.4243	3.3700e-003	0.0000	10.5085
Total	**6.8400e-003**	**0.0717**	**0.0590**	**1.2000e-004**	**0.0284**	**3.1000e-003**	**0.0315**	**0.0137**	**2.8500e-003**	**0.0166**	**0.0000**	**10.4243**	**10.4243**	**3.3700e-003**	**0.0000**	**10.5085**

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	7.0000e-005	4.7400e-003	1.0300e-003	2.0000e-005	5.4000e-004	3.0000e-005	5.7000e-004	1.5000e-004	3.0000e-005	1.8000e-004	0.0000	1.9832	1.9832	6.0000e-005	3.1000e-004	2.0780
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	2.1000e-004	1.5000e-004	1.6500e-003	0.0000	4.7000e-004	0.0000	4.7000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3812	0.3812	1.0000e-005	1.0000e-005	0.3852
Total	**2.8000e-004**	**4.8900e-003**	**2.6800e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0400e-003**	**2.8000e-004**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**2.3644**	**2.3644**	**7.0000e-005**	**3.2000e-004**	**2.4632**

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

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

Category	tons/yr										MT/yr					
Fugitive Dust					0.0111	0.0000	0.0111	5.3400e-003	0.0000	5.3400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0800e-003	0.0413	0.0760	1.2000e-004		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	10.4242	10.4242	3.3700e-003	0.0000	10.5085
Total	**2.0800e-003**	**0.0413**	**0.0760**	**1.2000e-004**	**0.0111**	**1.9000e-004**	**0.0113**	**5.3400e-003**	**1.9000e-004**	**5.5300e-003**	**0.0000**	**10.4242**	**10.4242**	**3.3700e-003**	**0.0000**	**10.5085**

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	7.0000e-005	4.7400e-003	1.0300e-003	2.0000e-005	5.4000e-004	3.0000e-005	5.7000e-004	1.5000e-004	3.0000e-005	1.8000e-004	0.0000	1.9832	1.9832	6.0000e-005	3.1000e-004	2.0780
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	2.1000e-004	1.5000e-004	1.6500e-003	0.0000	4.7000e-004	0.0000	4.7000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3812	0.3812	1.0000e-005	1.0000e-005	0.3852
Total	**2.8000e-004**	**4.8900e-003**	**2.6800e-003**	**2.0000e-005**	**1.0100e-003**	**3.0000e-005**	**1.0400e-003**	**2.8000e-004**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**2.3644**	**2.3644**	**7.0000e-005**	**3.2000e-004**	**2.4632**

3.4 trenching - 2023

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

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

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**

3.5 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	0.0236	0.2158	0.2437	4.0000e-004		0.0105	0.0105		9.8800e-003	9.8800e-003	0.0000	34.7707	34.7707	8.2700e-003	0.0000	34.9775
Total	**0.0236**	**0.2158**	**0.2437**	**4.0000e-004**		**0.0105**	**0.0105**		**9.8800e-003**	**9.8800e-003**	**0.0000**	**34.7707**	**34.7707**	**8.2700e-003**	**0.0000**	**34.9775**

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.9000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0796	0.0796	0.0000	1.0000e-005	0.0834
Vendor	2.6000e-004	0.0114	3.2000e-003	5.0000e-005	1.5600e-003	6.0000e-005	1.6200e-003	4.5000e-004	6.0000e-005	5.1000e-004	0.0000	4.7336	4.7336	9.0000e-005	7.2000e-004	4.9492
Worker	5.3600e-003	3.6700e-003	0.0416	1.0000e-004	0.0119	7.0000e-005	0.0120	3.1600e-003	7.0000e-005	3.2300e-003	0.0000	9.6251	9.6251	3.4000e-004	3.1000e-004	9.7263
Total	**5.6200e-003**	**0.0153**	**0.0448**	**1.5000e-004**	**0.0135**	**1.3000e-004**	**0.0136**	**3.6200e-003**	**1.3000e-004**	**3.7500e-003**	**0.0000**	**14.4383**	**14.4383**	**4.3000e-004**	**1.0400e-003**	**14.7589**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1800e-003	0.1328	0.2681	4.0000e-004		1.2700e-003	1.2700e-003		1.2700e-003	1.2700e-003	0.0000	34.7707	34.7707	8.2700e-003	0.0000	34.9775
Total	**7.1800e-003**	**0.1328**	**0.2681**	**4.0000e-004**		**1.2700e-003**	**1.2700e-003**		**1.2700e-003**	**1.2700e-003**	**0.0000**	**34.7707**	**34.7707**	**8.2700e-003**	**0.0000**	**34.9775**

Mitigated Construction Off-Site

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

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

Category	tons/yr										MT/yr					
Hauling	0.0000	1.9000e-004	4.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0796	0.0796	0.0000	1.0000e-005	0.0834
Vendor	2.6000e-004	0.0114	3.2000e-003	5.0000e-005	1.5600e-003	6.0000e-005	1.6200e-003	4.5000e-004	6.0000e-005	5.1000e-004	0.0000	4.7336	4.7336	9.0000e-005	7.2000e-004	4.9492
Worker	5.3600e-003	3.6700e-003	0.0416	1.0000e-004	0.0119	7.0000e-005	0.0120	3.1600e-003	7.0000e-005	3.2300e-003	0.0000	9.6251	9.6251	3.4000e-004	3.1000e-004	9.7263
Total	**5.6200e-003**	**0.0153**	**0.0448**	**1.5000e-004**	**0.0135**	**1.3000e-004**	**0.0136**	**3.6200e-003**	**1.3000e-004**	**3.7500e-003**	**0.0000**	**14.4383**	**14.4383**	**4.3000e-004**	**1.0400e-003**	**14.7589**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1472	1.3444	1.6167	2.7000e-003		0.0613	0.0613		0.0577	0.0577	0.0000	231.8491	231.8491	0.0548	0.0000	233.2198
Total	**0.1472**	**1.3444**	**1.6167**	**2.7000e-003**		**0.0613**	**0.0613**		**0.0577**	**0.0577**	**0.0000**	**231.8491**	**231.8491**	**0.0548**	**0.0000**	**233.2198**

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	2.0000e-005	1.2500e-003	2.7000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5214	0.5214	2.0000e-005	8.0000e-005	0.5464
Vendor	1.6700e-003	0.0753	0.0207	3.2000e-004	0.0104	4.0000e-004	0.0108	3.0000e-003	3.9000e-004	3.3900e-003	0.0000	31.0426	31.0426	5.8000e-004	4.7000e-003	32.4567
Worker	0.0332	0.0217	0.2552	6.8000e-004	0.0793	4.5000e-004	0.0797	0.0211	4.2000e-004	0.0215	0.0000	62.0924	62.0924	2.0700e-003	1.9100e-003	62.7147

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

Total	**0.0349**	**0.0982**	**0.2761**	**1.0100e-003**	**0.0898**	**8.6000e-004**	**0.0907**	**0.0241**	**8.2000e-004**	**0.0250**	**0.0000**	**93.6564**	**93.6564**	**2.6700e-003**	**6.6900e-003**	**95.7177**

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	0.0479	0.8851	1.7874	2.7000e-003		8.4600e-003	8.4600e-003		8.4600e-003	8.4600e-003	0.0000	231.8488	231.8488	0.0548	0.0000	233.2195
Total	**0.0479**	**0.8851**	**1.7874**	**2.7000e-003**		**8.4600e-003**	**8.4600e-003**		**8.4600e-003**	**8.4600e-003**	**0.0000**	**231.8488**	**231.8488**	**0.0548**	**0.0000**	**233.2195**

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	2.0000e-005	1.2500e-003	2.7000e-004	1.0000e-005	1.4000e-004	1.0000e-005	1.5000e-004	4.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.5214	0.5214	2.0000e-005	8.0000e-005	0.5464
Vendor	1.6700e-003	0.0753	0.0207	3.2000e-004	0.0104	4.0000e-004	0.0108	3.0000e-003	3.9000e-004	3.3900e-003	0.0000	31.0426	31.0426	5.8000e-004	4.7000e-003	32.4567
Worker	0.0332	0.0217	0.2552	6.8000e-004	0.0793	4.5000e-004	0.0797	0.0211	4.2000e-004	0.0215	0.0000	62.0924	62.0924	2.0700e-003	1.9100e-003	62.7147
Total	**0.0349**	**0.0982**	**0.2761**	**1.0100e-003**	**0.0898**	**8.6000e-004**	**0.0907**	**0.0241**	**8.2000e-004**	**0.0250**	**0.0000**	**93.6564**	**93.6564**	**2.6700e-003**	**6.6900e-003**	**95.7177**

3.6 Paving - 2024

Unmitigated Construction On-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.9300e-003	0.0745	0.1100	1.7000e-004		3.5900e-003	3.5900e-003		3.3200e-003	3.3200e-003	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.9300e-003**	**0.0745**	**0.1100**	**1.7000e-004**		**3.5900e-003**	**3.5900e-003**		**3.3200e-003**	**3.3200e-003**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

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	5.9000e-004	3.9000e-004	4.5500e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1066	1.1066	4.0000e-005	3.0000e-005	1.1177
Total	**5.9000e-004**	**3.9000e-004**	**4.5500e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1066**	**1.1066**	**4.0000e-005**	**3.0000e-005**	**1.1177**

