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Air Quality and GHG Emissions Assessment

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Dave Del Dotto
Piazza Del Dotto
540 Technology Way
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cc. Dan Westphal
O'Malley Wilson Westphal-A/E Alliance
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Via E-Mail: dan@omalleywilsonwestphal.com

**SUBJECT: Piazza Del Dotto Winery Expansion in Napa County, CA –
Proposal to Prepare the Air Quality and GHG Emissions Assessments**

Dear Dave:

This letter presents the evaluation of air pollutant and greenhouse gas (GHG) emissions associated with the proposed Piazza Del Dotto Winery expansion project located in the unincorporated area of Napa County at 7466 State Route 29 in Yountville, CA.

Project Description

The project proposes to expand the winery to increase wine production from 48,000 gallons to 100,000 gallons per year. Further, the Use Permit Modification would adjust the special event allowance to include 19 events with 120 guests and four events with up to 400 attendees annually. The project would include the construction of new buildings and pads and expansion of wine storage caves.

Air Quality and GHG Issues

The primary source of GHG emissions associated with the project would be from the traffic. Other sources would include minor direct emissions from natural gas usage and indirect emissions from electricity usage.

Traffic information used in this analysis is based on the project's traffic memo.¹ This analysis evaluates the GHG emissions of the proposed project, resulting primarily from vehicle traffic. No stationary sources associated with the project were proposed at the time of this study that would generate substantial GHG emissions.

Setting and Regulatory Background

The project is located in the San Francisco Bay Area Air Basin. The Bay Area Air Quality Management District's (BAAQMD) California Environmental Quality Act (CEQA) Air Quality Guidelines to assess air quality and GHG emissions from land use projects. This analysis was conducted following guidance provided by BAAQMD.²

Global temperatures are affected by naturally occurring and anthropogenic-generated (generated by humankind) atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. Gases that trap heat in the atmosphere are called GHGs. Solar radiation enters the earth's atmosphere from space, and a portion of the radiation is absorbed at the surface. The earth emits this radiation back toward space as infrared radiation. GHGs, which are mostly transparent to incoming solar radiation, are effective in absorbing infrared radiation and redirecting some of this back to the earth's surface. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This is known as the greenhouse effect.

The greenhouse effect helps maintain a habitable climate. Emissions of GHGs from human activities, such as electricity production, motor vehicle use and agriculture, are elevating the concentration of GHGs in the atmosphere, and are reported to have led to a trend of unnatural warming of the earth's natural climate, known as global warming or global climate change. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred because it implies that there are other consequences to the global climate in addition to rising temperatures. Other than water vapor, the primary GHGs contributing to global climate change include the following gases:

- CO₂, primarily a byproduct of fuel combustion;
- Nitrous oxide (N₂O), a byproduct of fuel combustion; also associated with agricultural operations such as the fertilization of crops;
- Methane (CH₄), commonly created by off-gassing from agricultural practices (e.g. livestock), wastewater treatment and landfill operations;
- Chlorofluorocarbons (CFCs) were used as refrigerants, propellants and cleaning solvents, but their production has been mostly prohibited by international treaty;
- Hydrofluorocarbons (HFCs) are now widely used as a substitute for chlorofluorocarbons in refrigeration and cooling; and

¹ W-Trans, "Traffic Impact Study for the Piazza Del Dotto Winery Use Permit Modification", April 21, 2020.

² BAAQMD. 2017. *Air Quality CEQA Guidelines*. May.

³ 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>

- Perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆) emissions are commonly created by industries such as aluminum production and semiconductor manufacturing.

These gases vary considerably in terms of Global Warming Potential (GWP), a term developed to compare the propensity of each GHG to trap heat in the atmosphere relative to another GHG. GWP is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and the length of time of gas remains in the atmosphere. The GWP of each GHG is measured relative to CO₂. Accordingly, GHG emissions are typically measured and reported in terms of equivalent CO₂ (CO₂e). For instance, SF₆ is 22,800 times more intense in terms of global climate change contribution than CO₂.

The State of California is addressing the issue of GHG through legislation, policy guidance, and outreach programs. CO₂ is the primary GHG emitted from land use and industrial projects. In 2006 California enacted AB 32 – the Global Warming Solutions Act, which requires that statewide GHG emissions be reduced to 1990 levels by 2020. In 2008, the California Air Resources Board (CARB) adopted the Climate Change Scoping Plan in response to AB 32. This plan describes the strategies that the State will implement to reduce future emissions by 28% to meet the 1990 target goal in 2020. BAAQMD's analysis of future land use development in the Bay Area and applicable AB 32 GHG reduction strategies lead to the development of emission-based significance thresholds for the projects in the Bay Area, which are also used in Sonoma County.

Napa County General Plan

The Napa County General Plan includes policies to reduce air pollutants emissions through the following applicable policies:

Policy CON-77: All new discretionary projects shall be evaluated to determine potential significant project-specific air quality impacts and shall be required to incorporate appropriate design, construction, and operational features to reduce emissions of criteria pollutants regulated by the state and federal governments below the applicable significance standard(s) or implement alternate and equally effective mitigation strategies consistent with BAAQMD's air quality improvement programs to reduce emissions. In addition to these policies, the County's land use policies discourage scattered development which contributes to continued dependence on the private automobile as the only means of convenient transportation. The County's land use policies also contribute to efforts to reduce air pollution.

Policy CON-80: The County shall seek to reduce particulate emissions and avoid exceedances of state particulate matter (PM) standards by:

- a) Providing information regarding low emitting fireplaces to property owners who are constructing or remodeling homes.
- b) Fireplaces or wood stoves for new development shall comply with current local and state emission standards for wood-burning stoves or shall be fueled by natural gas.
- c) Disseminating information in support of the BAAQMD's "Spare the Air Tonight" program (and other related programs) when PM exceedances are projected to occur.
- d) Disseminating information regarding agricultural burn requirements established by the

BAAQMD.

e) Requiring implementation of dust control measures during construction and grading activities and enforcing winter grading deadlines.

Policy CON-81: The County shall require dust control measures to be applied to construction projects consistent with measures recommended for use by the BAAQMD.

