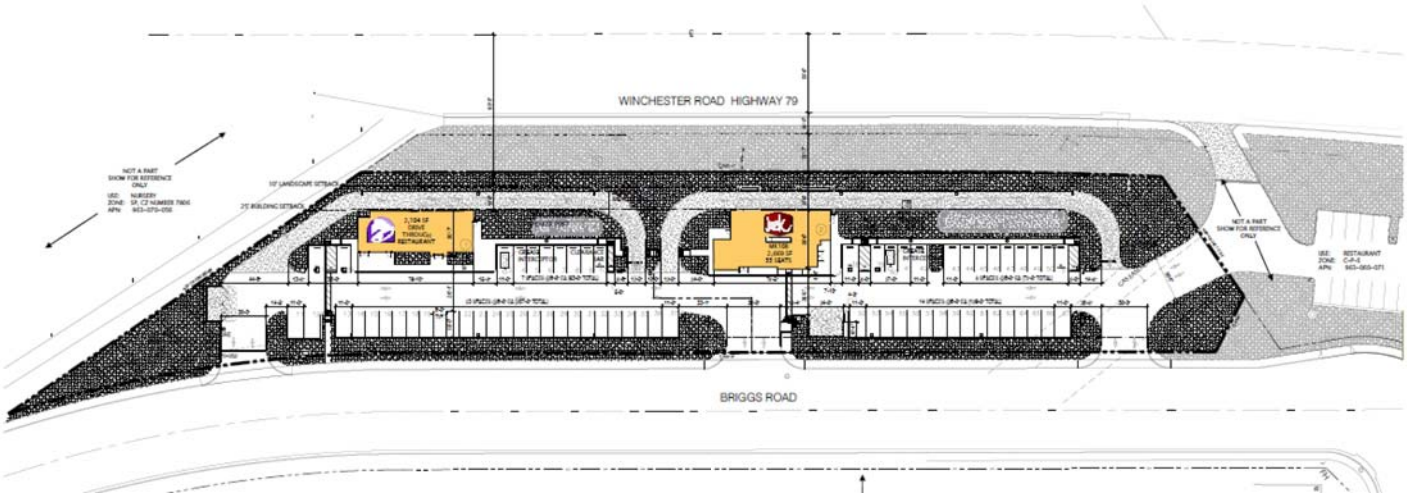
FRENCH VALLEY FAST FOOD RESTAURANTS
ENERGY CONSERVATION ANALYSIS
County of Riverside



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County of Riverside California

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August 25, 2021

Table of Contents

List of Attachments

Tables

Appendices

1.0 Introduction

1.1 Purpose of Report and Study Objectives

The purpose of this energy conservation analysis is to review the energy implications of the proposed French Valley Fast Food Restaurants (project) and provide recommendations to reduce wasteful, inefficient and unnecessary consumption of energy during construction and operation. This analysis has been prepared within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.).

CEQA Guidelines, Appendix F, Energy Conservation, describes the framework within which energy conservation should be analyzed. Conserving energy implies the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas and oil), and increasing reliance on renewable energy sources. This analysis considers energy impacts to include:

1. The project's energy requirements and its energy use efficiencies by amount and fuel type for each stage of the project including construction and operation.

2. The effects of the project on local and regional energy supplies and on requirements for additional capacity.

3. The effects of the project on peak and base period demands for electricity and other forms of energy.

4. The degree to which the project complies with existing energy standards.

5. The effects of the project on energy resources.

1.2 Site Location

The proposed French Valley Fast Food Restaurants project site is located along the east side of Winchester Road (SR-79), south of Benton Road, in unincorporated Riverside County.

The project site is bounded by Winchester Road to the west, Briggs Road to the east, Denny's Restaurant to the north, and Moon Valley Nurseries to the south.

The project location map is provided in Exhibit A.

1.3 Project Description

The project consists of constructing and operating two fast food restaurants with drive through; totaling approximately 4,773 square feet of building area on an approximately 2.16-acre site. The site plan used for this analysis, provided by the MARKS ARCHITECTS, is illustrated in Exhibit B. Table 1 summarizes the proposed project land uses.

Table 1
Land Use Summary

Land Use	Quantity	Metric
Fast Food Restaurant with Drive-Thru – 1	2,104	Square Feet
Fast Food Restaurant with Drive-Thru – 2	2,669	Square Feet
Total	4,773	Square Feet
Parking Lot	67	Spaces

Based on the French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, prepared by RK Engineering Group, Inc., dated March 2021 (Air/GHG Study) Construction of the project is estimated to last approximately 11 months and consist of site preparation, grading, building construction, paving, and architectural coating.

1.4 Utility Providers

The project will be served by the following utility providers, as shown in Table 2.

Table 2
Utility Providers

Utility	Provider
Electricity	Southern California Edison
Natural Gas	Southern California Gas Company
Water	Rancho California Water District
Sewer	Rancho California Water District
Telephone & Cable	Verizon – Business
Trash	Waste Management of Inland Valley

1.5 Summary of CEQA Impacts

Table 3 provides a summary of the project's impact to Energy resources, per the impact criteria described in CEQA Guidelines, Appendix G.

Table 3
CEQA Energy Impact Criteria

Energy Impact Criteria	Potentially Significant	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

1.6 Recommended Mitigation Measures

The following mitigation measures are recommended to help ensure the project does not result in wasteful, inefficient, or unnecessary consumption of energy resources. Mitigation measures are consistent with the recommended mitigation measures provided with Air/GHG study.

MM-1 Prior to issuance of the building permits, and as a condition of approval, the applicant will demonstrate proof that the project would garner at least 100 points through improvements listed in the Riverside County Climate Action Plan (CAP) Screening Tables.

1.7 Project Design Features

The recommended design features are provided to reduce wasteful, inefficient and unnecessary consumption of energy. Design features are consistent with the recommended design features provided with Air/GHG study.

DF-1. The project will comply with the mandatory requirements of Title 24 part 11 of the California Building Standards Code (CALGreen) and the Title 24 Part 6 Building Efficiency Standards (Energy Code).

DF-2. Implement water conservation strategies, including low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.

DF-3. Comply with the mandatory requirements of CalRecycle's commercial recycling program and implement zero waste strategies.

DF-4. Provide the necessary infrastructure to support electric vehicle charging, as required by CALGreen.

DF-5. Use electric landscaping equipment, such as lawn mowers and leaf blowers, where feasible.

2.0 Energy Setting

2.1 Background Information

There are many different types and sources of energy produced and consumed in the United States. The U.S. Energy Information Administration (EIA) categorizes energy by primary and secondary sources, renewable and nonrenewable sources, and by the different types of fossil fuels.[1]

Primary energy is captured directly from natural resources and includes fossil fuels, nuclear energy, and renewable sources of energy. Electricity is a secondary energy source that results from the transformation of primary energy sources.

A renewable energy source includes solar energy from the sun, geothermal energy from heat inside the earth, wind energy, biomass from plants, and hydropower from flowing water. Nonrenewable energy sources include petroleum products, hydrocarbon gas liquids, natural gas, coal, and nuclear energy.

Fossil fuels are non-renewable resources formed by organic matter over millions of years and include oil, coal and natural gas.

The U.S. EIA defines the five energy consuming sectors within the U.S. as follows:

- **Industrial Sector:** Includes facilities and equipment used for manufacturing, agriculture, mining, and construction.
- **Transportation Sector:** Includes vehicles that transport people or goods, such as cars, trucks, buses, motorcycles, trains, aircraft, boats, barges, and ships.
- **Residential Sector**: Includes homes and apartments.
- **Commercial Sector:** Includes offices, malls, stores, schools, hospitals, hotels, warehouses, restaurants, and places of worship and public assembly.
- **Electric Power Sector**: Consumes primary energy to generate most of the electricity the other four sectors consume.

Energy sources are measured in different physical units: liquid fuels are measured in barrels or gallons, natural gas in cubic feet, coal in short tons, and electricity in kilowatts and kilowatt-hours. In the United States, British thermal units (Btu), a measure of heat energy, is commonly used for comparing different types of energy to each other.