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

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

Category	tons/yr										MT/yr					
Off-Road	2.6200e-003	0.0706	0.1218	1.7000e-004		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	14.7423	14.7423	4.6300e-003	0.0000	14.8581
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.6200e-003**	**0.0706**	**0.1218**	**1.7000e-004**		**2.6000e-004**	**2.6000e-004**		**2.6000e-004**	**2.6000e-004**	**0.0000**	**14.7423**	**14.7423**	**4.6300e-003**	**0.0000**	**14.8581**

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	5.9000e-004	3.9000e-004	4.5500e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1066	1.1066	4.0000e-005	3.0000e-005	1.1177
Total	**5.9000e-004**	**3.9000e-004**	**4.5500e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1066**	**1.1066**	**4.0000e-005**	**3.0000e-005**	**1.1177**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0110	0.0163	3.0000e-005		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012

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

Total	**0.8703**	**0.0110**	**0.0163**	**3.0000e-005**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

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	5.9000e-004	3.9000e-004	4.5500e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1066	1.1066	4.0000e-005	3.0000e-005	1.1177
Total	**5.9000e-004**	**3.9000e-004**	**4.5500e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1066**	**1.1066**	**4.0000e-005**	**3.0000e-005**	**1.1177**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8687					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9000e-004	9.5400e-003	0.0165	3.0000e-005		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	2.2979	2.2979	1.3000e-004	0.0000	2.3012
Total	**0.8692**	**9.5400e-003**	**0.0165**	**3.0000e-005**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**	**0.0000**	**2.2979**	**2.2979**	**1.3000e-004**	**0.0000**	**2.3012**

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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	5.9000e-004	3.9000e-004	4.5500e-003	1.0000e-005	1.4100e-003	1.0000e-005	1.4200e-003	3.8000e-004	1.0000e-005	3.8000e-004	0.0000	1.1066	1.1066	4.0000e-005	3.0000e-005	1.1177
Total	**5.9000e-004**	**3.9000e-004**	**4.5500e-003**	**1.0000e-005**	**1.4100e-003**	**1.0000e-005**	**1.4200e-003**	**3.8000e-004**	**1.0000e-005**	**3.8000e-004**	**0.0000**	**1.1066**	**1.1066**	**4.0000e-005**	**3.0000e-005**	**1.1177**

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	0.3228	0.4176	2.8081	5.3300e-003	0.5524	5.0100e-003	0.5574	0.1481	4.6900e-003	0.1528	0.0000	492.3082	492.3082	0.0358	0.0271	501.2751
Unmitigated	0.3228	0.4176	2.8081	5.3300e-003	0.5524	5.0100e-003	0.5574	0.1481	4.6900e-003	0.1528	0.0000	492.3082	492.3082	0.0358	0.0271	501.2751

4.2 Trip Summary Information

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	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	139.30	125.72	104.72	305,838	305,838
Apartments Mid Rise	544.80	492.00	409.20	1,196,113	1,196,113
Parking Lot	0.00	0.00	0.00		
Total	684.10	617.72	513.92	1,501,951	1,501,951

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140
Apartments Mid Rise	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140
Parking Lot	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140

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	46.7689	46.7689	0.0129	1.5600e-003	47.5552
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	46.7689	46.7689	0.0129	1.5600e-003	47.5552

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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					
Apartments Low Rise	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
Apartments Mid Rise	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					
Apartments Low Rise	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
Apartments Mid Rise	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**

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	97343.7	5.2976	1.4600e-003	1.8000e-004	5.3867
Apartments Mid Rise	758680	41.2889	0.0114	1.3800e-003	41.9830
Parking Lot	3351.95	0.1824	5.0000e-005	1.0000e-005	0.1855
Total		**46.7689**	**0.0129**	**1.5700e-003**	**47.5552**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	97343.7	5.2976	1.4600e-003	1.8000e-004	5.3867
Apartments Mid Rise	758680	41.2889	0.0114	1.3800e-003	41.9830
Parking Lot	3351.95	0.1824	5.0000e-005	1.0000e-005	0.1855
Total		**46.7689**	**0.0129**	**1.5700e-003**	**47.5552**

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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	0.5982	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661
Unmitigated	0.5982	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661

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	0.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4814					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	0.0299	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661
Total	**0.5982**	**0.0115**	**0.9950**	**5.0000e-005**		**5.5200e-003**	**5.5200e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**1.6271**	**1.6271**	**1.5600e-003**	**0.0000**	**1.6661**

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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	0.0869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4814					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	0.0299	0.0115	0.9950	5.0000e-005		5.5200e-003	5.5200e-003		5.5200e-003	5.5200e-003	0.0000	1.6271	1.6271	1.5600e-003	0.0000	1.6661
Total	**0.5982**	**0.0115**	**0.9950**	**5.0000e-005**		**5.5200e-003**	**5.5200e-003**		**5.5200e-003**	**5.5200e-003**	**0.0000**	**1.6271**	**1.6271**	**1.5600e-003**	**0.0000**	**1.6661**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.7969	0.2283	5.4600e-003	12.1314
Unmitigated	6.3892	0.2855	6.8400e-003	15.5640

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.912156 / 0.575055	0.6675	0.0298	7.1000e-004	1.6261
Apartments Mid Rise	7.81848 / 4.92904	5.7217	0.2557	6.1200e-003	13.9379
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.3892**	**0.2855**	**6.8300e-003**	**15.5640**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.729725 / 0.287528	0.5012	0.0239	5.7000e-004	1.2675
Apartments Mid Rise	6.25479 / 2.46452	4.2957	0.2045	4.8900e-003	10.8640
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.7968**	**0.2283**	**5.4600e-003**	**12.1314**

8.0 Waste Detail

8.1 Mitigation Measures Waste

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Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.5124	0.7395	0.0000	30.9989
Unmitigated	12.5124	0.7395	0.0000	30.9989

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	6.44	1.3073	0.0773	0.0000	3.2387
Apartments Mid Rise	55.2	11.2051	0.6622	0.0000	27.7602
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**12.5124**	**0.7395**	**0.0000**	**30.9989**

Mitigated

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	6.44	1.3073	0.0773	0.0000	3.2387
Apartments Mid Rise	55.2	11.2051	0.6622	0.0000	27.7602
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**12.5124**	**0.7395**	**0.0000**	**30.9989**

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

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	37.00	Space	0.00	2,980.00	0
Apartments Mid Rise	6.00	Dwelling Unit	0.00	9,190.00	17
Congregate Care (Assisted Living)	106.00	Dwelling Unit	6.63	68,497.00	303

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - default acreage. Parking is with stackers. Added live work as apts that provides approximate sf

Construction Phase - added utilities/trenching

Off-road Equipment - added

Trips and VMT - 1 vendor trip and 25 miles for water truck

Grading - Possibly remove 2" top soil and replace with more stable = 170cy import/export

Vehicle Trips - Use defaults that are similar to W-Trans

Woodstoves - no hearth

Energy Use - No natural gas Apt Mid = 1602.67, 3978.74

Water Mitigation -

Construction Off-road Equipment Mitigation - Enhanced BMPs and Tier 4

Table Name	Column Name	Default Value	New Value

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tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	13.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstEquipMitigation	Tier	No Change	Tier 4 Interim
tblConstructionPhase	PhaseEndDate	12/12/2022	1/9/2023
tblEnergyUse	NT24E	3,054.10	3,978.74
tblEnergyUse	NT24E	3,054.10	3,978.74
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	NT24NG	3,155.00	0.00
tblEnergyUse	T24E	70.89	1,602.67

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tblEnergyUse	T24E	70.89	1,602.67
tblEnergyUse	T24NG	5,226.68	0.00
tblEnergyUse	T24NG	5,226.68	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	0.90	0.00
tblFireplaces	NumberGas	15.90	0.00
tblFireplaces	NumberNoFireplace	0.24	0.00
tblFireplaces	NumberNoFireplace	4.24	0.00
tblFireplaces	NumberWood	1.02	0.00
tblFireplaces	NumberWood	18.02	0.00
tblGrading	MaterialExported	0.00	170.00
tblGrading	MaterialImported	0.00	170.00
tblLandUse	LandUseSquareFeet	14,800.00	2,980.00
tblLandUse	LandUseSquareFeet	6,000.00	9,190.00
tblLandUse	LandUseSquareFeet	106,000.00	68,497.00
tblLandUse	LotAcreage	0.33	0.00
tblLandUse	LotAcreage	0.16	0.00
tblTripsAndVMT	HaulingTripNumber	43.00	42.00
tblTripsAndVMT	VendorTripLength	7.30	25.00
tblTripsAndVMT	VendorTripLength	7.30	25.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