Policy CON-85: The County shall utilize construction emission control measures required by CARB or BAAQMD that are appropriate for the specifics of the project (e.g., length of time of construction and distance from sensitive receptors). These measures shall be made conditions of approval and/or adopted as mitigation to ensure implementation.

The Napa County General Plan includes policies to reduce GHG emissions through the following applicable policies:

Policy CON-65: The County shall support efforts to reduce and offset GHG emissions and strive to maintain and enhance the County's current level of carbon sequestration functions through the following measures:

- a) Study the County's natural, agricultural, and urban ecosystems to determine their value as carbon sequesters and how they may potentially increase.
- b) Preserve and enhance the values of Napa County's plant life as carbon sequestration systems to recycle greenhouse gases.
- c) Perpetuate policies in support of urban-centered growth and agricultural preservation preventing sprawl.
- d) Perpetuate policies in support of alternative modes of transportation, including transit, paratransit, walking, and biking.
- e) Consider GHG emissions in the review of discretionary projects. Consideration may include an inventory of GHG emissions produced by the traffic expected to be generated by the project, any changes in carbon sequestration capacities caused by the project, and anticipated fuel needs generated by building heating, cooling, lighting systems, manufacturing, or commercial activities on the premises. Projects shall consider methods to reduce GHG emissions and incorporate permanent and verifiable emission offsets.
- f) Establish partnerships with experts, trade associations, non-governmental associations, and community and business leaders to support and participate in programs related to global climate change.

Policy CON-66: The County shall promote the implementation of sustainable practices and green technology in agriculture, commercial, industrial, and residential development through the following actions:

Project Construction

- 1) Utilize recycled, low-carbon, and otherwise climate-friendly building materials such as salvaged and recycled content materials for buildings, hard surfaces, and landscaping materials.
- 2) Minimize, reuse, and recycle construction-related waste.

- 3) Utilize alternative fuels in construction equipment and require construction equipment to utilize the best available technology to reduce emissions.

Policy CON-67: The County shall promote and encourage “green building” design, development, and construction through the achievement of Leadership in Energy and Environmental Design (LEED) standards set by the U.S. Green Building Council, the Green Point Rated system standards set by Builditgreen.org, or equivalent programs. Actions in support of this policy shall include:

- a) Audit current County practices to assess opportunities and barriers to implementation of current sustainable practices.
- b) Amend the County Code as necessary to remove barriers to and encourage “green” construction.
- c) Develop new County buildings as “green buildings,” utilizing sustainable construction and practices.
- d) Encourage all new large development projects and major renovation of existing facilities to be based on Green Building Council standards utilizing sustainable construction and practices to achieve a minimum LEED rating of Silver, or comparable level on the Green Point Rated system per standards set by Builditgreen.org or other comparable updated rating systems.
- e) Support State and federal incentive programs that offer rebates and cost sharing related to the implementation of “green building” standards and LEED certification.

Voluntary Best Management Practices Checklist

Napa County General Plan Policy CON-65 (e) and Policy CON-67 (d) requires the consideration of Greenhouse Gas (GHG) emissions in the review of discretionary projects and to promote and encourage “green building” design. The Best Management Practices (BMPs) reduce GHG emissions through energy and water conservation, waste reduction, efficient transportation, and land conservation was provided by the Applicant in the *Project Use Permit Application*.

Napa County GHG Reduction Plans

Napa County does not currently have an adopted qualified Climate Action Plan (CAP). The County has developed draft plans and is updating those to meet current State goals in reducing GHG emissions and support progress toward the long-term goal of becoming carbon neutral. The Napa County CAP is anticipated to set a target to reduce GHG emissions in unincorporated Napa County to 40 percent below 1990 levels by 2030.

BAAQMD CEQA Thresholds

BAAQMD recommends thresholds for emissions of air pollutants or their precursors also. These include emissions of ozone precursor pollutants that are reactive organic gases (ROG) and nitrogen oxides. Particulate matter emissions are a concern also and there are thresholds for respirable particulate matter, which are particulates with an aerodynamic diameter of 10 micrometers or less (PM₁₀) and fine particulate matter that has a diameter of 2.5 micrometers or less (PM_{2.5}). Construction and operational daily emission thresholds are 54 pounds per average

day for ROG, NO_x and PM_{2.5} and 82 pounds per day for PM₁₀. There is an annual threshold for operation of 10 tons per year for ROG, NO_x and PM_{2.5} and 15 tons for PM₁₀.

The BAAQMD Air Quality CEQA Guidelines had included a bright-line emissions threshold of 1,100 metric tons (MT) of CO₂e or an emission efficiency metric of 4.6 MT of CO₂e per year per service population (future residences and full-time workers) if the bright-line threshold is exceeded. Projects that have emissions below 1,100 MT of CO₂e per year, or 4.6 MT of CO₂e per year per capita, are considered to have less-than-significant GHG emissions. For this analysis, only the metric ton threshold of 1,100 MT of CO₂e per year would apply.

On April 20, 2022, BAAQMD adopted new thresholds of significance for operational GHG emissions from land use projects for projects beginning the CEQA process. The following framework is how BAAQMD will determine GHG significance moving forward.³ 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 below the existing VMT per capita
 - 2. Office Projects: 15 percent below the existing VMT per employee
 - 3. Retail Projects: no net increase in existing VMT
 - ii. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
- B. Be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

Any new land use project would have to include either section A or B from the above list, not both, to be considered in compliance for GHG emissions from project operation. Napa County

³ 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>

has not adopted a GHG reduction strategy that meets the CEQA; therefore, the thresholds for A above would only apply.

Construction and Operational Emissions Modeling

The California Emissions Estimator Model, Version 2020.4.0 (CalEEMod) was used to estimate construction emissions in the form of CO₂e. CalEEMod is a computer model developed by the South Coast Air Quality Management District with cooperation of other California Air Districts to estimate air pollutant and GHG emissions from land use development projects. The model is recommended by BAAQMD for use in estimating emissions from land use development projects. An approximate 12-month construction schedule was assumed in the modeling based on information provided for cave construction and CalEEMod default building conditions for a project of this size and type. The project proposed land uses were entered as follows:

- 12.03 thousand square feet of “Quality Restaurant” to represent the expanded winery areas,
- 0.6 acres of “City Park” to represent the expanded courtyards, patio, walkways, and outdoor use areas,
- 19.619 thousand square feet of “Unrefrigerated Warehouse – no rail” to represent the expanded cave area, and
- 0.20-acre “Other Asphalt Surfaces” to represent expanded or new paved driveways.