[1] U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/?page=us_energy_home#tab1

Table 4
Btu Conversion Factors[1]

Energy source/fuel	Btu Conversion Factor[2]
Electricity	1 kilowatthour = 3,412 Btu
Natural gas	1 cubic foot = 1,037 Btu 1 therm = 100,000 Btu
Motor gasoline	1 gallon = 120,286 Btu[3]
Diesel fuel	1 gallon = 137,381 Btu[4]
Heating oil	1 gallon = 138,500 Btu[5]
Propane	1 gallon = 91,452 Btu
Wood	1 cord = 20,000,000 Btu[6]

[1] Source: https://www.eia.gov/energyexplained/units-and-calculators/british-thermal-units.php
[2] Btu factors are for end-use consumption in 2019 from *Monthly Energy Review*, May 2020, excluding wood; preliminary data.
[3] Finished motor gasoline sold at retail in the United States, including fuel ethanol content.
[4] Distillate fuel with 15 parts per million (ppm) suflur or less sulfur content.
[5] Distillate fuel with 15 ppm to 500 ppm sulfur content.
[6] A cord of wood is a volume unit and does not take wood density or moisture content into account. Wood heat content varies significantly with moisture content.

2.2 U.S. Energy Statistics

U.S. energy production and consumption data provide context for the project within the broader domestic energy setting. Calendar year 2020 is the most current data published by the U.S. EIA. Table 5 shows the total U.S. primary energy consumption for Year 2020.

Table 5
U.S. Primary Energy Consumption (Year 2020)[1]

Primary Energy Source	Energy Consumption	
	Btu (in Quadrillions)	Percentage
Total Fossil Fuel Consumption	72.94	78.69%
Petroleum (Excluding Biofuels)	32.54	34.94%
Natural Gas (Excluding Supplemental Gaseous Fuels)	31.54	33.87%
Coal	9.20	9.88%
Total Renewable Energy Consumption	11.59	12.45%
Biomass Energy	4.53	4.86%
Hydroelectric Power	2.60	2.79%
Wind Energy	3.00	3.22%
Solar Energy	1.25	1.34%
Geothermal Energy	0.21	0.23%
Nuclear Electric Power	8.25	8.86%
Total Primary Energy Consumption	**92.94**	**100.00%**

[1] U.S EIA website. https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T01.03#/?f=A

In 2020, total U.S. energy exports were greater than total energy imports, and the United States became a net total energy exporter for the first time since 1952[2]. Also notable in year 2020, is that renewable energy production, mainly attributed to wind and solar, reached new record highs.[2]

Electricity is produced from many different energy sources and technologies. In 2020, the generation of electric power consumed approximately 38 percent of all energy domestically.[3]

Table 6 shows the amount of electricity generated by primary energy sources in the U.S. for year 2020.

Table 6
U.S. Electricity Generation, by Source (Year 2020)[1]

Energy Source	Electricity Generation	
	Thousand Megawatt-hours	Percentage
Natural Gas	1,627,930	24.5%
Coal	773,805.3	11.7%
Petroleum	17,495.1	0.3%
Nuclear	789,918.6	11.9%
Hydroelectric (Conventional, less pumped storage)	2,916,425	43.9%
Solar (Utility-scale and small-scale generation)	90,890.82	1.4%
Renewable Sources (Excluding hydro and solar)	410,494.4	6.2%
Other	11,181.87	0.2%
Total Electricity Generation (2020)	**6,638,141**	**100.0%**

[1] U.S EIA website. https://www.eia.gov/totalenergy/data/browser/index.php?tbl=T07.02A#/?f=A

2.3 California Energy Statistics

California produced about 2,408 trillion Btu of total energy in year 2018 and consumed over 7,928 trillion Btu, making it the second highest consumer of energy in the country, behind only Texas. However, due in part to its mild climate and energy efficiency programs, California ranks 48th in per capita energy consumption.[4] Overall, California is a net importer of energy, and consumes more energy than it produces. Energy is imported into California in various forms including natural gas, crude oil and electricity.

[2] U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/index.php?page=us_energy_home
[3] U.S. Energy Information Administration (EIA). https://www.eia.gov/energyexplained/?page=us_energy_home#tab1
[4] U.S. Energy Information Administration (EIA). https://www.eia.gov/state/?sid=CA#tabs-1

Natural Gas is primarily imported via pipelines from Canada, the Rocky Mountains, New Mexico and Texas. Natural gas is the primary source of electricity generated in California.[5]

Crude oil is primarily imported from Alaska, Mexico, Canada, South America and the Middle East. Crude oil is refined at one of the seventeen (17) in-state oil refineries that meet California's strict clean fuel regulations. Refined petroleum products, including gasoline, are also imported from numerous other domestic and foreign sources that are equipped to meet California's fuel standards.[5]

Electricity is imported via transmission lines from the Northwest (Alberta, British Columbia, Idaho, Montana, Oregon, South Dakota, Washington, and Wyoming) and Southwest (Arizona, Baja California, Colorado, Mexico, Nevada, New Mexico, Texas, and Utah) regions of the U.S.[5]

Table 7 shows the State of California's energy consumption estimates for year 2018.

Table 7
California Energy Consumption by Source (Year 2018)[1]

Primary Energy Source	Energy Consumption	
	Btu (in Trillions)	Percentage
Total Fossil Fuel Consumption	5,717.6	72.1%
Coal	33.3	0.4%
Natural Gas	2,207.4	27.8%
Motor Gasoline excl. Ethanol	1,716.3	21.6%
Distillate Fuel Oil	552.2	7.0%
Jet Fuel	648.8	8.2%
Hydrocarbon Gas Liquids (HGL)	58.4	0.7%
Residual Fuel	168.9	2.1%
Other Petroleum	332.3	4.2%
Total Renewable Energy Consumption	1,154.4	14.6%
Hydroelectric Power	239.7	3.0%
Biomass	296.9	3.7%
Solar	381.7	4.8%
Wind	127.7	1.6%
Geothermal	108.4	1.4%
Nuclear Electric Power	190.4	2.4%
Net Electricity Imports and Interstate Flow	865.7	10.9%
Total	**7,928.1**	**100.0%**

[1] U.S CIA website. https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/sum_btu_totcb.html&sid=CA

[5] California Energy Commission. https://www.energy.ca.gov/almanac/

Table 8 shows the sources and fuel types for California's system-wide generation of electricity for year 2019.

Table 8
California Electric Generation in Gigawatt Hours (Year 2019)[1]

Fuel Type	California In-State Generation (GWh)[2]	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total California Energy Mix (GWh)	Total California Power Mix
Coal	248	0.12%	219	7,765	8,233	2.96%
Natural Gas	86,136	42.97%	62	8,859	95,057	34.23%
Oil	36	0.02%	0	0	36	0.01%
Other (Waste Heat / Petroleum Coke)	411	0.20%	0	11	422	0.15%
Nuclear	16,163	8.06%	39	8,743	24,945	8.98%
Large Hydro	33,145	16.53%	6,387	1,071	40,603	14.62%
Unspecified	0	0.00%	6,609	13,767	20,376	7.34%
Renewable						
Biomass	5,851	2.92%	903	33	6,787	2.44%
Geothermal	10,943	5.46%	99	2,218	13,260	4.77%
Small Hydro	5,349	2.67%	292	4	5,646	2.03%
Solar	28,513	14.22%	282	5,295	34,090	12.28%
Wind	13,680	6.82%	9,038	5,531	28,249	10.17%
Renewables Totals	64,336	32.09%	10,615	13,081	88,032	31.70%
Total	**200,475**	**100.00%**	**23,930**	**53,299**	**277,704**	**100.00%**

[1] California Energy Commission. CEC-1304 Power Plant Owners Reporting Form and SB 1305 Reporting Regulations. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation
[2] In-state generation is reported generation from units one megawatt and larger.

2.4 Southern California Edison

Southern California Edison (SCE) provides electricity service to approximately 180 cities in 15 counties in central, coastal and Southern California; including the project site.[6] According to the California Energy Commission (CEC), SCE consumed approximately 80,912 GWh of electricity in 2019[7]; which is approximately 29% of the State's total electricity usage.

[6] Southern California Edison. https://www.sce.com/about-us
[7] California Energy Commission. http://www.ecdms.energy.ca.gov/elecbyutil.aspx

The CEC Power Source Disclosure program requires retail electricity suppliers to annually disclose their sources of energy for electricity. This information is provided through annual Power Content Labels.

Table 9 shows SCE's Power Content Label for year 2019.

Table 9
Southern California Edison Electricity Generation (Year 2019)

Energy Resource	SCE Electricity Generation	
	GWh[1]	Power Mix[1]
Eligible Renewable	28,400.37	35%
Biomass & Biowaste	485.48	1%
Geothermal	4,773.85	6%
Eligible Hydroelectric	809.13	1%
Solar	12,946.04	16%
Wind	9,304.96	12%
Coal	-	0%
Large Hydroelectric	6,392.11	8%
Natural Gas	13,026.95	16%
Nuclear	6,634.84	8%
Other	80.91	0%
Unspecified Sources of Power[3]	26,377.55	33%
Total	**80,912.73**	**100%**

1. Source: Southern California Edison. https://www.sce.com/sites/default/files/inline-files/SCE_2019PowerContentLabel.pdf
2. GWh generated by energy resources estimated based on total energy consumption and power mix. California Energy Commission Electricity Consumption by Entity, SCE, Year 2019, All Sectors http://www.ecdms.energy.ca.gov/elecbyutil.aspx
3. Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources.