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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					
2022	0.0729	0.6947	0.6306	1.1600e-003	0.1789	0.0335	0.2125	0.0874	0.0311	0.1185	0.0000	102.2653	102.2653	0.0266	8.7000e-004	103.1898
2023	0.7723	1.8302	2.2884	4.2300e-003	0.0813	0.0860	0.1673	0.0218	0.0808	0.1027	0.0000	371.2149	371.2149	0.0724	5.7700e-003	374.7450
Maximum	**0.7723**	**1.8302**	**2.2884**	**4.2300e-003**	**0.1789**	**0.0860**	**0.2125**	**0.0874**	**0.0808**	**0.1185**	**0.0000**	**371.2149**	**371.2149**	**0.0724**	**5.7700e-003**	**374.7450**

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	0.0234	0.4089	0.7244	1.1600e-003	0.0758	2.4400e-003	0.0782	0.0357	2.4300e-003	0.0381	0.0000	102.2652	102.2652	0.0266	8.7000e-004	103.1897
2023	0.6460	1.4396	2.5049	4.2300e-003	0.0813	0.0107	0.0920	0.0218	0.0107	0.0325	0.0000	371.2145	371.2145	0.0724	5.7700e-003	374.7446
Maximum	**0.6460**	**1.4396**	**2.5049**	**4.2300e-003**	**0.0813**	**0.0107**	**0.0920**	**0.0357**	**0.0107**	**0.0381**	**0.0000**	**371.2145**	**371.2145**	**0.0724**	**5.7700e-003**	**374.7446**

	ROG	NOx	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	**20.79**	**26.79**	**-10.63**	**0.00**	**39.65**	**89.01**	**55.18**	**47.34**	**88.32**	**68.08**	**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	11-1-2022	1-31-2023	0.7362	0.4099

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2	**2-1-2023**	**4-30-2023**	0.5422	0.3988
3	**5-1-2023**	**7-31-2023**	0.5586	0.4104
4	**8-1-2023**	**9-30-2023**	0.3704	0.2721
		Highest	0.7362	0.4104

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	0.3833	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	38.5962	38.5962	0.0106	1.2900e-003	39.2451
Mobile	0.1588	0.2055	1.3816	2.6200e-003	0.2718	2.4600e-003	0.2743	0.0729	2.3100e-003	0.0752	0.0000	242.2186	242.2186	0.0176	0.0133	246.6303
Waste						0.0000	0.0000		0.0000	0.0000	20.1935	0.0000	20.1935	1.1934	0.0000	50.0286
Water						0.0000	0.0000		0.0000	0.0000	2.3151	3.0252	5.3402	0.2386	5.7200e-003	13.0088
Total	**0.5421**	**0.2150**	**2.2128**	**2.6600e-003**	**0.2718**	**7.0700e-003**	**0.2789**	**0.0729**	**6.9200e-003**	**0.0798**	**22.5086**	**285.1990**	**307.7076**	**1.4616**	**0.0203**	**350.3044**

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	0.3833	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	38.5962	38.5962	0.0106	1.2900e-003	39.2451

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Mobile	0.1588	0.2055	1.3816	2.6200e-003	0.2718	2.4600e-003	0.2743	0.0729	2.3100e-003	0.0752	0.0000	242.2186	242.2186	0.0176	0.0133	246.6303
Waste						0.0000	0.0000		0.0000	0.0000	20.1935	0.0000	20.1935	1.1934	0.0000	50.0286
Water						0.0000	0.0000		0.0000	0.0000	1.8521	2.1572	4.0093	0.1908	4.5600e-003	10.1397
Total	**0.5421**	**0.2150**	**2.2128**	**2.6600e-003**	**0.2718**	**7.0700e-003**	**0.2789**	**0.0729**	**6.9200e-003**	**0.0798**	**22.0456**	**284.3311**	**306.3767**	**1.4138**	**0.0192**	**347.4354**

	ROG	NOx	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**	**2.06**	**0.30**	**0.43**	**3.27**	**5.70**	**0.82**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	11/14/2022	5	10	
2	Grading	Grading	11/15/2022	12/12/2022	5	20	
3	trenching	Trenching	12/13/2022	1/9/2023	5	20	
4	Building Construction	Building Construction	12/13/2022	10/30/2023	5	230	
5	Paving	Paving	10/31/2023	11/27/2023	5	20	
6	Architectural Coating	Architectural Coating	11/28/2023	12/25/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 157,316; Residential Outdoor: 52,439; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 179 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

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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
Trenching	Air Compressors	1	6.00	78	0.48
Trenching	Cranes	1	7.00	231	0.29
Trenching	Forklifts	3	8.00	89	0.20
Trenching	Generator Sets	1	8.00	84	0.74
Trenching	Pavers	2	8.00	130	0.42
Trenching	Paving Equipment	2	8.00	132	0.36
Trenching	Rollers	2	8.00	80	0.38
Trenching	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Trenching	Welders	1	8.00	46	0.45

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
Site Preparation	7	18.00	1.00	0.00	10.80	25.00	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	1.00	42.00	10.80	25.00	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	82.00	12.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
trenching	16	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
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**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**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	3.0000e-005	8.6000e-004	1.8000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3355	0.3355	1.0000e-005	5.0000e-005	0.3508
Worker	3.4000e-004	2.5000e-004	2.7100e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5902	0.5902	2.0000e-005	2.0000e-005	0.5968

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Total	**3.7000e-004**	**1.1100e-003**	**2.8900e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.9257**	**0.9257**	**3.0000e-005**	**7.0000e-005**	**0.9475**

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					0.0383	0.0000	0.0383	0.0197	0.0000	0.0197	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**	**0.0383**	**3.1000e-004**	**0.0386**	**0.0197**	**3.1000e-004**	**0.0200**	**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	3.0000e-005	8.6000e-004	1.8000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3355	0.3355	1.0000e-005	5.0000e-005	0.3508
Worker	3.4000e-004	2.5000e-004	2.7100e-003	1.0000e-005	7.1000e-004	0.0000	7.1000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5902	0.5902	2.0000e-005	2.0000e-005	0.5968
Total	**3.7000e-004**	**1.1100e-003**	**2.8900e-003**	**1.0000e-005**	**8.2000e-004**	**1.0000e-005**	**8.3000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.9257**	**0.9257**	**3.0000e-005**	**7.0000e-005**	**0.9475**

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3.3 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					0.0709	0.0000	0.0709	0.0343	0.0000	0.0343	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**	**0.0709**	**9.4100e-003**	**0.0803**	**0.0343**	**8.6600e-003**	**0.0429**	**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					
Hauling	1.0000e-004	3.8100e-003	7.8000e-004	1.0000e-005	3.5000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.3387	1.3387	4.0000e-005	2.1000e-004	1.4027
Vendor	6.0000e-005	1.7300e-003	3.7000e-004	1.0000e-005	2.2000e-004	2.0000e-005	2.4000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.6710	0.6710	1.0000e-005	1.0000e-004	0.7015
Worker	5.7000e-004	4.1000e-004	4.5100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9837	0.9837	4.0000e-005	3.0000e-005	0.9946
Total	**7.3000e-004**	**5.9500e-003**	**5.6600e-003**	**3.0000e-005**	**1.7500e-003**	**6.0000e-005**	**1.8000e-003**	**4.7000e-004**	**6.0000e-005**	**5.3000e-004**	**0.0000**	**2.9934**	**2.9934**	**9.0000e-005**	**3.4000e-004**	**3.0988**

Mitigated Construction On-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0276	0.0000	0.0276	0.0134	0.0000	0.0134	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**	**0.0276**	**4.8000e-004**	**0.0281**	**0.0134**	**4.8000e-004**	**0.0138**	**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	1.0000e-004	3.8100e-003	7.8000e-004	1.0000e-005	3.5000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.3387	1.3387	4.0000e-005	2.1000e-004	1.4027
Vendor	6.0000e-005	1.7300e-003	3.7000e-004	1.0000e-005	2.2000e-004	2.0000e-005	2.4000e-004	6.0000e-005	2.0000e-005	8.0000e-005	0.0000	0.6710	0.6710	1.0000e-005	1.0000e-004	0.7015
Worker	5.7000e-004	4.1000e-004	4.5100e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9837	0.9837	4.0000e-005	3.0000e-005	0.9946
Total	**7.3000e-004**	**5.9500e-003**	**5.6600e-003**	**3.0000e-005**	**1.7500e-003**	**6.0000e-005**	**1.8000e-003**	**4.7000e-004**	**6.0000e-005**	**5.3000e-004**	**0.0000**	**2.9934**	**2.9934**	**9.0000e-005**	**3.4000e-004**	**3.0988**

3.4 Trenching - 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					

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Off-Road	0.0211	0.1970	0.2293	3.7000e-004		0.0102	0.0102		9.5600e-003	9.5600e-003	0.0000	32.0273	32.0273	8.5400e-003	0.0000	32.2408
Total	**0.0211**	**0.1970**	**0.2293**	**3.7000e-004**		**0.0102**	**0.0102**		**9.5600e-003**	**9.5600e-003**	**0.0000**	**32.0273**	**32.0273**	**8.5400e-003**	**0.0000**	**32.2408**