Default acreages assigned by CalEEMod were used. Since specific construction information was unknown, the default inputs assigned by CalEEMod were used for winery expansion. Equipment usage and schedule were provided for cave construction and used in the modeling.

Under this scenario, construction of the project would emit 448 metric tons of CO₂e. Neither the County of Napa nor the BAAQMD have quantified thresholds for construction activities. However, the emissions would be below the lowest threshold adopted by BAAQMD and could be considered less-than-significant. 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. Emissions of air pollutants or their precursors would be well below BAAQMD-recommended thresholds. Table 1 shows the construction period emission estimates.

Table 1. Construction Emissions

Scenario	ROG	NO _x	PM ₁₀ *	PM _{2.5} *	GHG
Total Project Construction Emissions	0.44 tons	2.21 tons	0.09 tons	0.09 tons	448 metric tons
Average Daily Emissions based on 235 workdays computed by CalEEMod	4 lbs.	19 lbs.	<1 lbs.	<1 lbs.	--
BAAQMD Thresholds (avg. Lbs./day)	54 lbs	54 lbs	82 lbs*	54 lbs*	--
Significant?	No	No	No	No	No

*Exhaust portion of emission only.

Project Operational Emissions

CalEEMod was used to estimate full build-out operational air pollutant and GHG emissions, shown in Table 2. Unless otherwise noted below, the model defaults for the Napa County were used along with rural trip characteristics. The year 2024 was used for modeling, as this assumed to be the first full year after construction that the project could be operational. Annual emissions occurring after 2024 would be lower as vehicle and electricity production emission rates are anticipated to continually decrease. CalEEMod estimates emissions for mobile, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. Table 2 summarizes operational air pollutant and Table 3 summarizes the GHG emissions due to operation of the project. Additional inputs to CalEEMod for the operational modeling are described below.

Traffic

The CalEEMod model uses mobile emission factors from the California Air Resources Board's EMFAC2017 model. Forecasted project trip generation rates provided by *W-Trans* were applied to the project operational model runs. The weekday, Saturday and Sunday trip rates were assumed to be the same. The default trip lengths and traffic mix for Napa County in CalEEMod for rural settings were also used. Mobile emissions from special events were calculated in a separate CalEEMod model using projected traffic for the events. Traffic conditions modeled include:

Typical weekday increase:	71 trips (365 days/year)
Typical Saturday (assume Sunday is similar):	58 trips (133-93)
Annually = increase of 28,525 trips	

Additional Events (19/year):	160 trips
Additional Large Events (4/year):	314 trips

Note that existing events include one large 300-person event, and 30 events or 24 to 100 people per year. There could be an increase of up to 4,296 trips annually due to special events. Trips made for special events are assumed to be primary trips.

Energy, Natural Gas, Water Usage, and Solid Waste Production

CalEEMod defaults for energy use were used, which include the 2019 Title 24 Building Standards. Indirect emissions from electricity were computed in CalEEMod, using the PG&E model default rate of 203.98 pounds of CO₂ per megawatt of electricity produced. Default model assumptions for emissions associated with water conveyance, wastewater, and solid waste generation use were applied to the project. The Project would not include natural gas usage.

Summary of Project Emissions

As shown in Tables 2 and 3, the proposed project would have direct and indirect emissions that are below the air pollutant and GHG operational emissions threshold (660 metric tons of CO₂e per year) recommended by BAAQMD for new project.

Table 2. Annual Operational Air Pollutant Emissions

Scenario	ROG	NO _x	PM ₁₀	PM _{2.5}
Typical Project Operational emissions	0.188	0.162	0.05	0.02
Special Events (19/year)	0.006	0.011	0.02	0.01
Large Special Events (4/year)	0.002	0.005	<0.01	<0.01
	0.196 tons	0.178 tons	0.07 tons	0.03 tons
<i>BAAQMD Thresholds (tons per year)</i>	<i>10 tons</i>	<i>10 tons</i>	<i>15 tons</i>	<i>10 tons</i>
Daily Project Operational emissions	1.1 lbs/day	1.0 lbs/day	0.3 lbs/day	0.2 lbs/day
<i>BAAQMD Thresholds (lbs/day)</i>	<i>54 lbs/day</i>	<i>54 lbs/day</i>	<i>82 lbs/day</i>	<i>54 lbs/day</i>
Exceed Threshold?	No	No	No	No

Table 3. Annual Operational GHG Emissions in Metric Tons of CO₂e

Source	Methodology	Project Emissions
Area	Based on CalEEMod default	<1.0
Energy Consumption	Based on CalEEMod default, based on PG&E electricity CO ₂ e intensity factor	196
Mobile	Includes daily traffic generation	33
Mobile	Special Events (19/year)	16
Mobile	Special Events (4/year)	26
Solid Waste	Based on CalEEMod default	15
Water	Based on CalEEMod default	16
Project Total		302 metric tons

BAAQMD April 2022 GHG Thresholds

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

The planned 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 – The project will not include any new natural gas hook ups.
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 for at least 11 parking spaces. Not that the number of EV chargers is limited by the amount of electricity that can be supplied to the parking area.
4. Reduce VMT per capita by 15 percent over baseline conditions.
 Conforms – The project would generate approximately 71 new daily trips except on intermittent special events that may produce a higher number of trips. BAAQMD thresholds are based on meeting requirements of SB 743 for projects with increased VMT. Because the project would generate, on average, less than 110 trips daily, a less-than-significant impact would occur with respect to GHG emissions from VMT.

* * *

This concludes the assessment of the GHG impacts from the proposed Piazza Del Dotto Winery Expansion project. If you have any questions or comments, please feel free to contact I&R at (707) 794-0400. We appreciate the opportunity to assist you.