2.5 Southern California Gas Company

The Southern California Gas Company (SCG) is the nation's largest natural gas distribution utility, providing service to 21.8 million customers in 220 cities and 12 counties from Visalia to the Mexican border; including service to the project site. SCG owns and operates 3,526 miles of transmission pipelines, 49,715 miles of distribution pipelines and 48,888 miles of service lines. SCG also operates eleven transmission compressor stations and four underground storage facilities with a combined capacity to store 134.1 billion cubic feet of natural gas.[8]

Table 10 shows SCG's natural gas usage by sector for year 2019.

Table 10
Southern California Gas Company
Natural Gas Consumption, by Sector (Year 2019)[1]

Sector	SCG Natural Gas Usage – Year 2017	
	(Millions of Therms)[2]	(Trillions of Btu)[2]
Agriculture & Water Pump	72.529368	7.2529368
Commercial Building	947.846870	94.784687
Commercial Other	81.925057	8.1925057
Industry	1,684.430931	168.4430931
Mining & Construction	219.359345	21.9359345
Residential	2,418.619748	241.8619748
Total Usage	**5424.711309**	**542.4711309**

[1] Source: California Energy Commission. http://www.ecdms.energy.ca.gov/gasbyutil.aspx
[2] 1 therm = 100,000 Btu

[8] Southern California Gas Company. https://www.socalgas.com/about-us/company-profile

3.0 Regulatory Setting

Energy is controlled through various federal and state laws and regulations. This section provides a brief overview of key energy legislation and policies at the federal and state levels over the past 50 years.

3.1 Federal Regulations

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
1975	**Energy Policy and Conservation Act** Established the Strategic Petroleum Reserve and mandated vehicle fuel economy standards
1978	**National Energy Act** Established tax incentives and disincentives, alternative fuel programs, energy efficiency initiatives, and other regulatory and market-based initiatives in response to the oil crisis earlier in the decade. Comprised of 5 statutes: **Energy Tax Act** Created the Gas Guzzler tax for vehicles with mileage below specified levels and offered income tax credit for citizens using solar, wind, or geothermal energy sources at home **Natural Gas Policy Act** Set up wellhead pricing maximums, rules for allocating costs of high-cost gas to industrial consumers, and provided authority to high priority users in times of supply emergency; gave FERC jurisdiction over almost all natural gas production **National Energy Conservation Policy Act** Replaced Minimum Energy Performance Standards (MEPS) set forth in the EPCA of 1975, changed energy standards from voluntary to mandatory, Required federal agencies to do energy audits of their operations, Provided loans for families to purchase solar heating or cooling systems, and Established grants for schools, hospitals, local governments, and public housing authorities willing to use energy conservation measures **Power Plant and Industrial Fuel Use Act** Restricted construction of power plants fueled primarily by oil or natural gas and instead encouraged power plants fueled by coal, nuclear, and alternative fuels and restricted use of oil and natural gas in industrial boilers. Repealed in 1987 with the Natural Gas Utilization Act **Public Utility Regulatory Policies Act** Promoted use of renewable energy, encouraged cogeneration plants.
1980	**Energy Security Act** Title I: US Synthetic Fuels Corporation Act Established the Synthetic Fuels Corporation (which only existed until 1985) for the purpose of partnering with industry for the creation of a market for domestically-produced synthetic liquid fuels; moved research and development for synthetic fuels away from the Department of Energy and into this public-private partnership with the hopes of speeding up results. Title II: Biomass Energy and Alcohol Fuels Act Provided loan guarantees for small-scale biomass energy projects; established the Office of Alcohol Fuels, the Office of Energy from Municipal Waste.

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
	Title III: Energy Targets Required the submission of energy targets for net imports. Title IV: Renewable Initiatives Established incentives for the use of renewable energy resources Title V: Solar Energy and Energy Conservation Encouraged energy conservation and the use of solar energy, reducing dependence on foreign energy supplies. Title VI: Geothermal Energy Act Authorized loans from the Geothermal Resources Development Fund for exploration and determination of economic viability of a geothermal reservoir, cancels loan if reservoir is deemed unacceptable for development. Title VII: Acid Precipitation Program Established a task force to study the causes and risks of acid precipitation Title VIII: Strategic Petroleum Reserve Established that 500,000,000 barrels of crude oil must be in storage before any can be sold and calls for the reserve to increase its supply 100,000 barrels per day until the storage capacity is reached
1992	**Energy Policy Act** Amended the National Energy Conservation Policy Act of 1978. Created framework for wholesale electricity generation. Provided financial incentives to users/developers of clean-fuel vehicles; repealed alternative minimum tax for some producers. Intended to expand the use of natural gas.
2002	**Farm Security and Rural Investment Act (Farm Bill)** Included $405 million in mandatory funding over the following 5 years for the procurement of bio-based products, grants and loans for renewable energy and energy efficiency projects, research and development and the bioenergy program. Included, for reasons of national energy and security, rural economic development, and environmental sustainability in light of climate change impacts.
2005	**Energy Policy Act** Offers tax benefits to individuals who increase energy efficiency in existing homes, buy or lease hybrid/alternative vehicles, required all public utilities to offer net metering on request, increased required amounts of renewable fuel in gasoline sold in the US, and encourages more domestic energy production
2007	**Energy Independence and Security Act** Increased CAFE standards to 35 mpg (fleet-wide for passenger autos and light trucks) by 2020; instituted new conservation measures for federal fleet vehicles; authorized increased taxpayer-funded biofuel production (36 billion gallons by 2022 - 21 billion of which must be derived from non-cornstarch products). Revised standards for appliances and lighting; all federal buildings must use Energy Star lighting products; training for green jobs; loans for small business energy efficiency improvements.
2008	**Food, Conservation, and Energy Act (Farm Bill)** Includes provisions for loan guarantees for bio-refineries, payments to support expansion of advanced biofuels, expands the existing Rural Energy for America Program, provides grant monies for biofuel and bio-based product research and development

Table 11
U.S. Energy Policy Legislative Acts

Date	Legislative Act and Description
2009	**The American Recovery and Reinvestment Act of 2009** $800 billion economic stimulus package aimed at job creation and the promotion of investment and consumer spending; included $4.3 billion in tax credits to homeowners for energy efficiency improvements in 2009-2010, $300 million for reducing diesel engine emissions, $21.5 billion for energy infrastructure, $27.2 billion for energy efficiency and renewable energy research and investment, $2 billion in research for DOE, $600 million in research for NOAA
2015	**The Clean Power Plan** The first comprehensive plan to reduce carbon emissions from power plants by 32% in 2030, compared to 2005 levels. The plan was repealed under the Trump Administration. The Biden Administration has recently said it will not try to resurrect the plan, but will instead be proposing a new rule aimed at limiting GHG emissions from power plants.

[1] Source: Robinson, Brandi. Penn State University. https://www.e-education.psu.edu/geog432/node/116

3.2 State of California Regulations

California has a long standing history of support for energy conservation and renewable energy.

Table 10 provides a summary of some of the key legislative acts, policies and regulations in the State of California for encouraging energy conservation and renewable energy.

Table 12
California Energy Policy Legislative Acts and Regulations

Date	Legislative Act and Description
1974	**Warren-Alquist Act** Established the California Energy Commission (CEC) as the state's primary energy policy and planning agency. Responsible for preparing State Energy Plan. CEC's goals are to reduce energy costs and environmental impacts of energy use, while ensuring a safe, resilient, and reliable supply of energy.
1978	**Title 24 of the California Code of Regulations** Establishes the Renewable Portfolio Standard (RPS) program, requiring 20% of retail sales from renewable energy by 2017.
2002	**Senate Bill 1078** Required 20% of retail sales from renewable energy by 2017.
2003	**Energy Action Plan I** Accelerated the 20% renewable deadline to 2010.
2005	**Energy Action Plan II** Recommended further goal of 33% renewable by 2020.
2006	**Senate Bill 107** Codified the accelerated 20% renewable by 2010 deadline into law.
2008	**Executive Order S-14-08** Signed by Gov. Schwarzenegger, requires 33% renewables by 2020.
2009	**Executive Order S-21-09** Directs the California Air Resources Board, under its AB 32 authority, to adopt regulations by July 31, 2010, consistent with the 33% renewable energy target established in Executive Order S-14-08.
2011	**Senate Bill X1-2** Signed by Gov. Edmund G. Brown, Jr., codifies 33% renewable by 2020 RPS
2015	**Senate Bill 350 – Clean Energy and Pollution Reduction Act of 2015** Signed by Gov. Edmund G. Brown, Jr. codifies 50% by 2030 RPS
2018	**Senate Bill 100** Signed by Gov. Edmund G. Brown, Jr. codifies 60% by 2030 & 100% by 2045 RPS

[1] Source: California Energy Commission. https://www.energy.ca.gov/renewables/index.html

4.0 Project Energy Consumption

4.1 Energy Consumption Methodology

The three (3) main types of energy expected to be consumed by the project include electricity, natural gas and petroleum products in the form of gasoline and diesel fuel. Energy usage for the proposed project is calculated based on the *French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, prepared by RK Engineering Group, Inc., dated March 2021* (Air/GHG Study).