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	1.0700e-003	7.7000e-004	8.4200e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.8362	1.8362	7.0000e-005	6.0000e-005	1.8566
Total	**1.0700e-003**	**7.7000e-004**	**8.4200e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.8362**	**1.8362**	**7.0000e-005**	**6.0000e-005**	**1.8566**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.4500e-003	0.1541	0.2590	3.7000e-004		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004	0.0000	32.0273	32.0273	8.5400e-003	0.0000	32.2407
Total	**6.4500e-003**	**0.1541**	**0.2590**	**3.7000e-004**		**8.8000e-004**	**8.8000e-004**		**8.8000e-004**	**8.8000e-004**	**0.0000**	**32.0273**	**32.0273**	**8.5400e-003**	**0.0000**	**32.2407**

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0700e-003	7.7000e-004	8.4200e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.8362	1.8362	7.0000e-005	6.0000e-005	1.8566
Total	**1.0700e-003**	**7.7000e-004**	**8.4200e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.8362**	**1.8362**	**7.0000e-005**	**6.0000e-005**	**1.8566**

3.4 Trenching - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.3900e-003	0.0776	0.0979	1.6000e-004		3.8400e-003	3.8400e-003		3.6000e-003	3.6000e-003	0.0000	13.7282	13.7282	3.6400e-003	0.0000	13.8193
Total	**8.3900e-003**	**0.0776**	**0.0979**	**1.6000e-004**		**3.8400e-003**	**3.8400e-003**		**3.6000e-003**	**3.6000e-003**	**0.0000**	**13.7282**	**13.7282**	**3.6400e-003**	**0.0000**	**13.8193**

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

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

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	4.2000e-004	2.9000e-004	3.2900e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.7624	0.7624	3.0000e-005	2.0000e-005	0.7704
Total	**4.2000e-004**	**2.9000e-004**	**3.2900e-003**	**1.0000e-005**	**9.4000e-004**	**1.0000e-005**	**9.5000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.7624**	**0.7624**	**3.0000e-005**	**2.0000e-005**	**0.7704**

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	2.7700e-003	0.0660	0.1110	1.6000e-004		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	13.7282	13.7282	3.6400e-003	0.0000	13.8192
Total	**2.7700e-003**	**0.0660**	**0.1110**	**1.6000e-004**		**3.8000e-004**	**3.8000e-004**		**3.8000e-004**	**3.8000e-004**	**0.0000**	**13.7282**	**13.7282**	**3.6400e-003**	**0.0000**	**13.8192**

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	4.2000e-004	2.9000e-004	3.2900e-003	1.0000e-005	9.4000e-004	1.0000e-005	9.5000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.7624	0.7624	3.0000e-005	2.0000e-005	0.7704

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

Total	**4.2000e-004**	**2.9000e-004**	**3.2900e-003**	**1.0000e-005**	**9.4000e-004**	**1.0000e-005**	**9.5000e-004**	**2.5000e-004**	**1.0000e-005**	**2.6000e-004**	**0.0000**	**0.7624**	**0.7624**	**3.0000e-005**	**2.0000e-005**	**0.7704**

3.5 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	0.0119	0.1093	0.1145	1.9000e-004		5.6600e-003	5.6600e-003		5.3300e-003	5.3300e-003	0.0000	16.2208	16.2208	3.8900e-003	0.0000	16.3179
Total	**0.0119**	**0.1093**	**0.1145**	**1.9000e-004**		**5.6600e-003**	**5.6600e-003**		**5.3300e-003**	**5.3300e-003**	**0.0000**	**16.2208**	**16.2208**	**3.8900e-003**	**0.0000**	**16.3179**

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	1.8000e-004	4.9200e-003	1.3400e-003	2.0000e-005	5.5000e-004	5.0000e-005	6.0000e-004	1.6000e-004	5.0000e-005	2.1000e-004	0.0000	1.7232	1.7232	3.0000e-005	2.6000e-004	1.8018
Worker	2.1900e-003	1.5800e-003	0.0173	4.0000e-005	4.5000e-003	3.0000e-005	4.5300e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.7643	3.7643	1.5000e-004	1.3000e-004	3.8061
Total	**2.3700e-003**	**6.5000e-003**	**0.0186**	**6.0000e-005**	**5.0500e-003**	**8.0000e-005**	**5.1300e-003**	**1.3600e-003**	**8.0000e-005**	**1.4400e-003**	**0.0000**	**5.4874**	**5.4874**	**1.8000e-004**	**3.9000e-004**	**5.6078**

Mitigated Construction On-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.7300e-003	0.0764	0.1251	1.9000e-004		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	16.2208	16.2208	3.8900e-003	0.0000	16.3179
Total	**3.7300e-003**	**0.0764**	**0.1251**	**1.9000e-004**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**16.2208**	**16.2208**	**3.8900e-003**	**0.0000**	**16.3179**

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	1.8000e-004	4.9200e-003	1.3400e-003	2.0000e-005	5.5000e-004	5.0000e-005	6.0000e-004	1.6000e-004	5.0000e-005	2.1000e-004	0.0000	1.7232	1.7232	3.0000e-005	2.6000e-004	1.8018
Worker	2.1900e-003	1.5800e-003	0.0173	4.0000e-005	4.5000e-003	3.0000e-005	4.5300e-003	1.2000e-003	3.0000e-005	1.2300e-003	0.0000	3.7643	3.7643	1.5000e-004	1.3000e-004	3.8061
Total	**2.3700e-003**	**6.5000e-003**	**0.0186**	**6.0000e-005**	**5.0500e-003**	**8.0000e-005**	**5.1300e-003**	**1.3600e-003**	**8.0000e-005**	**1.4400e-003**	**0.0000**	**5.4874**	**5.4874**	**1.8000e-004**	**3.9000e-004**	**5.6078**

3.5 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					

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

Off-Road	0.1699	1.5536	1.7544	2.9100e-003		0.0756	0.0756		0.0711	0.0711	0.0000	250.3491	250.3491	0.0596	0.0000	251.8380
Total	**0.1699**	**1.5536**	**1.7544**	**2.9100e-003**		**0.0756**	**0.0756**		**0.0711**	**0.0711**	**0.0000**	**250.3491**	**250.3491**	**0.0596**	**0.0000**	**251.8380**

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	1.4100e-003	0.0615	0.0173	2.6000e-004	8.4100e-003	3.3000e-004	8.7400e-003	2.4300e-003	3.1000e-004	2.7500e-003	0.0000	25.5615	25.5615	4.6000e-004	3.8700e-003	26.7255
Worker	0.0314	0.0215	0.2431	6.1000e-004	0.0695	4.2000e-004	0.0699	0.0185	3.9000e-004	0.0189	0.0000	56.2641	56.2641	2.0100e-003	1.8200e-003	56.8557
Total	**0.0328**	**0.0830**	**0.2604**	**8.7000e-004**	**0.0779**	**7.5000e-004**	**0.0787**	**0.0209**	**7.0000e-004**	**0.0216**	**0.0000**	**81.8256**	**81.8256**	**2.4700e-003**	**5.6900e-003**	**83.5813**

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	0.0576	1.1785	1.9304	2.9100e-003		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	250.3488	250.3488	0.0596	0.0000	251.8377
Total	**0.0576**	**1.1785**	**1.9304**	**2.9100e-003**		**9.1400e-003**	**9.1400e-003**		**9.1400e-003**	**9.1400e-003**	**0.0000**	**250.3488**	**250.3488**	**0.0596**	**0.0000**	**251.8377**

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4100e-003	0.0615	0.0173	2.6000e-004	8.4100e-003	3.3000e-004	8.7400e-003	2.4300e-003	3.1000e-004	2.7500e-003	0.0000	25.5615	25.5615	4.6000e-004	3.8700e-003	26.7255
Worker	0.0314	0.0215	0.2431	6.1000e-004	0.0695	4.2000e-004	0.0699	0.0185	3.9000e-004	0.0189	0.0000	56.2641	56.2641	2.0100e-003	1.8200e-003	56.8557
Total	**0.0328**	**0.0830**	**0.2604**	**8.7000e-004**	**0.0779**	**7.5000e-004**	**0.0787**	**0.0209**	**7.0000e-004**	**0.0216**	**0.0000**	**81.8256**	**81.8256**	**2.4700e-003**	**5.6900e-003**	**83.5813**

3.6 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

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	3.6000e-004	4.1200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9530	0.9530	3.0000e-005	3.0000e-005	0.9630
Total	**5.3000e-004**	**3.6000e-004**	**4.1200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9530**	**0.9530**	**3.0000e-005**	**3.0000e-005**	**0.9630**

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					

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

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	5.3000e-004	3.6000e-004	4.1200e-003	1.0000e-005	1.1800e-003	1.0000e-005	1.1800e-003	3.1000e-004	1.0000e-005	3.2000e-004	0.0000	0.9530	0.9530	3.0000e-005	3.0000e-005	0.9630
Total	**5.3000e-004**	**3.6000e-004**	**4.1200e-003**	**1.0000e-005**	**1.1800e-003**	**1.0000e-005**	**1.1800e-003**	**3.1000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9530**	**0.9530**	**3.0000e-005**	**3.0000e-005**	**0.9630**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5475					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	**0.5494**	**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	5.7000e-004	3.9000e-004	4.3900e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0165	1.0165	4.0000e-005	3.0000e-005	1.0272