Sincerely,

James A. Reyff
Principal Consultant
Illingworth & Rodkin, Inc.
I&R Project: 22-092

Attachment 1: CalEEMod Outputs

Attachment 1: CalEEMod Outputs

Piazz Del Dotto - Napa County, Annual

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

Piazz Del Dotto
Napa County, Annual

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Refrigerated Warehouse-No Rail	19.62	1000sqft	0.45	19,619.00	0
Other Asphalt Surfaces	1.00	Acre	1.00	43,560.00	0
City Park	0.60	Acre	0.60	26,136.00	0
Quality Restaurant	12.32	1000sqft	0.28	12,320.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	64
Climate Zone	4	Operational Year	2024		
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Cave = warehouse, Winery = quality restaurant, courtyards/roof = park, driveways/parking estimated at 1 acre

Construction Phase - Based on provided information

Off-road Equipment - CalEEMod default

Off-road Equipment - CalEEMod default

Off-road Equipment - CalEEMod default

Off-road Equipment - CalEEMod default

Off-road Equipment - CalEEMod default

Off-road Equipment - Based on provided list

Off-road Equipment - Based on provided list

Grading - Added import/export of 500cy to cover misc. materials

Vehicle Trips - Based on W-Trans study

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6.00	120.00
tblConstructionPhase	PhaseEndDate	12/22/2023	11/29/2023
tblConstructionPhase	PhaseEndDate	11/24/2023	11/15/2023
tblConstructionPhase	PhaseEndDate	1/12/2023	6/16/2023
tblConstructionPhase	PhaseEndDate	1/20/2023	1/11/2023
tblConstructionPhase	PhaseEndDate	1/20/2023	10/18/2023
tblConstructionPhase	PhaseStartDate	12/9/2023	11/16/2023
tblConstructionPhase	PhaseStartDate	1/21/2023	1/12/2023
tblConstructionPhase	PhaseStartDate	1/5/2023	1/1/2023
tblConstructionPhase	PhaseStartDate	1/13/2023	1/4/2023
tblConstructionPhase	PhaseStartDate	1/21/2023	6/1/2023
tblGrading	MaterialExported	0.00	10,070.00
tblGrading	MaterialExported	0.00	500.00
tblGrading	MaterialImported	0.00	1,644.00
tblGrading	MaterialImported	0.00	500.00
tblLandUse	LandUseSquareFeet	19,620.00	19,619.00
tblOffRoadEquipment	HorsePower	97.00	115.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	89.00	74.00
tblOffRoadEquipment	HorsePower	89.00	74.00
tblOffRoadEquipment	HorsePower	97.00	105.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

Piazz Del Dotto - Napa County, Annual

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

tblOffRoadEquipment	UsageHours	7.00	5.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	90.04	6.35
tblVehicleTrips	ST_TR	2.12	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	71.97	6.35
tblVehicleTrips	SU_TR	2.12	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	83.84	6.35
tblVehicleTrips	WD_TR	2.12	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	0.4424	2.2056	2.4473	5.0800e-003	0.0992	0.0940	0.1932	0.0309	0.0896	0.1204	0.0000	441.9711	441.9711	0.0705	0.0139	447.8701
Maximum	0.4424	2.2056	2.4473	5.0800e-003	0.0992	0.0940	0.1932	0.0309	0.0896	0.1204	0.0000	441.9711	441.9711	0.0705	0.0139	447.8701

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	0.4424	2.2056	2.4473	5.0800e-003	0.0992	0.0940	0.1932	0.0309	0.0896	0.1204	0.0000	441.9707	441.9707	0.0705	0.0139	447.8697
Maximum	0.4424	2.2056	2.4473	5.0800e-003	0.0992	0.0940	0.1932	0.0309	0.0896	0.1204	0.0000	441.9707	441.9707	0.0705	0.0139	447.8697

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)				Maximum Mitigated ROG + NOX (tons/quarter)			
1	1-1-2023	3-31-2023	0.7569				0.7569			
2	4-1-2023	6-30-2023	0.7426				0.7426			
3	7-1-2023	9-30-2023	0.6231				0.6231			
		Highest	0.7569				0.7569			

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	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Energy	0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	194.5580	194.5580	0.0115	3.6400e-003	195.9285

Piazz Del Dotto - Napa County, Annual

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

Mobile	0.0285	0.0332	0.2082	3.5000e-004	0.0344	3.3000e-004	0.0348	9.2300e-003	3.1000e-004	9.5400e-003	0.0000	32.2533	32.2533	3.0200e-003	2.1800e-003	32.9773
Waste						0.0000	0.0000		0.0000	0.0000	6.0349	0.0000	6.0349	0.3567	0.0000	14.9513
Water						0.0000	0.0000		0.0000	0.0000	2.6258	4.4525	7.0783	0.2704	6.4600e-003	15.7624
Total	0.1881	0.1620	0.3167	1.1200e-003	0.0344	0.0101	0.0446	9.2300e-003	0.0101	0.0193	8.6607	231.2643	239.9250	0.6416	0.0123	259.6201

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	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Energy	0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	194.5580	194.5580	0.0115	3.6400e-003	195.9285
Mobile	0.0285	0.0332	0.2082	3.5000e-004	0.0344	3.3000e-004	0.0348	9.2300e-003	3.1000e-004	9.5400e-003	0.0000	32.2533	32.2533	3.0200e-003	2.1800e-003	32.9773
Waste						0.0000	0.0000		0.0000	0.0000	6.0349	0.0000	6.0349	0.3567	0.0000	14.9513
Water						0.0000	0.0000		0.0000	0.0000	2.6258	4.4525	7.0783	0.2704	6.4600e-003	15.7624
Total	0.1881	0.1620	0.3167	1.1200e-003	0.0344	0.0101	0.0446	9.2300e-003	0.0101	0.0193	8.6607	231.2643	239.9250	0.6416	0.0123	259.6201

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

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2023	1/4/2023	5	3	
2	Tunnel Excavation	Grading	1/1/2023	6/16/2023	5	120	
3	Grading	Grading	1/4/2023	1/11/2023	5	6	
4	Building Construction	Building Construction	1/12/2023	11/15/2023	5	220	
5	Tunnel Completion	Trenching	6/1/2023	10/18/2023	5	100	
6	Paving	Paving	11/25/2023	12/8/2023	5	10	
7	Architectural Coating	Architectural Coating	11/16/2023	11/29/2023	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 1