The California Emissions Estimator Model Version 2016.3.2 (CalEEMod) is used to calculate energy usage from project construction and operational activities.

The CalEEMod Annual Reports for the project are provided in Appendix A.

4.2 Electricity Consumption

The project will use electricity for many different operational activities including, but not limited to, building heating and cooling, lighting, appliances, electronics, mechanical equipment, electric vehicle charging, and parking lot lighting. Indirect electricity usage will also be required to supply, distribute, and treat water and wastewater. Electricity will be provided to the site by Southern California Edison.

Temporary electricity usage for construction activities may include lighting, electric equipment and mobile office uses, however, CalEEMod does not calculate electricity usage during construction. Electricity usage during construction is expected to be short-term and relatively minor compared to the operational demand, and therefore electricity usage during construction is not counted in this analysis.

Table 13 shows the project's estimated mitigated operational electricity consumption in kilowatt-hours per year (kWh/year) and millions of Btu per year.

Table 13
Project Electricity Consumption

Land Use/Activity	Electricity Consumption[1]	
	(kWhr/yr)[2]	(MBtu/yr)[2]
Fast Food Restaurant with Drive Thru	226,622.00	773.23
Parking Lot	9,380.00	32.00
Water Supply and Treatment	20,056.00	68.43
Electric Vehicle Service Eqiupment (EVSE)[3]	22,556.00	76.96
Total[4]	278,614.00	950.63

[1] Source: French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, by RK Engineering Group, Inc., March 2021.
[2] kWhr/yr = Kilowatt Hours per Year
MBtu/yr = Million British Thermal Units per Year
[3] EVSE electricity estimates based on U.S. Department of Energy Costs Associated with Non-Residential Electric Vehicle Supply Equipment, November 2015, Appendix C, Electricity Consumption Examples. The project is expected to provide 2 charging spaces as per the site plan provided by the applicant.
[4] Electricity consumption includes direct and indirect sources.

4.3 Natural Gas Consumption

The project will use natural gas for such things as building heating and cooling, cooking, kitchen appliances, and gas water heaters. Natural gas is not expected to be used during construction in any significant quantities and is not included in the overall calculation of the project's natural gas consumption.

Table 14 shows the project's estimated operational natural gas consumption in millions of Btu per year.

Table 14
Project Natural Gas Consumption

Land Use/Activity	Natural Gas Consumption[1] (MBtu/yr)[2]
Fast Food Restaurants with Drive Thru	1,305.13

[1] Source: French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, by RK Engineering Group, Inc., March 2021.
[2] MBtu/yr = Millions of British Thermal Units per Year

4.4 Petroleum Consumption

The project's energy consumption from petroleum products is primarily associated with transportation related activities. This includes gasoline and diesel fuel usage for auto and truck trips during construction and operation and off-road equipment usage during construction.

4.4.1 Petroleum Consumption - Construction

Construction of the project is estimated to last approximately 11 months and consist of site preparation, grading, building construction, paving, and architectural coating phases. Construction activities will consume energy in the form of motor vehicle fuel (gasoline and diesel) for off-road construction equipment and on-road vehicle trips. Vehicle trips include workers and vendors traveling to and from the job-site.

Table 15 shows the project's energy consumption for all off-road equipment during construction. For purposes of this analysis, all off-road equipment is assumed to run on diesel fuel. Table 16 shows the project's energy consumption from on-road vehicle trips during construction.

TABLE 15
Construction Off-Road Equipment Energy Consumption

Phase[1]	Phase Duration (Days)[1]	Equipment[1]	Amount[1]	Hours/ Day[1]	Horspower (HP)[1]	Load Factor[1]	HP-hrs[2]	Fuel Consumption Rate[3] (hp-hr/gal)	Diesel Fuel Consumption (gal.)	Diesel Fuel Consumption by Phase (gal.)	MBtu[4]
Site Preparation	3	Graders	1	8	187	0.41	1,840.1	18.5	99.5	368.7	50.657
		Scrapers	1	8	367	0.48	4,227.8		228.5		
		Tractors/Loaders/Backhoes	1	7	97	0.37	753.7		40.7		
Grading	6	Graders	1	8	187	0.41	3,680.2		198.9	618.2	84.934
		Rubber Tired Dozers	1	8	247	0.40	4,742.4		256.3		
		Tractors/Loaders/Backhoes	2	7	97	0.37	3,014.8		163.0		
Building Construction	220	Cranes	1	8	231	0.29	117,902.4		6,373.1	23,718.9	3,258.520
		Forklifts	2	7	89	0.20	54,824.0		2,963.5		
		Generator Sets	1	8	84	0.74	109,401.6		5,913.6		
		Tractors/Loaders/Backhoes	1	6	97	0.37	47,374.8		2,560.8		
		Welders	3	8	46	0.45	109,296.0		5,907.9		
Paving	10	Cement and Mortar Mixers	1	8	130	0.42	4,368.0		236.1	1,220.2	167.626
		Pavers	1	8	130	0.42	4,368.0		236.1		
		Paving Equipment	1	8	132	0.36	3,801.6		205.5		
		Rollers	2	8	132	0.36	7,603.2		411.0		
		Tractors/Loaders/Backhoes	1	8	80	0.38	2,432.0		131.5		
Architectural Coating	10	Air Compressors	1	6	78	0.48	2,246.4		121.4	121.4	16.682
								Total Energy Requirements		**26,047.4**	**3,578.418**

[1] Source: French Valley Fast Food Restaurants Air Quality and GHG Analysis, by RK Engineering Group, Inc. March 2021. (CalEEMod v.2016.3.2)

[2] HP-hrs = Horsepower Hours.

[3] Source: Carl Moyer Program Guidelines. 2017 Revisions. Table D-21. https://www.arb.ca.gov/msprog/moyer/guidelines/current.htm

[4] Mbtu = Millions of Btu; assuming 1 gallon of diesel fuel = 137,381 Btu.

Table 16
Construction On-Road Trips Energy Consumption

Construction Phase[1]	Phase Duration (Days)[1]	Trips /Day[1]	Trip Length[1]	Phase VMT	Vehicle Class[1]	Vehicle Mix[1]	Average Fuel Economy (MPG)[2]	Gasoline			Diesel			Total MBtu[3]
								Fuel Split[2]	Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase (gal.)	Fuel Split[2]	Fuel Consumption by Veh. Class (gal.)	Fuel Consumption by Phase	
Worker Trips														
Site Preparation	3	8	14.7	353	LDA	0.50	28.57	0.9926	6.13		0.0074	0.05		
					LDT1	0.25	23.26	0.9991	3.79	14.17	0.0009	0.00	0.06	1.71
					LDT2	0.25	20.73	0.9986	4.25		0.0014	0.01		
Grading	6	10	14.7	882	LDA	0.50	28.57	0.9926	15.32		0.0074	0.11		
					LDT1	0.25	23.26	0.9991	9.47	35.41	0.0009	0.01	0.14	4.28
					LDT2	0.25	20.73	0.9986	10.62		0.0014	0.01		
Building Construction	220	13	14.7	42,042	LDA	0.50	28.57	0.9926	730.33		0.0074	5.44		
					LDT1	0.25	23.26	0.9991	451.46	1,688.10	0.0009	0.41	6.56	204.20
					LDT2	0.25	20.73	0.9986	506.31		0.0014	0.71		
Paving	10	15	14.7	2,205	LDA	0.50	28.57	0.9926	38.30		0.0074	0.29		
					LDT1	0.25	23.26	0.9991	23.68	88.54	0.0009	0.02	0.34	10.71
					LDT2	0.25	20.73	0.9986	26.55		0.0014	0.04		
Architectural Coating	10	3	14.7	441	LDA	0.50	28.57	0.9926	7.66		0.0074	0.06		
					LDT1	0.25	23.26	0.9991	4.74	17.71	0.0009	0.00	0.07	2.14
					LDT2	0.25	20.73	0.9986	5.31		0.0014	0.01		
					Sub-Total Worker Trips Energy Consumption				Gasoline (gal.)	1,843.92		Diesel (gal.)	7.17	223.05
Vendor Trips														
Building Construction	220	5	6.9	7,590	MHDT	0.50	8.50	0.1403	62.64	68.93	0.8597	383.83	1,026.26	149.29
					HHDT	0.50	5.85	0.0097	6.29		0.9903	642.43		
Hauling Trips														
Site Preparation	3	380	20.0	22,800	HHDT	1.00	5.85	0.0097	37.81	37.81	0.9903	3,859.63	3,859.63	534.79
Total On-Road Construction Trips Energy Consumption									**Gasoline (gal.)**	**1,950.66**		**Diesel (gal.)**	**4,893.05**	**907.13**