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Total	**5.7000e-004**	**3.9000e-004**	**4.3900e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2600e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0165**	**1.0165**	**4.0000e-005**	**3.0000e-005**	**1.0272**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5475					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	**0.5480**	**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	5.7000e-004	3.9000e-004	4.3900e-003	1.0000e-005	1.2600e-003	1.0000e-005	1.2600e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.0165	1.0165	4.0000e-005	3.0000e-005	1.0272
Total	**5.7000e-004**	**3.9000e-004**	**4.3900e-003**	**1.0000e-005**	**1.2600e-003**	**1.0000e-005**	**1.2600e-003**	**3.3000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.0165**	**1.0165**	**4.0000e-005**	**3.0000e-005**	**1.0272**

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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	0.1588	0.2055	1.3816	2.6200e-003	0.2718	2.4600e-003	0.2743	0.0729	2.3100e-003	0.0752	0.0000	242.2186	242.2186	0.0176	0.0133	246.6303
Unmitigated	0.1588	0.2055	1.3816	2.6200e-003	0.2718	2.4600e-003	0.2743	0.0729	2.3100e-003	0.0752	0.0000	242.2186	242.2186	0.0176	0.0133	246.6303

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	32.64	29.46	24.54	71,664	71,664
Congregate Care (Assisted Living)	275.60	310.58	333.90	667,305	667,305
Parking Lot	0.00	0.00	0.00		
Total	308.24	340.04	358.44	738,969	738,969

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

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140

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Congregate Care (Assisted Living)	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140
Parking Lot	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140

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	38.5962	38.5962	0.0106	1.2900e-003	39.2451
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	38.5962	38.5962	0.0106	1.2900e-003	39.2451
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					
Apartments Mid Rise	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
Congregate Care (Assisted Living)	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

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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					
Apartments Mid Rise	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
Congregate Care (Assisted Living)	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			
Apartments Mid Rise	37937.1	2.0646	5.7000e-004	7.0000e-005	2.0993
Congregate Care (Assisted Living)	670222	36.4748	0.0100	1.2200e-003	37.0880
Parking Lot	1043	0.0568	2.0000e-005	0.0000	0.0577

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

Total		**38.5962**	**0.0106**	**1.2900e-003**	**39.2451**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	37937.1	2.0646	5.7000e-004	7.0000e-005	2.0993
Congregate Care (Assisted Living)	670222	36.4748	0.0100	1.2200e-003	37.0880
Parking Lot	1043	0.0568	2.0000e-005	0.0000	0.0577
Total		**38.5962**	**0.0106**	**1.2900e-003**	**39.2451**

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	0.3833	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917
Unmitigated	0.3833	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0548					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3036					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	0.0250	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917
Total	**0.3833**	**9.5700e-003**	**0.8312**	**4.0000e-005**		**4.6100e-003**	**4.6100e-003**		**4.6100e-003**	**4.6100e-003**	**0.0000**	**1.3591**	**1.3591**	**1.3000e-003**	**0.0000**	**1.3917**

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	0.0548					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3036					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	0.0250	9.5700e-003	0.8312	4.0000e-005		4.6100e-003	4.6100e-003		4.6100e-003	4.6100e-003	0.0000	1.3591	1.3591	1.3000e-003	0.0000	1.3917
Total	**0.3833**	**9.5700e-003**	**0.8312**	**4.0000e-005**		**4.6100e-003**	**4.6100e-003**		**4.6100e-003**	**4.6100e-003**	**0.0000**	**1.3591**	**1.3591**	**1.3000e-003**	**0.0000**	**1.3917**

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7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.0093	0.1908	4.5600e-003	10.1397
Unmitigated	5.3402	0.2386	5.7200e-003	13.0088

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.390924 / 0.246452	0.2861	0.0128	3.1000e-004	0.6969
Congregate Care (Assisted Living)	6.90633 / 4.35399	5.0542	0.2258	5.4100e-003	12.3119
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.3402**	**0.2386**	**5.7200e-003**	**13.0088**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	0.312739 / 0.123226	0.2148	0.0102	2.4000e-004	0.5432
Congregate Care (Assisted Living)	5.52506 / 2.17699	3.7945	0.1806	4.3200e-003	9.5965
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**4.0093**	**0.1908**	**4.5600e-003**	**10.1397**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	20.1935	1.1934	0.0000	50.0286
Unmitigated	20.1935	1.1934	0.0000	50.0286

8.2 Waste by Land Use

Unmitigated

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	2.76	0.5603	0.0331	0.0000	1.3880
Congregate Care (Assisted Living)	96.72	19.6333	1.1603	0.0000	48.6406
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**20.1936**	**1.1934**	**0.0000**	**50.0286**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	2.76	0.5603	0.0331	0.0000	1.3880
Congregate Care (Assisted Living)	96.72	19.6333	1.1603	0.0000	48.6406
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**20.1936**	**1.1934**	**0.0000**	**50.0286**

9.0 Operational Offroad

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

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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

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

500 Hopper - Riverfront EIR Uses

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Apartments Low Rise	100.00	Dwelling Unit	1.00	100,000.00	286
Strip Mall	30.00	1000sqft	0.69	30,000.00	0

1.2 Other Project Characteristics

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

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - default acreage.

Construction Phase -

Off-road Equipment - added

Grading - Possibly remove 2" top soil and replace with more stable = 170cy import/export

Trips and VMT - 1 vendor trip and 25 miles for water truck

Vehicle Trips - Use W-Trans (7/25/2022) = 6.65 and 7.39/5.71

Woodstoves - no wood hearth

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	15.00	32.00
tblFireplaces	NumberWood	17.00	0.00
tblLandUse	LotAcreage	6.25	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	42.00
tblVehicleTrips	ST_TR	8.14	7.39
tblVehicleTrips	SU_TR	6.28	5.71
tblVehicleTrips	WD_TR	7.32	6.65
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					
2022	0.0425	0.3121	0.3207	6.7000e-004	0.0352	0.0136	0.0488	0.0138	0.0130	0.0269	0.0000	57.6075	57.6075	8.2300e-003	1.5100e-003	58.2632
2023	1.0134	1.0642	1.2782	2.6000e-003	0.0617	0.0442	0.1059	0.0166	0.0426	0.0592	0.0000	222.9389	222.9389	0.0289	5.2600e-003	225.2294
Maximum	**1.0134**	**1.0642**	**1.2782**	**2.6000e-003**	**0.0617**	**0.0442**	**0.1059**	**0.0166**	**0.0426**	**0.0592**	**0.0000**	**222.9389**	**222.9389**	**0.0289**	**5.2600e-003**	**225.2294**

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

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Year	tons/yr										MT/yr					
2022	0.0425	0.3121	0.3207	6.7000e-004	0.0352	0.0136	0.0488	0.0138	0.0130	0.0269	0.0000	57.6075	57.6075	8.2300e-003	1.5100e-003	58.2631
2023	1.0134	1.0642	1.2782	2.6000e-003	0.0617	0.0442	0.1059	0.0166	0.0426	0.0592	0.0000	222.9387	222.9387	0.0289	5.2600e-003	225.2292
Maximum	**1.0134**	**1.0642**	**1.2782**	**2.6000e-003**	**0.0617**	**0.0442**	**0.1059**	**0.0166**	**0.0426**	**0.0592**	**0.0000**	**222.9387**	**222.9387**	**0.0289**	**5.2600e-003**	**225.2292**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-1-2022**	**1-31-2023**	0.5145	0.5145
2	**2-1-2023**	**4-30-2023**	0.4618	0.4618
3	**5-1-2023**	**7-31-2023**	0.4753	0.4753
4	**8-1-2023**	**9-30-2023**	0.9806	0.9806
		Highest	0.9806	0.9806

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	0.6165	0.0120	0.7436	6.0000e-005		4.4000e-003	4.4000e-003		4.4000e-003	4.4000e-003	0.0000	5.2083	5.2083	1.2400e-003	7.0000e-005	5.2611
Energy	5.7000e-003	0.0489	0.0222	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	95.4686	95.4686	0.0118	2.3400e-003	96.4605
Mobile	0.8401	0.9970	6.7800	0.0122	1.2520	0.0116	1.2637	0.3356	0.0109	0.3465	0.0000	1,124.9898	1,124.9898	0.0899	0.0653	1,146.6957
Waste						0.0000	0.0000		0.0000	0.0000	15.7318	0.0000	15.7318	0.9297	0.0000	38.9749
Water						0.0000	0.0000		0.0000	0.0000	2.7720	3.6148	6.3869	0.2857	6.8400e-003	15.5689
Total	**1.4622**	**1.0579**	**7.5458**	**0.0126**	**1.2520**	**0.0200**	**1.2720**	**0.3356**	**0.0192**	**0.3548**	**18.5038**	**1,229.2815**	**1,247.7854**	**1.3184**	**0.0746**	**1,302.9610**