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 47,909; Non-Residential Outdoor: 15,970; Striped Parking Area: 2,614 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Tunnel Excavation	Air Compressors	1	1.50	78	0.48
Tunnel Excavation	Concrete/Industrial Saws	0	8.00	81	0.73
Tunnel Excavation	Excavators	1	5.00	150	0.38
Tunnel Excavation	Forklifts	1	4.00	74	0.20
Tunnel Excavation	Graders	0	8.00	187	0.41
Tunnel Excavation	Pumps	1	1.50	84	0.74

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

Tunnel Excavation	Rubber Tired Dozers	0	8.00	247	0.40
Tunnel Excavation	Tractors/Loaders/Backhoes	2	5.00	115	0.37
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
Building Construction	Cranes	1	8.00	231	0.25
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Tunnel Completion	Air Compressors	1	2.00	78	0.48
Tunnel Completion	Forklifts	1	6.00	74	0.20
Tunnel Completion	Pumps	1	2.00	84	0.74
Tunnel Completion	Tractors/Loaders/Backhoes	1	3.00	105	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.36
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tunnel Excavation	6	15.00	0.00	1,464.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	125.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	43.00	17.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Tunnel Completion	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	9.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	1.9500e-003	0.0214	0.0147	4.0000e-005	2.3900e-003	8.1000e-004	3.2000e-003	2.6000e-004	7.5000e-004	1.0100e-003	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578

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

Worker	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0737	0.0737	0.0000	0.0000	0.0745
Total	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0737	0.0737	0.0000	0.0000	0.0745

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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	1.9500e-003	0.0214	0.0147	4.0000e-005	2.3900e-003	8.1000e-004	3.2000e-003	2.6000e-004	7.5000e-004	1.0100e-003	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578

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	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0737	0.0737	0.0000	0.0000	0.0745
Total	4.0000e-005	3.0000e-005	3.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0737	0.0737	0.0000	0.0000	0.0745

3.3 Tunnel Excavation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2600e-003	0.0000	1.2600e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0293	0.2661	0.4120	6.2000e-004		0.0135	0.0135		0.0126	0.0126	0.0000	54.0166	54.0166	0.0147	0.0000	54.3840
Total	0.0293	0.2661	0.4120	6.2000e-004	1.2600e-003	0.0135	0.0148	1.9000e-004	0.0126	0.0128	0.0000	54.0166	54.0166	0.0147	0.0000	54.3840

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	1.5600e-003	0.1047	0.0214	4.5000e-004	0.0124	7.9000e-004	0.0132	3.4000e-003	7.6000e-004	4.1500e-003	0.0000	44.2440	44.2440	1.4100e-003	7.0000e-003	46.3645
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	2.7200e-003	1.9100e-003	0.0225	6.0000e-005	7.1100e-003	4.0000e-005	7.1500e-003	1.8900e-003	3.0000e-005	1.9300e-003	0.0000	5.5303	5.5303	1.9000e-004	1.7000e-004	5.5864

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

Total	4.2800e-003	0.1066	0.0438	5.1000e-004	0.0195	8.3000e-004	0.0203	5.2900e-003	7.9000e-004	6.0800e-003	0.0000	49.7743	49.7743	1.6000e-003	7.1700e-003	51.9509
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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.2600e-003	0.0000	1.2600e-003	1.9000e-004	0.0000	1.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0293	0.2661	0.4120	6.2000e-004		0.0135	0.0135		0.0126	0.0126	0.0000	54.0166	54.0166	0.0147	0.0000	54.3839
Total	0.0293	0.2661	0.4120	6.2000e-004	1.2600e-003	0.0135	0.0148	1.9000e-004	0.0126	0.0128	0.0000	54.0166	54.0166	0.0147	0.0000	54.3839

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	1.5600e-003	0.1047	0.0214	4.5000e-004	0.0124	7.9000e-004	0.0132	3.4000e-003	7.6000e-004	4.1500e-003	0.0000	44.2440	44.2440	1.4100e-003	7.0000e-003	46.3645
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	2.7200e-003	1.9100e-003	0.0225	6.0000e-005	7.1100e-003	4.0000e-005	7.1500e-003	1.8900e-003	3.0000e-005	1.9300e-003	0.0000	5.5303	5.5303	1.9000e-004	1.7000e-004	5.5864
Total	4.2800e-003	0.1066	0.0438	5.1000e-004	0.0195	8.3000e-004	0.0203	5.2900e-003	7.9000e-004	6.0800e-003	0.0000	49.7743	49.7743	1.6000e-003	7.1700e-003	51.9509

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	4.0000e-003	0.0434	0.0261	6.0000e-005	0.0214	1.8100e-003	0.0232	0.0103	1.6700e-003	0.0120	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751

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	1.3000e-004	8.9400e-003	1.8200e-003	4.0000e-005	1.0600e-003	7.0000e-005	1.1200e-003	2.9000e-004	6.0000e-005	3.5000e-004	0.0000	3.7777	3.7777	1.2000e-004	6.0000e-004	3.9587
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	9.0000e-005	6.0000e-005	7.5000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1843	0.1843	1.0000e-005	1.0000e-005	0.1862

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

Total	2.2000e-004	9.0000e-003	2.5700e-003	4.0000e-005	1.3000e-003	7.0000e-005	1.3600e-003	3.5000e-004	6.0000e-005	4.1000e-004	0.0000	3.9620	3.9620	1.3000e-004	6.1000e-004	4.1449
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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					0.0214	0.0000	0.0214	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	4.0000e-003	0.0434	0.0261	6.0000e-005	0.0214	1.8100e-003	0.0232	0.0103	1.6700e-003	0.0120	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751