[1] Source: French Valley Fast Food Restaurants Air Quality and GHG Analysis, by RK Engineering Group, Inc. March 2021. (CalEEMod v.2016.3.2)

[2] Source: EMFAC2014 Web Database. https://www.arb.ca.gov/emfac/2014/. (See Appendix B for more details.)

[3] Mbtu = Millions of Btu; assuming 1 gallon of gasoline fuel = 120,429 Btu and 1 gallon of diesel fuel = 137,381 Btu

4.4.2 Petroleum Consumption - Operation

The project is expected to consume energy from auto and truck trips generated by the proposed land uses, as described in the French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, by RK Engineering Group, Inc., March 2021. Operational vehicle trips are associated with workers, customers and vendors/non-workers (i.e., delivery, service, maintenance vehicles, etc.) traveling to and from the site.

Table 17 shows the project's petroleum energy consumption for all mitigated operational trips generated by the project on an annual basis.

Table 17
Operational Trips Energy Consumption - Annual

Vehicle Class	Vehicle Mix	Average Fuel Economy (MPG)	Mitigated Annual VMT	Gasoline		Diesel		MBtu
				Fuel Split	Fuel Consumption (gal.)	Fuel Split	Fuel Consumption (gal.)	
LDA	54.55%	28.57	4,428,257	0.9926	83,929.20	0.0074	625.71	10,193.47
LDT1	3.69%	23.26		0.9991	7,010.36	0.0009	6.32	845.12
LDT2	18.60%	20.73		0.9986	39,683.75	0.0014	55.64	4,786.72
MDV	11.53%	15.42		0.9875	32,708.30	0.0125	414.03	3,995.91
LHD1	1.52%	14.08		0.6650	3,183.64	0.3350	1,603.79	603.73
LHD2	0.50%	14.35		0.5100	782.18	0.4900	751.51	197.44
MHD	1.75%	8.50		0.1403	1,280.94	0.8597	7,849.08	1,232.58
HHD	6.95%	5.85		0.0097	510.51	0.9903	52,119.89	7,221.76
OBUS	0.14%	7.25		0.4732	403.77	0.5268	449.51	110.38
UBUS	0.12%	4.86		0.3269	345.52	0.6731	711.43	139.35
MCY	0.45%	35.36		1.0000	569.44	0.0000	0.00	68.58
SBUS	0.09%	8.10		0.2133	108.68	0.7867	400.84	68.16
MH	0.10%	7.88		0.8345	452.54	0.1655	89.75	66.83
Total Operational Trips Energy Usage				Gasoline Consumption (gal.)	170,968.83	Diesel Consumption (gal.)	65,077.50	29,530.02

[1] Source: French Valley Fast Food Restaurants Air Quality and Greenhouse Gas Analysis, by RK Engineering Group, Inc., March 2021. (CalEEMod v.2016.3.2)
[2] Source: EMFAC2014 Web Database. https://www.arb.ca.gov/emfac/2014/. (See Appendix B for more details.)
[3] MBtu/yr = Millions of Btu per year; assuming 1 gallon of gasoline fuel = 120,429 Btu and 1 gallon of diesel fuel = 137,381 Btu

4.5 Summary of Project Energy Consumption

Table 18 provides a summary of the project's annual operational energy consumption.

Table 18
Annual Energy Consumption

Activity	Energy Consumption (MBtu/yr)[1]
Total Annual Operational Energy Consumption	**31,785.78**
Electricity	950.63
Natural Gas	1,305.13
Petroleum	29,530.02

[1] MBtu/yr = Millions of Btu per year. Operational activities only.

5.0 Energy Impacts

5.1 Energy Impact Criteria

This analysis has been prepared within the context of the CEQA Guidelines, Appendix F, Energy Conservation, and Appendix G, Environmental Checklist Form. According to CEQA, the goal of conserving energy implies the wise and efficient use of energy through decreasing overall per capita energy consumption, decreasing reliance on fossil fuels (such as coal, natural gas and oil), and increasing reliance on renewable energy sources.

A significant environmental impact would result if the project would;

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation, or;

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

5.2 Energy Impact – 1

Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The project's impact is considered less than significant with the inclusion of the mandatory requirements of California's Building Energy Efficiency Standards (Title 24, Part 6) and Green Building Standards (CALGreen, Title 24, Part 11). California's building energy efficiency standards are some of the strictest in the nation and the project's compliance with California's building code will ensure that wasteful, inefficient or unnecessary consumption of energy is minimized. The building standards code is designed to reduce the amount of energy needed to heat or cool a building, reduce energy usage for lighting and appliances and promote usage of energy from renewable sources.

5.3 Energy Impact – 2

Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The project will comply with the mandatory requirements of California's Green Building and Building Energy Efficiency standards that promote renewable energy and energy efficiency.

The following mitigation measures are recommended to help ensure the project does not result in wasteful, inefficient, or unnecessary consumption of energy resources. Mitigation measures are consistent with the recommended mitigation measures provided with Air/GHG study.

MM-1 Participate in the Riverside County Climate Action Plan (CAP) by implementing building design, site-area and operational enhancements that garner 100 points or greater through improvements listed in the CAP Screening Tables.

The following recommended design features are provided to reduce wasteful, inefficient and unnecessary consumption of energy. Design features are consistent with the recommended design features provided with Air/GHG study.

DF-1. The project will comply with the mandatory requirements of Title 24 part 11 of the California Building Standards Code (CALGreen) and the Title 24 Part 6 Building Efficiency Standards (Energy Code).

DF-2. Implement water conservation strategies, including low flow fixtures and toilets, water efficient irrigation systems, drought tolerant/native landscaping, and reduce the amount of turf.

DF-3. Comply with the mandatory requirements of CalRecycle's commercial recycling program and implement zero waste strategies.

DF-4. Provide the necessary infrastructure to support electric vehicle charging, as required by CALGreen.

DF-5. Use electric landscaping equipment, such as lawn mowers and leaf blowers, where feasible.

With the implementation of the recommended mitigation measure and design features described above, the project will not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The impact is considered less than significant with mitigation.