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	0.6165	0.0120	0.7436	6.0000e-005		4.4000e-003	4.4000e-003		4.4000e-003	4.4000e-003	0.0000	5.2083	5.2083	1.2400e-003	7.0000e-005	5.2611
Energy	5.7000e-003	0.0489	0.0222	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	95.4686	95.4686	0.0118	2.3400e-003	96.4605
Mobile	0.8401	0.9970	6.7800	0.0122	1.2520	0.0116	1.2637	0.3356	0.0109	0.3465	0.0000	1,124.9898	1,124.9898	0.0899	0.0653	1,146.6957
Waste						0.0000	0.0000		0.0000	0.0000	15.7318	0.0000	15.7318	0.9297	0.0000	38.9749
Water						0.0000	0.0000		0.0000	0.0000	2.7720	3.6148	6.3869	0.2857	6.8400e-003	15.5689
Total	**1.4622**	**1.0579**	**7.5458**	**0.0126**	**1.2520**	**0.0200**	**1.2720**	**0.3356**	**0.0192**	**0.3548**	**18.5038**	**1,229.2815**	**1,247.7854**	**1.3184**	**0.0746**	**1,302.9610**

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

3.0 Construction Detail

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

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	11/1/2022	11/2/2022	5	2	
2	Grading	Grading	11/3/2022	11/8/2022	5	4	
3	Building Construction	Building Construction	11/9/2022	8/15/2023	5	200	
4	Paving	Paving	8/16/2023	8/29/2023	5	10	
5	Architectural Coating	Architectural Coating	8/30/2023	9/12/2023	5	10	

Acres of Grading (Site Preparation Phase): 1.88

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 202,500; Residential Outdoor: 67,500; Non-Residential Indoor: 45,000; Non-Residential Outdoor: 15,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	42.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	82.00	16.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 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					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0146	7.0900e-003	2.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	**1.3100e-003**	**0.0146**	**7.0900e-003**	**2.0000e-005**	**6.2700e-003**	**6.2000e-004**	**6.8900e-003**	**3.0000e-003**	**5.7000e-004**	**3.5700e-003**	**0.0000**	**1.5115**	**1.5115**	**4.9000e-004**	**0.0000**	**1.5238**

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0525	0.0525	0.0000	0.0000	0.0531
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0525**	**0.0525**	**0.0000**	**0.0000**	**0.0531**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.2700e-003	0.0000	6.2700e-003	3.0000e-003	0.0000	3.0000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3100e-003	0.0146	7.0900e-003	2.0000e-005		6.2000e-004	6.2000e-004		5.7000e-004	5.7000e-004	0.0000	1.5115	1.5115	4.9000e-004	0.0000	1.5238
Total	**1.3100e-003**	**0.0146**	**7.0900e-003**	**2.0000e-005**	**6.2700e-003**	**6.2000e-004**	**6.8900e-003**	**3.0000e-003**	**5.7000e-004**	**3.5700e-003**	**0.0000**	**1.5115**	**1.5115**	**4.9000e-004**	**0.0000**	**1.5238**

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	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0525	0.0525	0.0000	0.0000	0.0531
Total	**3.0000e-005**	**2.0000e-005**	**2.4000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0525**	**0.0525**	**0.0000**	**0.0000**	**0.0531**

3.3 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					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0800e-003	0.0340	0.0184	4.0000e-005		1.4800e-003	1.4800e-003		1.3700e-003	1.3700e-003	0.0000	3.6205	3.6205	1.1700e-003	0.0000	3.6498
Total	**3.0800e-003**	**0.0340**	**0.0184**	**4.0000e-005**	**0.0142**	**1.4800e-003**	**0.0157**	**6.8500e-003**	**1.3700e-003**	**8.2200e-003**	**0.0000**	**3.6205**	**3.6205**	**1.1700e-003**	**0.0000**	**3.6498**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	3.8100e-003	7.8000e-004	1.0000e-005	3.5000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.3387	1.3387	4.0000e-005	2.1000e-004	1.4027
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	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1312	0.1312	1.0000e-005	0.0000	0.1326
Total	**1.8000e-004**	**3.8700e-003**	**1.3800e-003**	**1.0000e-005**	**5.1000e-004**	**3.0000e-005**	**5.4000e-004**	**1.4000e-004**	**3.0000e-005**	**1.7000e-004**	**0.0000**	**1.4699**	**1.4699**	**5.0000e-005**	**2.1000e-004**	**1.5353**

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					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0800e-003	0.0340	0.0184	4.0000e-005		1.4800e-003	1.4800e-003		1.3700e-003	1.3700e-003	0.0000	3.6205	3.6205	1.1700e-003	0.0000	3.6498
Total	**3.0800e-003**	**0.0340**	**0.0184**	**4.0000e-005**	**0.0142**	**1.4800e-003**	**0.0157**	**6.8500e-003**	**1.3700e-003**	**8.2200e-003**	**0.0000**	**3.6205**	**3.6205**	**1.1700e-003**	**0.0000**	**3.6498**

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	1.0000e-004	3.8100e-003	7.8000e-004	1.0000e-005	3.5000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.3387	1.3387	4.0000e-005	2.1000e-004	1.4027
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	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1312	0.1312	1.0000e-005	0.0000	0.1326
Total	**1.8000e-004**	**3.8700e-003**	**1.3800e-003**	**1.0000e-005**	**5.1000e-004**	**3.0000e-005**	**5.4000e-004**	**1.4000e-004**	**3.0000e-005**	**1.7000e-004**	**0.0000**	**1.4699**	**1.4699**	**5.0000e-005**	**2.1000e-004**	**1.5353**

3.4 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	0.0313	0.2376	0.2418	4.2000e-004		0.0112	0.0112		0.0108	0.0108	0.0000	34.4996	34.4996	6.0100e-003	0.0000	34.6498
Total	**0.0313**	**0.2376**	**0.2418**	**4.2000e-004**		**0.0112**	**0.0112**		**0.0108**	**0.0108**	**0.0000**	**34.4996**	**34.4996**	**6.0100e-003**	**0.0000**	**34.6498**

Unmitigated Construction Off-Site

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0178	4.8400e-003	6.0000e-005	1.9700e-003	1.8000e-004	2.1500e-003	5.7000e-004	1.7000e-004	7.4000e-004	0.0000	6.2362	6.2362	1.2000e-004	9.4000e-004	6.5207
Worker	5.9500e-003	4.2900e-003	0.0469	1.1000e-004	0.0122	8.0000e-005	0.0123	3.2500e-003	7.0000e-005	3.3300e-003	0.0000	10.2173	10.2173	3.9000e-004	3.5000e-004	10.3308
Total	**6.6100e-003**	**0.0221**	**0.0517**	**1.7000e-004**	**0.0142**	**2.6000e-004**	**0.0145**	**3.8200e-003**	**2.4000e-004**	**4.0700e-003**	**0.0000**	**16.4535**	**16.4535**	**5.1000e-004**	**1.2900e-003**	**16.8514**

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	0.0313	0.2376	0.2418	4.2000e-004		0.0112	0.0112		0.0108	0.0108	0.0000	34.4996	34.4996	6.0100e-003	0.0000	34.6498
Total	**0.0313**	**0.2376**	**0.2418**	**4.2000e-004**		**0.0112**	**0.0112**		**0.0108**	**0.0108**	**0.0000**	**34.4996**	**34.4996**	**6.0100e-003**	**0.0000**	**34.6498**

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	6.6000e-004	0.0178	4.8400e-003	6.0000e-005	1.9700e-003	1.8000e-004	2.1500e-003	5.7000e-004	1.7000e-004	7.4000e-004	0.0000	6.2362	6.2362	1.2000e-004	9.4000e-004	6.5207
Worker	5.9500e-003	4.2900e-003	0.0469	1.1000e-004	0.0122	8.0000e-005	0.0123	3.2500e-003	7.0000e-005	3.3300e-003	0.0000	10.2173	10.2173	3.9000e-004	3.5000e-004	10.3308
Total	**6.6100e-003**	**0.0221**	**0.0517**	**1.7000e-004**	**0.0142**	**2.6000e-004**	**0.0145**	**3.8200e-003**	**2.4000e-004**	**4.0700e-003**	**0.0000**	**16.4535**	**16.4535**	**5.1000e-004**	**1.2900e-003**	**16.8514**

3.4 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	0.1234	0.9485	1.0215	1.7900e-003		0.0417	0.0417		0.0402	0.0402	0.0000	147.0953	147.0953	0.0250	0.0000	147.7198
Total	**0.1234**	**0.9485**	**1.0215**	**1.7900e-003**		**0.0417**	**0.0417**		**0.0402**	**0.0402**	**0.0000**	**147.0953**	**147.0953**	**0.0250**	**0.0000**	**147.7198**

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

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

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	1.4100e-003	0.0615	0.0173	2.6000e-004	8.4100e-003	3.3000e-004	8.7400e-003	2.4300e-003	3.1000e-004	2.7500e-003	0.0000	25.5615	25.5615	4.6000e-004	3.8700e-003	26.7255
Worker	0.0235	0.0161	0.1824	4.6000e-004	0.0521	3.2000e-004	0.0524	0.0139	2.9000e-004	0.0142	0.0000	42.1981	42.1981	1.5100e-003	1.3600e-003	42.6418
Total	**0.0249**	**0.0776**	**0.1996**	**7.2000e-004**	**0.0605**	**6.5000e-004**	**0.0612**	**0.0163**	**6.0000e-004**	**0.0169**	**0.0000**	**67.7595**	**67.7595**	**1.9700e-003**	**5.2300e-003**	**69.3673**