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	1.3000e-004	8.9400e-003	1.8200e-003	4.0000e-005	1.0600e-003	7.0000e-005	1.1200e-003	2.9000e-004	6.0000e-005	3.5000e-004	0.0000	3.7777	3.7777	1.2000e-004	6.0000e-004	3.9587
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	9.0000e-005	6.0000e-005	7.5000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1843	0.1843	1.0000e-005	1.0000e-005	0.1862
Total	2.2000e-004	9.0000e-003	2.5700e-003	4.0000e-005	1.3000e-003	7.0000e-005	1.3600e-003	3.5000e-004	6.0000e-005	4.1000e-004	0.0000	3.9620	3.9620	1.3000e-004	6.1000e-004	4.1449

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	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4723	228.4723	0.0432	0.0000	229.5525
Total	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4723	228.4723	0.0432	0.0000	229.5525

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	2.0900e-003	0.0823	0.0255	3.5000e-004	0.0111	4.5000e-004	0.0115	3.2100e-003	4.3000e-004	3.6400e-003	0.0000	34.0415	34.0415	6.9000e-004	5.0800e-003	35.5722
Worker	0.0143	0.0100	0.1180	3.2000e-004	0.0374	2.0000e-004	0.0376	9.9400e-003	1.8000e-004	0.0101	0.0000	29.0645	29.0645	9.8000e-004	9.1000e-004	29.3598
Total	0.0164	0.0923	0.1435	6.7000e-004	0.0485	6.5000e-004	0.0491	0.0132	6.1000e-004	0.0138	0.0000	63.1061	63.1061	1.6700e-003	5.9900e-003	64.9319

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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					
Off-Road	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4720	228.4720	0.0432	0.0000	229.5522
Total	0.1885	1.4986	1.5636	2.7500e-003		0.0675	0.0675		0.0647	0.0647	0.0000	228.4720	228.4720	0.0432	0.0000	229.5522

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	2.0900e-003	0.0823	0.0255	3.5000e-004	0.0111	4.5000e-004	0.0115	3.2100e-003	4.3000e-004	3.6400e-003	0.0000	34.0415	34.0415	6.9000e-004	5.0800e-003	35.5722
Worker	0.0143	0.0100	0.1180	3.2000e-004	0.0374	2.0000e-004	0.0376	9.9400e-003	1.8000e-004	0.0101	0.0000	29.0645	29.0645	9.8000e-004	9.1000e-004	29.3598
Total	0.0164	0.0923	0.1435	6.7000e-004	0.0485	6.5000e-004	0.0491	0.0132	6.1000e-004	0.0138	0.0000	63.1061	63.1061	1.6700e-003	5.9900e-003	64.9319

3.6 Tunnel Completion - 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	0.0136	0.1172	0.1577	2.4000e-004		6.2500e-003	6.2500e-003		5.9800e-003	5.9800e-003	0.0000	21.0605	21.0605	3.7300e-003	0.0000	21.1537
Total	0.0136	0.1172	0.1577	2.4000e-004		6.2500e-003	6.2500e-003		5.9800e-003	5.9800e-003	0.0000	21.0605	21.0605	3.7300e-003	0.0000	21.1537

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	1.5100e-003	1.0600e-003	0.0125	3.0000e-005	3.9500e-003	2.0000e-005	3.9700e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.0724	3.0724	1.0000e-004	1.0000e-004	3.1036
Total	1.5100e-003	1.0600e-003	0.0125	3.0000e-005	3.9500e-003	2.0000e-005	3.9700e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.0724	3.0724	1.0000e-004	1.0000e-004	3.1036

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	0.0136	0.1172	0.1577	2.4000e-004		6.2500e-003	6.2500e-003		5.9800e-003	5.9800e-003	0.0000	21.0605	21.0605	3.7300e-003	0.0000	21.1537
Total	0.0136	0.1172	0.1577	2.4000e-004		6.2500e-003	6.2500e-003		5.9800e-003	5.9800e-003	0.0000	21.0605	21.0605	3.7300e-003	0.0000	21.1537

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	1.5100e-003	1.0600e-003	0.0125	3.0000e-005	3.9500e-003	2.0000e-005	3.9700e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.0724	3.0724	1.0000e-004	1.0000e-004	3.1036
Total	1.5100e-003	1.0600e-003	0.0125	3.0000e-005	3.9500e-003	2.0000e-005	3.9700e-003	1.0500e-003	2.0000e-005	1.0700e-003	0.0000	3.0724	3.0724	1.0000e-004	1.0000e-004	3.1036

3.7 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8179
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.7100e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8179

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	2.3000e-004	1.6000e-004	1.8700e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4609	0.4609	2.0000e-005	1.0000e-005	0.4655
Total	2.3000e-004	1.6000e-004	1.8700e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4609	0.4609	2.0000e-005	1.0000e-005	0.4655

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	4.4000e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8178
Paving	1.3100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	5.7100e-003	0.0431	0.0584	9.0000e-005		2.1700e-003	2.1700e-003		2.0000e-003	2.0000e-003	0.0000	7.7564	7.7564	2.4600e-003	0.0000	7.8178

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	1.8700e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4609	0.4609	2.0000e-005	1.0000e-005	0.4655
Total	2.3000e-004	1.6000e-004	1.8700e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.4609	0.4609	2.0000e-005	1.0000e-005	0.4655

3.8 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1756					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	0.1756	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
Worker	1.4000e-004	1.0000e-004	1.1200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2765	0.2765	1.0000e-005	1.0000e-005	0.2793
Total	1.4000e-004	1.0000e-004	1.1200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2765	0.2765	1.0000e-005	1.0000e-005	0.2793

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					
Archit. Coating	0.1756					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	0.1766	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	1.4000e-004	1.0000e-004	1.1200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2765	0.2765	1.0000e-005	1.0000e-005	0.2793
Total	1.4000e-004	1.0000e-004	1.1200e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	9.0000e-005	0.0000	1.0000e-004	0.0000	0.2765	0.2765	1.0000e-005	1.0000e-005	0.2793

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	0.0285	0.0332	0.2082	3.5000e-004	0.0344	3.3000e-004	0.0348	9.2300e-003	3.1000e-004	9.5400e-003	0.0000	32.2533	32.2533	3.0200e-003	2.1800e-003	32.9773
Unmitigated	0.0285	0.0332	0.2082	3.5000e-004	0.0344	3.3000e-004	0.0348	9.2300e-003	3.1000e-004	9.5400e-003	0.0000	32.2533	32.2533	3.0200e-003	2.1800e-003	32.9773