Exhibits

Exhibit A

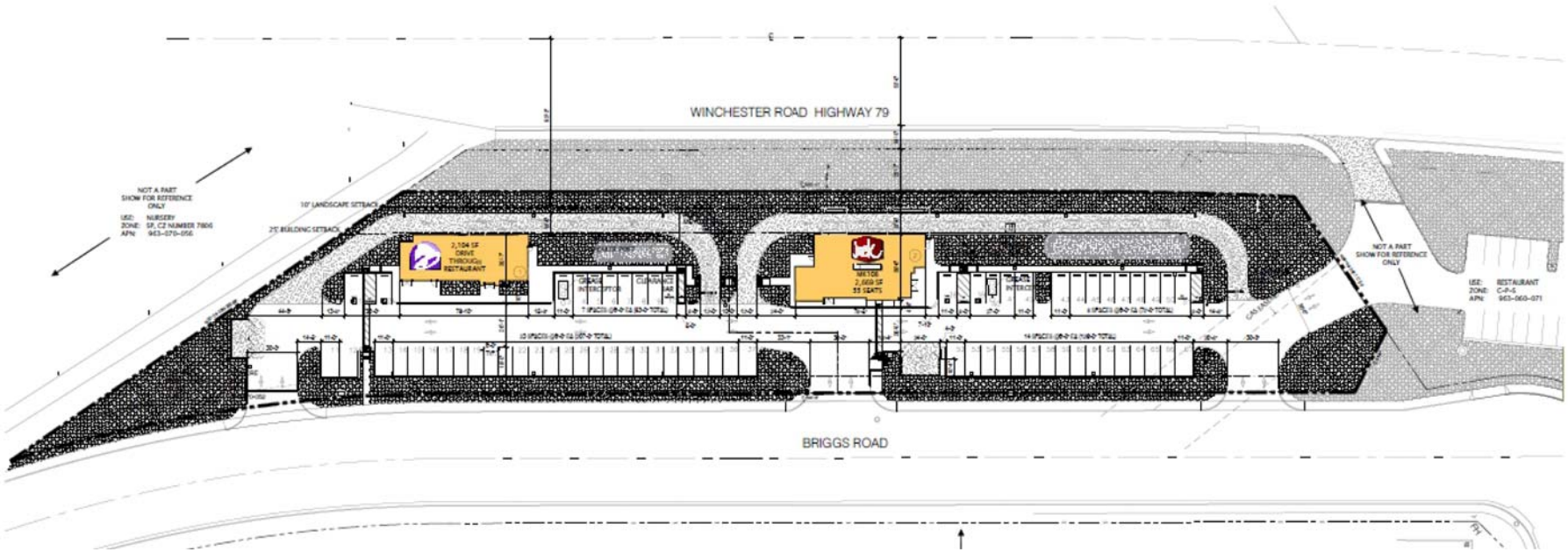
Location Map

N

Legend:

= Project Site Boundary

Exhibit B
Site Plan



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Appendices

Appendix A

CalEEMod Annual Emissions Output

French Valley Fast Food Restaurant AQ & GHG Study

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	67.00	Space	2.05	26,800.00	0
Fast Food Restaurant with Drive Thru	4.77	1000sqft	0.11	4,773.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - The project is proposing to construct and operate approximately 4,773 S.F. of two fast food restaurants and 67 parking apaces at approximately 2.16 acre site.

Construction Phase - Project site is vacant and no demolition is required.

Grading - The project is expected to export approximately 3,038 C.Y. of earthwork material.

Vehicle Trips - Trip generation rates are based on JIB French Valley Trip Generation Compariasion and VMT Evaluation, by Trames Solutions INC, dated Oct 02, 2020 and ITE Trip Generation Manual 10th Edition

Water And Wastewater -

Construction Off-road Equipment Mitigation - Project will be required to comply with SCAQMD Rule 403 regarding fugitive dust control.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblGrading	MaterialExported	0.00	3,038.00
tblLandUse	LandUseSquareFeet	4,770.00	4,773.00
tblLandUse	LotAcreage	0.60	2.05
tblVehicleTrips	DV_TP	21.00	50.00
tblVehicleTrips	PB_TP	50.00	0.00
tblVehicleTrips	PR_TP	29.00	50.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	WD_TR	496.12	470.95

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					
2021	0.0924	0.7834	0.6475	1.3300e-003	0.0329	0.0363	0.0691	0.0133	0.0346	0.0479	0.0000	114.0698	114.0698	0.0203	0.0000	114.5761
2022	0.1699	1.1169	1.1145	2.0500e-003	0.0133	0.0525	0.0658	3.5800e-003	0.0502	0.0538	0.0000	172.5920	172.5920	0.0316	0.0000	173.3819
Maximum	**0.1699**	**1.1169**	**1.1145**	**2.0500e-003**	**0.0329**	**0.0525**	**0.0691**	**0.0133**	**0.0502**	**0.0538**	**0.0000**	**172.5920**	**172.5920**	**0.0316**	**0.0000**	**173.3819**

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					
2021	0.0924	0.7834	0.6475	1.3300e-003	0.0191	0.0363	0.0554	6.8500e-003	0.0346	0.0415	0.0000	114.0696	114.0696	0.0203	0.0000	114.5760
2022	0.1699	1.1169	1.1145	2.0500e-003	0.0133	0.0525	0.0658	3.5800e-003	0.0502	0.0538	0.0000	172.5918	172.5918	0.0316	0.0000	173.3817
Maximum	**0.1699**	**1.1169**	**1.1145**	**2.0500e-003**	**0.0191**	**0.0525**	**0.0658**	**6.8500e-003**	**0.0502**	**0.0538**	**0.0000**	**172.5918**	**172.5918**	**0.0316**	**0.0000**	**173.3817**

	ROG	NOx	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**	**29.75**	**0.00**	**10.18**	**38.10**	**0.00**	**6.31**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	9-1-2021	11-30-2021	0.6497	0.6497
2	12-1-2021	2-28-2022	0.5644	0.5644
3	3-1-2022	5-31-2022	0.5584	0.5584
4	6-1-2022	8-31-2022	0.3799	0.3799
		Highest	0.6497	0.6497

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	0.0217	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	144.8420	144.8420	4.4400e-003	1.9200e-003	145.5249
Mobile	0.5691	4.7206	5.4796	0.0238	1.6907	0.0163	1.7069	0.4530	0.0152	0.4682	0.0000	2,212.7355	2,212.7355	0.1413	0.0000	2,216.2687
Waste						0.0000	0.0000		0.0000	0.0000	11.1544	0.0000	11.1544	0.6592	0.0000	27.6344
Water						0.0000	0.0000		0.0000	0.0000	0.4593	6.3340	6.7933	0.0474	1.1700e-003	8.3274
Total	**0.5978**	**4.7846**	**5.5343**	**0.0242**	**1.6907**	**0.0211**	**1.7118**	**0.4530**	**0.0201**	**0.4731**	**11.6137**	**2,363.9132**	**2,375.5269**	**0.8524**	**3.0900e-003**	**2,397.7572**

2.2 Overall Operational

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	0.0217	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003
Energy	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	144.8420	144.8420	4.4400e-003	1.9200e-003	145.5249
Mobile	0.5691	4.7206	5.4796	0.0238	1.6907	0.0163	1.7069	0.4530	0.0152	0.4682	0.0000	2,212.7355	2,212.7355	0.1413	0.0000	2,216.2687
Waste						0.0000	0.0000		0.0000	0.0000	11.1544	0.0000	11.1544	0.6592	0.0000	27.6344
Water						0.0000	0.0000		0.0000	0.0000	0.4593	6.3340	6.7933	0.0474	1.1700e-003	8.3274
Total	**0.5978**	**4.7846**	**5.5343**	**0.0242**	**1.6907**	**0.0211**	**1.7118**	**0.4530**	**0.0201**	**0.4731**	**11.6137**	**2,363.9132**	**2,375.5269**	**0.8524**	**3.0900e-003**	**2,397.7572**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2021	9/3/2021	5	3	
2	Grading	Grading	9/4/2021	9/13/2021	5	6	
3	Building Construction	Building Construction	9/14/2021	7/18/2022	5	220	
4	Paving	Paving	7/19/2022	8/1/2022	5	10	
5	Architectural Coating	Architectural Coating	8/2/2022	8/15/2022	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 2.05

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,160; Non-Residential Outdoor: 2,387; Striped Parking Area: 1,608 (Architectural Coating – sqft)

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
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	0.29
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
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	0.38
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	3	8.00	0.00	380.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	13.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

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					2.5800e-003	0.0000	2.5800e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**2.5800e-003**	**1.0500e-003**	**3.6300e-003**	**2.9000e-004**	**9.7000e-004**	**1.2600e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

3.2 Site Preparation - 2021

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	9.5000e-004	0.0422	5.8200e-003	1.4000e-004	3.2800e-003	1.3000e-004	3.4000e-003	9.0000e-004	1.2000e-004	1.0200e-003	0.0000	13.6324	13.6324	8.3000e-004	0.0000	13.6532
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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1067	0.1067	0.0000	0.0000	0.1067
Total	**1.0000e-003**	**0.0423**	**6.2000e-003**	**1.4000e-004**	**3.4100e-003**	**1.3000e-004**	**3.5300e-003**	**9.4000e-004**	**1.2000e-004**	**1.0600e-003**	**0.0000**	**13.7390**	**13.7390**	**8.3000e-004**	**0.0000**	**13.7599**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.9000e-004	0.0000	9.9000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**9.9000e-004**	**1.0500e-003**	**2.0400e-003**	**1.1000e-004**	**9.7000e-004**	**1.0800e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