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	0.1234	0.9485	1.0215	1.7900e-003		0.0417	0.0417		0.0402	0.0402	0.0000	147.0951	147.0951	0.0250	0.0000	147.7196
Total	**0.1234**	**0.9485**	**1.0215**	**1.7900e-003**		**0.0417**	**0.0417**		**0.0402**	**0.0402**	**0.0000**	**147.0951**	**147.0951**	**0.0250**	**0.0000**	**147.7196**

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	1.4100e-003	0.0615	0.0173	2.6000e-004	8.4100e-003	3.3000e-004	8.7400e-003	2.4300e-003	3.1000e-004	2.7500e-003	0.0000	25.5615	25.5615	4.6000e-004	3.8700e-003	26.7255
Worker	0.0235	0.0161	0.1824	4.6000e-004	0.0521	3.2000e-004	0.0524	0.0139	2.9000e-004	0.0142	0.0000	42.1981	42.1981	1.5100e-003	1.3600e-003	42.6418
Total	**0.0249**	**0.0776**	**0.1996**	**7.2000e-004**	**0.0605**	**6.5000e-004**	**0.0612**	**0.0163**	**6.0000e-004**	**0.0169**	**0.0000**	**67.7595**	**67.7595**	**1.9700e-003**	**5.2300e-003**	**69.3673**

3.5 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	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2200e-003**	**0.0312**	**0.0440**	**7.0000e-005**		**1.5400e-003**	**1.5400e-003**		**1.4200e-003**	**1.4200e-003**	**0.0000**	**5.8862**	**5.8862**	**1.8700e-003**	**0.0000**	**5.9329**

Unmitigated Construction Off-Site

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

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3000e-004	1.6000e-004	1.7800e-003	0.0000	5.1000e-004	0.0000	5.1000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4130	0.4130	1.0000e-005	1.0000e-005	0.4173
Total	**2.3000e-004**	**1.6000e-004**	**1.7800e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.1000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4130**	**0.4130**	**1.0000e-005**	**1.0000e-005**	**0.4173**

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	3.2200e-003	0.0312	0.0440	7.0000e-005		1.5400e-003	1.5400e-003		1.4200e-003	1.4200e-003	0.0000	5.8862	5.8862	1.8700e-003	0.0000	5.9329
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.2200e-003**	**0.0312**	**0.0440**	**7.0000e-005**		**1.5400e-003**	**1.5400e-003**		**1.4200e-003**	**1.4200e-003**	**0.0000**	**5.8862**	**5.8862**	**1.8700e-003**	**0.0000**	**5.9329**

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	2.3000e-004	1.6000e-004	1.7800e-003	0.0000	5.1000e-004	0.0000	5.1000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4130	0.4130	1.0000e-005	1.0000e-005	0.4173
Total	**2.3000e-004**	**1.6000e-004**	**1.7800e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.1000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4130**	**0.4130**	**1.0000e-005**	**1.0000e-005**	**0.4173**

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8604					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.8613**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

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

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

Worker	2.8000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5083	0.5083	2.0000e-005	2.0000e-005	0.5136
Total	**2.8000e-004**	**1.9000e-004**	**2.2000e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.3000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5083**	**0.5083**	**2.0000e-005**	**2.0000e-005**	**0.5136**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.8604					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	6.5100e-003	9.0600e-003	1.0000e-005		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2785
Total	**0.8613**	**6.5100e-003**	**9.0600e-003**	**1.0000e-005**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2785**

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	2.8000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.3000e-004	0.0000	6.3000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5083	0.5083	2.0000e-005	2.0000e-005	0.5136
Total	**2.8000e-004**	**1.9000e-004**	**2.2000e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.3000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5083**	**0.5083**	**2.0000e-005**	**2.0000e-005**	**0.5136**

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	0.8401	0.9970	6.7800	0.0122	1.2520	0.0116	1.2637	0.3356	0.0109	0.3465	0.0000	1,124.9898	1,124.9898	0.0899	0.0653	1,146.6957
Unmitigated	0.8401	0.9970	6.7800	0.0122	1.2520	0.0116	1.2637	0.3356	0.0109	0.3465	0.0000	1,124.9898	1,124.9898	0.0899	0.0653	1,146.6957

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	665.00	739.00	571.00	1,529,290	1,529,290
Strip Mall	1,329.60	1,261.20	612.90	1,874,902	1,874,902
Total	1,994.60	2,000.20	1,183.90	3,404,192	3,404,192

4.3 Trip Type Information

	Miles	Trip %	Trip Purpose %

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

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140
Strip Mall	0.545153	0.057779	0.171448	0.124342	0.034691	0.008619	0.014761	0.006626	0.001095	0.000293	0.029514	0.001540	0.004140

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	39.0642	39.0642	0.0107	1.3000e-003	39.7209
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	39.0642	39.0642	0.0107	1.3000e-003	39.7209
NaturalGas Mitigated	5.7000e-003	0.0489	0.0222	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	56.4044	56.4044	1.0800e-003	1.0300e-003	56.7396
NaturalGas Unmitigated	5.7000e-003	0.0489	0.0222	3.1000e-004		3.9400e-003	3.9400e-003		3.9400e-003	3.9400e-003	0.0000	56.4044	56.4044	1.0800e-003	1.0300e-003	56.7396

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					
Apartments Low Rise	986779	5.3200e-003	0.0455	0.0194	2.9000e-004		3.6800e-003	3.6800e-003		3.6800e-003	3.6800e-003	0.0000	52.6583	52.6583	1.0100e-003	9.7000e-004	52.9712
Strip Mall	70200	3.8000e-004	3.4400e-003	2.8900e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7461	3.7461	7.0000e-005	7.0000e-005	3.7684
Total		**5.7000e-003**	**0.0489**	**0.0222**	**3.1000e-004**		**3.9400e-003**	**3.9400e-003**		**3.9400e-003**	**3.9400e-003**	**0.0000**	**56.4044**	**56.4044**	**1.0800e-003**	**1.0400e-003**	**56.7396**

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					
Apartments Low Rise	986779	5.3200e-003	0.0455	0.0194	2.9000e-004		3.6800e-003	3.6800e-003		3.6800e-003	3.6800e-003	0.0000	52.6583	52.6583	1.0100e-003	9.7000e-004	52.9712
Strip Mall	70200	3.8000e-004	3.4400e-003	2.8900e-003	2.0000e-005		2.6000e-004	2.6000e-004		2.6000e-004	2.6000e-004	0.0000	3.7461	3.7461	7.0000e-005	7.0000e-005	3.7684
Total		**5.7000e-003**	**0.0489**	**0.0222**	**3.1000e-004**		**3.9400e-003**	**3.9400e-003**		**3.9400e-003**	**3.9400e-003**	**0.0000**	**56.4044**	**56.4044**	**1.0800e-003**	**1.0400e-003**	**56.7396**

5.3 Energy by Land Use - Electricity

Unmitigated

500 Hopper - Riverfront EIR Uses - Sonoma-San Francisco County, Annual

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

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	406101	22.1008	6.0800e-003	7.4000e-004	22.4724
Strip Mall	311700	16.9633	4.6700e-003	5.7000e-004	17.2485
Total		**39.0642**	**0.0108**	**1.3100e-003**	**39.7209**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	406101	22.1008	6.0800e-003	7.4000e-004	22.4724
Strip Mall	311700	16.9633	4.6700e-003	5.7000e-004	17.2485
Total		**39.0642**	**0.0108**	**1.3100e-003**	**39.7209**

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	0.6165	0.0120	0.7436	6.0000e-005		4.4000e-003	4.4000e-003		4.4000e-003	4.4000e-003	0.0000	5.2083	5.2083	1.2400e-003	7.0000e-005	5.2611
Unmitigated	0.6165	0.0120	0.7436	6.0000e-005		4.4000e-003	4.4000e-003		4.4000e-003	4.4000e-003	0.0000	5.2083	5.2083	1.2400e-003	7.0000e-005	5.2611

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	0.0860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5077					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0000e-004	3.4500e-003	1.4700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9949	3.9949	8.0000e-005	7.0000e-005	4.0186
Landscaping	0.0223	8.5500e-003	0.7421	4.0000e-005		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	1.2134	1.2134	1.1600e-003	0.0000	1.2425
Total	**0.6165**	**0.0120**	**0.7436**	**6.0000e-005**		**4.4000e-003**	**4.4000e-003**		**4.4000e-003**	**4.4000e-003**	**0.0000**	**5.2083**	**5.2083**	**1.2400e-003**	**7.0000e-005**	**5.2611**

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

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	0.0860					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5077					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	4.0000e-004	3.4500e-003	1.4700e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9949	3.9949	8.0000e-005	7.0000e-005	4.0186
Landscaping	0.0223	8.5500e-003	0.7421	4.0000e-005		4.1200e-003	4.1200e-003		4.1200e-003	4.1200e-003	0.0000	1.2134	1.2134	1.1600e-003	0.0000	1.2425
Total	**0.6165**	**0.0120**	**0.7436**	**6.0000e-005**		**4.4000e-003**	**4.4000e-003**		**4.4000e-003**	**4.4000e-003**	**0.0000**	**5.2083**	**5.2083**	**1.2400e-003**	**7.0000e-005**	**5.2611**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.3869	0.2857	6.8400e-003	15.5689
Unmitigated	6.3869	0.2857	6.8400e-003	15.5689