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
City Park	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
Quality Restaurant	78.23	78.23	78.23	92,893	92,893
Refrigerated Warehouse-No Rail	0.00	0.00	0.00		
Total	78.23	78.23	78.23	92,893	92,893

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
Quality Restaurant	14.70	6.60	6.60	12.00	69.00	19.00	38	18	44
Refrigerated Warehouse-No Rail	14.70	6.60	6.60	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147

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Other Asphalt Surfaces	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147
Quality Restaurant	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147
Refrigerated Warehouse-No Rail	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147

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	54.3325	54.3325	8.7900e-003	1.0700e-003	54.8697
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	54.3325	54.3325	8.7900e-003	1.0700e-003	54.8697
NaturalGas Mitigated	0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	140.2255	140.2255	2.6900e-003	2.5700e-003	141.0588
NaturalGas Unmitigated	0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	140.2255	140.2255	2.6900e-003	2.5700e-003	141.0588

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.55357e+006	0.0138	0.1252	0.1052	7.5000e-004		9.5100e-003	9.5100e-003		9.5100e-003	9.5100e-003	0.0000	136.2680	136.2680	2.6100e-003	2.5000e-003	137.0778
Refrigerated Warehouse-No Rail	74159.8	4.0000e-004	3.6400e-003	3.0500e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9575	3.9575	8.0000e-005	7.0000e-005	3.9810
Total		0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	140.2255	140.2255	2.6900e-003	2.5700e-003	141.0588

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	2.55357e+006	0.0138	0.1252	0.1052	7.5000e-004		9.5100e-003	9.5100e-003		9.5100e-003	9.5100e-003	0.0000	136.2680	136.2680	2.6100e-003	2.5000e-003	137.0778
Refrigerated Warehouse-No Rail	74159.8	4.0000e-004	3.6400e-003	3.0500e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9575	3.9575	8.0000e-005	7.0000e-005	3.9810
Total		0.0142	0.1288	0.1082	7.7000e-004		9.7900e-003	9.7900e-003		9.7900e-003	9.7900e-003	0.0000	140.2255	140.2255	2.6900e-003	2.5700e-003	141.0588

5.3 Energy by Land Use - Electricity

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			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	396334	36.6704	5.9300e-003	7.2000e-004	37.0330
Refrigerated Warehouse-No	190893	17.6621	2.8600e-003	3.5000e-004	17.8368
Total		54.3325	8.7900e-003	1.0700e-003	54.8697

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	396334	36.6704	5.9300e-003	7.2000e-004	37.0330
Refrigerated Warehouse-No	190893	17.6621	2.8600e-003	3.5000e-004	17.8368
Total		54.3325	8.7900e-003	1.0700e-003	54.8697

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	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Unmitigated	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004

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Piazz Del Dotto - Napa County, Annual

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

Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Total	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004

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	0.0176					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1278					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-005	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004
Total	0.1454	0.0000	3.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-004	6.0000e-004	0.0000	0.0000	6.4000e-004

7.0 Water Detail**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	7.0783	0.2704	6.4600e-003	15.7624
Unmitigated	7.0783	0.2704	6.4600e-003	15.7624

7.2 Water by Land UseUnmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.714889	0.2315	4.0000e-005	0.0000	0.2338
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	3.73954 / 0.238694	3.1359	0.1222	2.9200e-003	7.0589
Refrigerated Warehouse-No	4.53712 / 0	3.7109	0.1482	3.5400e-003	8.4697
Total		7.0783	0.2704	6.4600e-003	15.7624

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
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Piazz Del Dotto - Napa County, Annual

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

Land Use	Mgal	MT/yr			
City Park	0 / 0.714889	0.2315	4.0000e-005	0.0000	0.2338
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	3.73854 / 0.238694	3.1359	0.1222	2.9200e-003	7.0589
Refrigerated Warehouse-No	4.53712 / 0	3.7109	0.1482	3.5400e-003	8.4697
Total		7.0783	0.2704	6.4600e-003	15.7624

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.0349	0.3567	0.0000	14.9513
Unmitigated	6.0349	0.3567	0.0000	14.9513

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.05	0.0102	6.0000e-004	0.0000	0.0252
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	11.24	2.2816	0.1348	0.0000	5.6526
Refrigerated Warehouse-No	18.44	3.7432	0.2212	0.0000	9.2735
Total		6.0349	0.3567	0.0000	14.9513

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.05	0.0102	6.0000e-004	0.0000	0.0252
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	11.24	2.2816	0.1348	0.0000	5.6526
Refrigerated Warehouse-No	18.44	3.7432	0.2212	0.0000	9.2735
Total		6.0349	0.3567	0.0000	14.9513

Piazz Del Dotto - Napa County, Annual

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

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

User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Piazza Del Dotto - Event traffic - Napa County, Summer

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

Piazza Del Dotto - Event traffic
Napa County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MW hr)	203.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Vehicle Trips - Primary trips

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	160.00
tblVehicleTrips	SU_TR	0.00	160.00
tblVehicleTrips	WD_TR	0.00	160.00

2.0 Emissions Summary

2.2 Overall Operational

Piazza Del Dotto - Event traffic - Napa County, Summer

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

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	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.6707	1.1432	7.4020	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6429	1,794.6429	0.0859	0.0818	1,821.1770
Total	0.6707	1.1432	7.4021	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6431	1,794.6431	0.0859	0.0818	1,821.1772

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	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.6707	1.1432	7.4020	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6429	1,794.6429	0.0859	0.0818	1,821.1770
Total	0.6707	1.1432	7.4021	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6431	1,794.6431	0.0859	0.0818	1,821.1772

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4.0 Operational Detail - Mobile

Piazza Del Dotto - Event traffic - Napa County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6707	1.1432	7.4020	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6429	1,794.6429	0.0859	0.0818	1,821.1770
Unmitigated	0.6707	1.1432	7.4020	0.0176	1.8120	0.0145	1.8265	0.4841	0.0136	0.4977		1,794.6429	1,794.6429	0.0859	0.0818	1,821.1770