3.2 Site Preparation - 2021

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	9.5000e-004	0.0422	5.8200e-003	1.4000e-004	3.2800e-003	1.3000e-004	3.4000e-003	9.0000e-004	1.2000e-004	1.0200e-003	0.0000	13.6324	13.6324	8.3000e-004	0.0000	13.6532
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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1067	0.1067	0.0000	0.0000	0.1067
Total	**1.0000e-003**	**0.0423**	**6.2000e-003**	**1.4000e-004**	**3.4100e-003**	**1.3000e-004**	**3.5300e-003**	**9.4000e-004**	**1.2000e-004**	**1.0600e-003**	**0.0000**	**13.7390**	**13.7390**	**8.3000e-004**	**0.0000**	**13.7599**

3.3 Grading - 2021

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					0.0197	0.0000	0.0197	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**0.0197**	**2.7500e-003**	**0.0224**	**0.0101**	**2.5300e-003**	**0.0126**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

3.3 Grading - 2021

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	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**1.3000e-004**	**9.0000e-005**	**9.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2667**	**0.2667**	**1.0000e-005**	**0.0000**	**0.2668**

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					7.5200e-003	0.0000	7.5200e-003	3.8600e-003	0.0000	3.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**7.5200e-003**	**2.7500e-003**	**0.0103**	**3.8600e-003**	**2.5300e-003**	**6.3900e-003**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

3.3 Grading - 2021

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	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**1.3000e-004**	**9.0000e-005**	**9.4000e-004**	**0.0000**	**3.3000e-004**	**0.0000**	**3.3000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.2667**	**0.2667**	**1.0000e-005**	**0.0000**	**0.2668**

3.4 Building Construction - 2021

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	0.0808	0.6331	0.5752	9.9000e-004		0.0323	0.0323		0.0309	0.0309	0.0000	82.0213	82.0213	0.0161	0.0000	82.4247
Total	**0.0808**	**0.6331**	**0.5752**	**9.9000e-004**		**0.0323**	**0.0323**		**0.0309**	**0.0309**	**0.0000**	**82.0213**	**82.0213**	**0.0161**	**0.0000**	**82.4247**

3.4 Building Construction - 2021

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	4.7000e-004	0.0184	3.5400e-003	5.0000e-005	1.2500e-003	4.0000e-005	1.2800e-003	3.6000e-004	3.0000e-005	3.9000e-004	0.0000	4.8185	4.8185	3.7000e-004	0.0000	4.8277
Worker	2.2000e-003	1.4800e-003	0.0162	5.0000e-005	5.6400e-003	3.0000e-005	5.6800e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.5642	4.5642	1.1000e-004	0.0000	4.5669
Total	**2.6700e-003**	**0.0199**	**0.0197**	**1.0000e-004**	**6.8900e-003**	**7.0000e-005**	**6.9600e-003**	**1.8600e-003**	**6.0000e-005**	**1.9200e-003**	**0.0000**	**9.3827**	**9.3827**	**4.8000e-004**	**0.0000**	**9.3945**

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	0.0808	0.6331	0.5752	9.9000e-004		0.0323	0.0323		0.0309	0.0309	0.0000	82.0212	82.0212	0.0161	0.0000	82.4246
Total	**0.0808**	**0.6331**	**0.5752**	**9.9000e-004**		**0.0323**	**0.0323**		**0.0309**	**0.0309**	**0.0000**	**82.0212**	**82.0212**	**0.0161**	**0.0000**	**82.4246**

3.4 Building Construction - 2021

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	4.7000e-004	0.0184	3.5400e-003	5.0000e-005	1.2500e-003	4.0000e-005	1.2800e-003	3.6000e-004	3.0000e-005	3.9000e-004	0.0000	4.8185	4.8185	3.7000e-004	0.0000	4.8277
Worker	2.2000e-003	1.4800e-003	0.0162	5.0000e-005	5.6400e-003	3.0000e-005	5.6800e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.5642	4.5642	1.1000e-004	0.0000	4.5669
Total	**2.6700e-003**	**0.0199**	**0.0197**	**1.0000e-004**	**6.8900e-003**	**7.0000e-005**	**6.9600e-003**	**1.8600e-003**	**6.0000e-005**	**1.9200e-003**	**0.0000**	**9.3827**	**9.3827**	**4.8000e-004**	**0.0000**	**9.3945**

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	0.1308	1.0296	1.0119	1.7600e-003		0.0495	0.0495		0.0475	0.0475	0.0000	146.4145	146.4145	0.0283	0.0000	147.1207
Total	**0.1308**	**1.0296**	**1.0119**	**1.7600e-003**		**0.0495**	**0.0495**		**0.0475**	**0.0475**	**0.0000**	**146.4145**	**146.4145**	**0.0283**	**0.0000**	**147.1207**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.8000e-004	0.0310	5.8900e-003	9.0000e-005	2.2300e-003	5.0000e-005	2.2800e-003	6.4000e-004	5.0000e-005	6.9000e-004	0.0000	8.5261	8.5261	6.2000e-004	0.0000	8.5416
Worker	3.6800e-003	2.3800e-003	0.0266	9.0000e-005	0.0101	6.0000e-005	0.0101	2.6700e-003	5.0000e-005	2.7300e-003	0.0000	7.8490	7.8490	1.7000e-004	0.0000	7.8533
Total	**4.4600e-003**	**0.0334**	**0.0325**	**1.8000e-004**	**0.0123**	**1.1000e-004**	**0.0124**	**3.3100e-003**	**1.0000e-004**	**3.4200e-003**	**0.0000**	**16.3751**	**16.3751**	**7.9000e-004**	**0.0000**	**16.3949**

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	0.1308	1.0296	1.0119	1.7600e-003		0.0495	0.0495		0.0475	0.0475	0.0000	146.4143	146.4143	0.0283	0.0000	147.1205
Total	**0.1308**	**1.0296**	**1.0119**	**1.7600e-003**		**0.0495**	**0.0495**		**0.0475**	**0.0475**	**0.0000**	**146.4143**	**146.4143**	**0.0283**	**0.0000**	**147.1205**

3.4 Building Construction - 2022

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	7.8000e-004	0.0310	5.8900e-003	9.0000e-005	2.2300e-003	5.0000e-005	2.2800e-003	6.4000e-004	5.0000e-005	6.9000e-004	0.0000	8.5261	8.5261	6.2000e-004	0.0000	8.5416
Worker	3.6800e-003	2.3800e-003	0.0266	9.0000e-005	0.0101	6.0000e-005	0.0101	2.6700e-003	5.0000e-005	2.7300e-003	0.0000	7.8490	7.8490	1.7000e-004	0.0000	7.8533
Total	**4.4600e-003**	**0.0334**	**0.0325**	**1.8000e-004**	**0.0123**	**1.1000e-004**	**0.0124**	**3.3100e-003**	**1.0000e-004**	**3.4200e-003**	**0.0000**	**16.3751**	**16.3751**	**7.9000e-004**	**0.0000**	**16.3949**

3.5 Paving - 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	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.4000e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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-004	1.9000e-004	2.1700e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6423	0.6423	1.0000e-005	0.0000	0.6427
Total	**3.0000e-004**	**1.9000e-004**	**2.1700e-003**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6423**	**0.6423**	**1.0000e-005**	**0.0000**	**0.6427**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7100e-003	0.0467	0.0585	9.0000e-005		2.4400e-003	2.4400e-003		2.2500e-003	2.2500e-003	0.0000	7.7550	7.7550	2.4600e-003	0.0000	7.8165
Paving	2.6900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.4000e-003**	**0.0467**	**0.0585**	**9.0000e-005**		**2.4400e-003**	**2.4400e-003**		**2.2500e-003**	**2.2500e-003**	**0.0000**	**7.7550**	**7.7550**	**2.4600e-003**	**0.0000**	**7.8165**

3.5 Paving - 2022

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-004	1.9000e-004	2.1700e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6423	0.6423	1.0000e-005	0.0000	0.6427
Total	**3.0000e-004**	**1.9000e-004**	**2.1700e-003**	**1.0000e-005**	**8.2000e-004**	**0.0000**	**8.3000e-004**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**0.6423**	**0.6423**	**1.0000e-005**	**0.0000**	**0.6427**

3.6 Architectural Coating - 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					
Archit. Coating	0.0259					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	7.0400e-003	9.0700e-003	1.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2787
Total	**0.0269**	**7.0400e-003**	**9.0700e-003**	**1.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2787**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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	0.0259					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0200e-003	7.0400e-003	9.0700e-003	1.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	1.2766	1.2766	8.0000e-005	0.0000	1.2787
Total	**0.0269**	**7.0400e-003**	**9.0700e-003**	**1.0000e-005**		**4.1000e-004**	**4.1000e-004**		**4.1000e-004**	**4.1000e-004**	**0.0000**	**1.2766**	**1.2766**	**8.0000e-005**	**0.0000**	**1.2787**