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.5154 / 4.10754	4.7681	0.2131	5.1000e-003	11.6150
Strip Mall	2.22218 / 1.36198	1.6188	0.0727	1.7400e-003	3.9539
Total		**6.3869**	**0.2857**	**6.8400e-003**	**15.5689**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.5154 / 4.10754	4.7681	0.2131	5.1000e-003	11.6150
Strip Mall	2.22218 / 1.36198	1.6188	0.0727	1.7400e-003	3.9539
Total		**6.3869**	**0.2857**	**6.8400e-003**	**15.5689**

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.7318	0.9297	0.0000	38.9749
Unmitigated	15.7318	0.9297	0.0000	38.9749

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	46	9.3376	0.5518	0.0000	23.1335
Strip Mall	31.5	6.3942	0.3779	0.0000	15.8414
Total		**15.7318**	**0.9297**	**0.0000**	**38.9749**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	46	9.3376	0.5518	0.0000	23.1335
Strip Mall	31.5	6.3942	0.3779	0.0000	15.8414
Total		**15.7318**	**0.9297**	**0.0000**	**38.9749**

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

Date: 8/4/2022 2:26 PM

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

Air Quality/Noise Construction Information Data Request

Project Name: 500 Hopper - Building 1

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
120 Dwelling Units
1 total project acres disturbed
104,259 s.f. residential
Total: 134 units
0 s.f. retail
132,692 0 s.f. office/commercial
18,856 s.f. other, specify: Work-Live (14 units)
s.f. parking garage spaces
9,577 s.f. parking lot 102 spaces

Construction Days Monday to Saturday Stacked cars

Construction Hours 6:30 am to 5:00 pm

Pile Driving? Y/N?

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? ____

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: _____

Fuel Type: _____

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**No Demo**	**Total phase:**				**Overall Import/Export Volumes**
		End Date:						
	Concrete/Industrial Saws	81	0.73			#DIV/0!	0	**Demolition Volume**
	Excavators	158	0.38			#DIV/0!	0	Square footage of buildings to be demolished
	Rubber-Tired Dozers	247	0.4			#DIV/0!	0	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!	0	0 square feet *or*
	Other Equipment?							0 Hauling volume (tons)
								Any pavement demolished and hauled? 0 tons
	Site Preparation	**Start Date:**	**11/1/2023**	**Total phase:**	**5**			
		End Date:						
	Graders	187	0.41			0	0	
3	Rubber Tired Dozers	247	0.4	8	5	8	11856	
4	Tractors/Loaders/Backhoes	97	0.37	8	5	8	5742	
	Other Equipment?							
	Grading / Excavation	**Start Date:**		**Total phase:**	**8**			
		End Date:						**Soil Hauling Volume**
1	Excavators	158	0.38	8	8	8	3843	Export volume = ? cubic yards?
1	Graders	187	0.41	8	8	8	4907	Import volume = ? cubic yards?
1	Rubber Tired Dozers	247	0.4	8	8	8	6323	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	8	8	8	6891	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**		**Total phase:**	**30**			
		End Date:						
1	Tractor/Loader/Backhoe	97	0.37	8	30	8	8614	
1	Excavators	158	0.38	8	30	8	14410	
	Other Equipment?							
	Building - Exterior	**Start Date:**		**Total phase:**	**230**			**Cement Trucks? ? Total Round-Trips**
		End Date:						
1	Cranes	231	0.29	7	230	7	107854	Electric? (Y/N) Otherwise assumed diesel
3	Forklifts	89	0.2	8	230	8	98256	Liquid Propane (LPG)? (Y/N) Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	230	8	114374	Or temporary line power? (Y/N)
2	Tractors/Loaders/Backhoes	97	0.37	7	230	7	115566	
1	Welders	46	0.45	8	230	8	38088	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**		**Total phase:**	**18**			
		End Date:						
1	Air Compressors	78	0.48	6	18	6	4044	
1	Aerial Lift	62	0.31	6	18	6	2076	
	Other Equipment?							
	Paving	**Start Date:**		**Total phase:**	**18**			
		Start Date:						
2	Cement and Mortar Mixers	9	0.56	6	18	6	1089	
1	Pavers	130	0.42	8	18	8	7862	**Asphalt? ___ cubic yards or ____ round trips?**
2	Paving Equipment	132	0.36	6	18	6	10264	
2	Rollers	80	0.38	6	18	6	6566	
1	Tractors/Loaders/Backhoes	97	0.37	8	18	8	5168	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

Add or subtract phases and equipment, as appropriate

Modify horsepower or load factor, as appropriate

Complete one sheet for each project component

Air Quality/Noise Construction Information Data Request

Project Name: 500 Hopper - Building 2

Complete ALL Portions in Yellow

See Equipment Type TAB for type, horsepower and load factor

Project Size
- 106 Dwelling Units
- 1 total project acres disturbed
- 68,497 s.f. residential
- s.f. restaurant
- s.f. office/commercial
- 9,190 s.f. other, specify: Work-Live
- 0 s.f. parking garage ____ spaces
- 2,980 s.f. parking lot 37 spaces

Construction Days Monday to Saturday

Construction Hours 6:30am am to 5:00 pm

Pile Driving? Y/N?

Project include on-site GENERATOR OR FIRE PUMP during project OPERATION (not construction)? Y/N? ____

IF YES (if BOTH separate values) -->

Kilowatts/Horsepower: ____

Fuel Type: ____

Location in project (Plans Desired if Available):

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

Quantity	Description	HP	Load Factor	Hours/day	Total Work Days	Avg. Hours per day	HP Annual Hours	Comments
	Demolition	**Start Date:**	**No Demolition**	**Total phase:**				**Overall Import/Export Volumes**
		End Date:						
	Concrete/Industrial Saws	81	0.73			#DIV/0!	0	**Demolition Volume**
	Excavators	158	0.38			#DIV/0!	0	Square footage of buildings to be demolished
	Rubber-Tired Dozers	247	0.4			#DIV/0!	0	(*or* total tons to be hauled)
	Tractors/Loaders/Backhoes	97	0.37			#DIV/0!	0	**_?_** square feet *or*
	Other Equipment?							**?** Hauling volume (tons)
								Any pavement demolished and hauled? **_?_ tons**
	Site Preparation	**Start Date:**	**11/1/2022**	**Total phase:**	**10**			
		End Date:						
	Graders	187	0.41			0	0	
3	Rubber Tired Dozers	247	0.4	8	10	8	23712	
4	Tractors/Loaders/Backhoes	97	0.37	8	10	8	11485	
	Other Equipment?							
	Grading / Excavation	**Start Date:**		**Total phase:**	**20**			
		End Date:						**Soil Hauling Volume**
1	Excavators	158	0.38	8	20	8	9606	Export volume = **_?_** cubic yards?
1	Graders	187	0.41	8	20	8	12267	Import volume = **_?_** cubic yards?
1	Rubber Tired Dozers	247	0.4	8	20	8	15808	
	Concrete/Industrial Saws	81	0.73			0	0	
3	Tractors/Loaders/Backhoes	97	0.37	8	20	8	17227	
	Other Equipment?							
	Trenching/Foundation	**Start Date:**		**Total phase:**	**30**			
		End Date:						
1	Tractor/Loader/Backhoe	97	0.37	8	30	8	8614	
1	Excavators	158	0.38	8	30	8	14410	
	Other Equipment?							
	Building - Exterior	**Start Date:**		**Total phase:**	**230**			**Cement Trucks? _?_ Total Round-Trips**
		End Date:						
1	Cranes	231	0.29	7	230	7	107854	Electric? (Y/N) Otherwise assumed diesel
3	Forklifts	89	0.2	8	230	8	98256	Liquid Propane (LPG)? (Y/N) Otherwise Assumed diesel
1	Generator Sets	84	0.74	8	230	8	114374	Or temporary line power? (Y/N)
3	Tractors/Loaders/Backhoes	97	0.37	7	230	7	173349	
1	Welders	46	0.45	8	230	8	38088	
	Other Equipment?							
	Building - Interior/Architectural Coating	**Start Date:**		**Total phase:**	**20**			
		End Date:						
1	Air Compressors	78	0.48	6	20	6	4493	
1	Aerial Lift	62	0.31	6	20	6	2306	
	Other Equipment?							
	Paving	**Start Date:**		**Total phase:**	**20**			
		Start Date:						
	Cement and Mortar Mixers	9	0.56			0	0	
2	Pavers	130	0.42	8	20	8	17472	**Asphalt? ___ cubic yards or ____ round trips?**
2	Paving Equipment	132	0.36	8	20	8	15206	
2	Rollers	80	0.38	8	20	8	9728	
	Tractors/Loaders/Backhoes	97	0.37			0	0	
	Other Equipment?							
	Additional Phases	**Start Date:**		**Total phase:**				
		Start Date:						
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	
						#DIV/0!	0	

Equipment types listed in "Equipment Types" worksheet tab.

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

It is assumed that water trucks would be used during grading

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Complete one sheet for each project component