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	160.00	160.00	160.00	856,128	856,128
Total	160.00	160.00	160.00	856,128	856,128

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
User Defined Recreational	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147

Piazza Del Dotto - Event traffic - Napa County, Summer

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

Piazza Del Dotto - Event traffic
Napa County, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.6	Precipitation Freq (Days)	64
Climate Zone	4			Operational Year	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Vehicle Trips - Primary trips

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	CW_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	314.00
tblVehicleTrips	SU_TR	0.00	314.00
tblVehicleTrips	WD_TR	0.00	314.00

2.0 Emissions Summary

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

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	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3162	2.2436	14.5265	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9866	3,521.9866	0.1686	0.1606	3,574.0599
Total	1.3162	2.2436	14.5266	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9869	3,521.9869	0.1686	0.1606	3,574.0601

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	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3162	2.2436	14.5265	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9866	3,521.9866	0.1686	0.1606	3,574.0599
Total	1.3162	2.2436	14.5266	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9869	3,521.9869	0.1686	0.1606	3,574.0601

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Piazza Del Dotto - Event traffic - Napa County, Summer

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

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	lb/day										lb/day					
Mitigated	1.3162	2.2436	14.5265	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9866	3,521.9866	0.1686	0.1606	3,574.0599
Unmitigated	1.3162	2.2436	14.5265	0.0346	3.5561	0.0284	3.5845	0.9501	0.0266	0.9767		3,521.9866	3,521.9866	0.1686	0.1606	3,574.0599

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	314.00	314.00	314.00	1,680,151	1,680,151
Total	314.00	314.00	314.00	1,680,151	1,680,151

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
User Defined Recreational	14.70	6.60	6.60	100.00	0.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.535449	0.056642	0.175177	0.133432	0.032505	0.007974	0.012804	0.010998	0.001732	0.000629	0.026564	0.001947	0.004147

Piazza Del Otto Data Needs (also See Constr Equipment List and Schedule tab)

Description	Value	Units	Comments
Daily Trips (or provide W-Trans Study)			
Weekday Autos	71	trips/day	W-Trans Study (Nov 2018)
Weekend Autos	58		
Weekday Trucks		trips/day	
Total Trips per Year	24,559	autos	
Rate		per weekday	
	5.76	per 1ksf	assigned to wine facility (12.32ksf)
		per Saturday	
	4.71	per 1ksf	
Wine Produced			
Total Grapes		tons/year	
Total Wine		cases/year	
Total Wine	52,000	gall/year	
Red Wine	95%	%	
	-	cases/year	
	49,400	gall/year	
Fermentation Length	10	days	
White Wine	5%	%	
	-	cases/year	
	2,600	gall/year	
Fermentation Length	28	days	
Aging Length	0	days	
Energy Demand			
Electricity Provider		or PG&E	CalEEMod default
Electricity demand		kw/year	
Solar electricity gen.		kw/year	
Natural gas demand		therms/year	CalEEMod default
Combustion Equipment			
Standby Generators		quantity	
Size		kw or hp	
Qty Boilers		number	
Size		mmBTU	
Water/Wastewater			
Water Usage		gall/day	CalEEMod default
		gall/yr	
Winery Wastewater		gall/day	
		gall/yr	

WINE FERMENTATION, AGING, AND STORAGE EMISSION CALCULATIONS (Ver. 3.0)

Attachment:
Permit Number:
Facility: Piazza increase 48k to 100k gallons/year

Annual Wine Inputs

<u>Information</u>	<u>Value</u>	<u>Units</u>	<u>Reference</u>
Red Wine Production.....	49,400	gal/yr	Project Description
White Wine Production.....	2,600	gal/yr	Project Description
Red Wine Aged in Oak.....	100	%	Project Description
White Wine Aged in Oak.....	100	%	Project Description
Percent Wine Loss by Volume.....	3.0%	gal/gal wine	SBCAPCD Default / Permit Application

Daily Wine Inputs

<u>Information</u>	<u>Value</u>	<u>Units</u>	<u>Reference</u>
Red Wine Fermentation Cycle.....	10	days	Applicant provided - avg.
White Wine Fermentation Cycle.....	28	days	Applicant provided - avg.
% Red Fermenting Daily.....	30	%	SBCAPCD Default / Permit Application
% White Fermenting Daily.....	30	%	SBCAPCD Default / Permit Application
% Red Oak Aging Daily.....	40	%	SBCAPCD Default / Permit Application
% White Oak Aging Daily.....	25	%	SBCAPCD Default / Permit Application

Wine Production

<u>Information</u>	<u>Value</u>	<u>Units</u>	<u>Reference</u>
Annual Red Wine Aged in Oak Capacity	49,400	gallons	Calculated Value
Annual White Wine Aged in Oak Capacity	2,600	gallons	Calculated Value
Maximum Daily Red Wine Fermented	14,820	gallons	Calculated Value
Maximum Daily White Wine Fermented	780	gallons	Calculated Value
Maximum Daily Red Wine Aging in Oak	19,760	gallons	Calculated Value
Maximum Daily White Wine Aging in Oak	650	gallons	Calculated Value

Emission Factors

<u>Emission Source</u>	<u>Value</u>	<u>Units</u>	<u>Reference</u>
Red Wine Fermentation	6.20	lb/1000 gal	CARB March 2005
Red Wine Aging/Storage	27.83	lb/1000 gal-yr	Calculated Value
White Wine Fermentation	2.50	lb/1000 gal	CARB March 2005
White Wine Aging/Storage	25.83	lb/1000 gal-yr	Calculated Value

Wine Fermentation, Aging and Storage ROC Potential to Emit

	lb/day	TPY
Red Wine Fermentation	9.19	0.15
White Wine Fermentation	0.07	0.00
Red Wine Aging/Storage	1.51	0.69
White Wine Aging/Storage	0.05	0.03
Total	10.81	0.88

Processed By:

Date:

Typical Equipment Type & Load Factors		
OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.5
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.2
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.4
Pavers	132	0.42
Paving Equipment	130	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.3
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.4
Rubber Tired Dozers	247	0.4
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.3
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.5
Welders	46	0.45