3.6 Architectural Coating - 2022

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	6.0000e-005	4.0000e-005	4.3000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1285	0.1285	0.0000	0.0000	0.1285
Total	**6.0000e-005**	**4.0000e-005**	**4.3000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.7000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1285**	**0.1285**	**0.0000**	**0.0000**	**0.1285**

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	0.5691	4.7206	5.4796	0.0238	1.6907	0.0163	1.7069	0.4530	0.0152	0.4682	0.0000	2,212.7355	2,212.7355	0.1413	0.0000	2,216.2687
Unmitigated	0.5691	4.7206	5.4796	0.0238	1.6907	0.0163	1.7069	0.4530	0.0152	0.4682	0.0000	2,212.7355	2,212.7355	0.1413	0.0000	2,216.2687

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	2,246.43	2,938.89	2254.21	4,428,257	4,428,257
Parking Lot	0.00	0.00	0.00		
Total	2,246.43	2,938.89	2,254.21	4,428,257	4,428,257

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
Fast Food Restaurant with Drive	16.60	8.40	6.90	2.20	78.80	19.00	50	50	0
Parking Lot	16.60	8.40	6.90	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
Fast Food Restaurant with Drive Thru	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965
Parking Lot	0.545527	0.036856	0.186032	0.115338	0.015222	0.004970	0.017525	0.069528	0.001397	0.001160	0.004547	0.000932	0.000965

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	75.1953	75.1953	3.1000e-003	6.4000e-004	75.4643
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	75.1953	75.1953	3.1000e-003	6.4000e-004	75.4643
NaturalGas Mitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6467	69.6467	1.3300e-003	1.2800e-003	70.0605
NaturalGas Unmitigated	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6467	69.6467	1.3300e-003	1.2800e-003	70.0605

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					
Fast Food Restaurant with Drive Thru	1.30513e+006	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6467	69.6467	1.3300e-003	1.2800e-003	70.0605
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		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**69.6467**	**69.6467**	**1.3300e-003**	**1.2800e-003**	**70.0605**

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					
Fast Food Restaurant with Drive Thru	1.30513e+006	7.0400e-003	0.0640	0.0537	3.8000e-004		4.8600e-003	4.8600e-003		4.8600e-003	4.8600e-003	0.0000	69.6467	69.6467	1.3300e-003	1.2800e-003	70.0605
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		**7.0400e-003**	**0.0640**	**0.0537**	**3.8000e-004**		**4.8600e-003**	**4.8600e-003**		**4.8600e-003**	**4.8600e-003**	**0.0000**	**69.6467**	**69.6467**	**1.3300e-003**	**1.2800e-003**	**70.0605**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	226622	72.2066	2.9800e-003	6.2000e-004	72.4650
Parking Lot	9380	2.9887	1.2000e-004	3.0000e-005	2.9994
Total		**75.1953**	**3.1000e-003**	**6.5000e-004**	**75.4643**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	226622	72.2066	2.9800e-003	6.2000e-004	72.4650
Parking Lot	9380	2.9887	1.2000e-004	3.0000e-005	2.9994
Total		**75.1953**	**3.1000e-003**	**6.5000e-004**	**75.4643**

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	0.0217	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003
Unmitigated	0.0217	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003
Total	**0.0217**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7800e-003**	**1.7800e-003**	**0.0000**	**0.0000**	**1.9000e-003**

6.2 Area by SubCategory

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	2.5900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0190					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7800e-003	1.7800e-003	0.0000	0.0000	1.9000e-003
Total	**0.0217**	**1.0000e-005**	**9.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7800e-003**	**1.7800e-003**	**0.0000**	**0.0000**	**1.9000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.7933	0.0474	1.1700e-003	8.3274
Unmitigated	6.7933	0.0474	1.1700e-003	8.3274

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	1.44786 / 0.0924163	6.7933	0.0474	1.1700e-003	8.3274
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.7933**	**0.0474**	**1.1700e-003**	**8.3274**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	1.44786 / 0.0924163	6.7933	0.0474	1.1700e-003	8.3274
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**6.7933**	**0.0474**	**1.1700e-003**	**8.3274**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	11.1544	0.6592	0.0000	27.6344
Unmitigated	11.1544	0.6592	0.0000	27.6344

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	54.95	11.1544	0.6592	0.0000	27.6344
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.1544**	**0.6592**	**0.0000**	**27.6344**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	54.95	11.1544	0.6592	0.0000	27.6344
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**11.1544**	**0.6592**	**0.0000**	**27.6344**

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

Appendix B

EMFAC2014 Vehicle Consumption Data

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption	Fuel Split (Gas:Diesel)	MPG, by Fuel Type	MPG, Average
South Coast AQMD	2020	LDA	Aggregated	Aggregated	GAS	6241441.311	215630250.8	7791.379047	99.26%	27.68	28.57
South Coast AQMD	2020	LDA	Aggregated	Aggregated	DSL	58578.66528	2170199.073	58.44052993	0.74%	37.14	
South Coast AQMD	2020	LDA	Aggregated	Aggregated	ELEC	139480.2104	6499653.924	0			
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	GAS	529468.9231	17839921.58	767.6565063	99.91%	23.24	23.26
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	DSL	653.8523923	17424.66748	0.656771586	0.09%	26.53	
South Coast AQMD	2020	LDT1	Aggregated	Aggregated	ELEC	394.8926991	12300.5894	0			
South Coast AQMD	2020	LDT2	Aggregated	Aggregated	GAS	2196840.435	81691950.79	3942.87661	99.86%	20.72	20.73
South Coast AQMD	2020	LDT2	Aggregated	Aggregated	DSL	3707.582469	150823.0049	5.330165365	0.14%	28.30	
South Coast AQMD	2020	MDV	Aggregated	Aggregated	GAS	1480427.171	49182321.35	3206.973029	98.75%	15.34	15.42
South Coast AQMD	2020	MDV	Aggregated	Aggregated	DSL	22607.57726	887377.5364	40.62845112	1.25%	21.84	
South Coast AQMD	2020	LHDT1	Aggregated	Aggregated	GAS	122811.721	3538562.329	324.3272067	66.50%	10.91	14.08
South Coast AQMD	2020	LHDT1	Aggregated	Aggregated	DSL	93218.10849	3329186.678	163.383972	33.50%	20.38	
South Coast AQMD	2020	LHDT2	Aggregated	Aggregated	GAS	25139.08857	867472.8869	85.31303659	51.00%	10.17	14.35
South Coast AQMD	2020	LHDT2	Aggregated	Aggregated	DSL	39016.92297	1532624.982	81.98131358	49.00%	18.69	
South Coast AQMD	2020	MHDT	Aggregated	Aggregated	GAS	19760.80313	980184.6784	139.5109867	14.03%	7.03	8.50
South Coast AQMD	2020	MHDT	Aggregated	Aggregated	DSL	134726.0007	7469482.082	854.6440674	85.97%	8.74	
South Coast AQMD	2020	HHDT	Aggregated	Aggregated	GAS	802.1440496	104174.0551	22.12472978	0.97%	4.71	5.85
South Coast AQMD	2020	HHDT	Aggregated	Aggregated	DSL	94066.79161	13265170	2263.379935	99.03%	5.86	
South Coast AQMD	2020	OBUS	Aggregated	Aggregated	GAS	8436.227028	392438.6707	54.40171127	47.32%	7.21	7.25
South Coast AQMD	2020	OBUS	Aggregated	Aggregated	DSL	5358.43226	441411.1364	60.5737995	52.68%	7.29	
South Coast AQMD	2020	UBUS	Aggregated	Aggregated	GAS	2327.880438	267944.8976	53.57098395	32.69%	5.00	4.86
South Coast AQMD	2020	UBUS	Aggregated	Aggregated	DSL	4588.150023	527953.961	110.2967884	67.31%	4.79	
South Coast AQMD	2020	SBUS	Aggregated	Aggregated	GAS	2258.46776	86380.44602	7.601539992	21.33%	11.36	8.10
South Coast AQMD	2020	SBUS	Aggregated	Aggregated	DSL	5309.122191	202336.044	28.02826434	78.67%	7.22	
South Coast AQMD	2020	MCY	Aggregated	Aggregated	GAS	289961.5795	1955845.416	55.31831514	100.00%	35.36	35.36
South Coast AQMD	2020	MH	Aggregated	Aggregated	GAS	37922.10127	307217.3044	41.47456076	83.45%	7.41	7.88
South Coast AQMD	2020	MH	Aggregated	Aggregated	DSL	9968.340503	84286.45216	8.223037177	16.55%	10.25	