APPENDIX 4

Jefferson Avenue Apartments

ENERGY ANALYSIS

CITY OF MURRIETA

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LIST OF ABBREVIATED TERMS

(1)	Reference
AQIA	Air Quality Impact Analysis
BACM	Best Available Control Measures
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of Murrieta
CPEP	Clean Power and Electrification Pathway
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
DU	Dwelling Units
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EMFAC	EMissions FACtor
FERC	Federal Energy Regulatory Commission
GWh	Gigawatt Hour
HHDT	Heavy-Heavy Duty Trucks
hp-hr-gal	Horsepower Hours Per Gallon
I-15	Interstate 15
IEPR	Integrated Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Kilo-British Thermal Units
kWh	Kilowatt Hour
LDA	Light Duty Auto
LDT1/LDT2	Light-Duty Trucks
LHDT1/LHDT2	Light-Heavy Duty Trucks
MCY	Motorcycles
MDV	Medium Duty Trucks
MFR	Multi-Family Residential
MH	Motor Homes
MHDT	Medium-Heavy Duty Trucks

mpg	Miles Per Gallon
MPO	Metropolitan Planning Organization
OBUS	Other Buses
PG&E	Pacific Gas and Electric
Project	Jefferson Avenue Apartments
PV	Photovoltaic
SBUS	School Buses
SCAB	Southern California Air Basin
SCE	Southern California Edison
SDAB	San Diego Air Basin
SoCalGas	Southern California Gas
sf	Square Feet
TEA-21	Transportation Equity Act for the 21st Century
UBUS	Urban Buses
U.S.	United States
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Jefferson Avenue Apartments Energy Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	5.0	*Less Than Significant*	*n/a*
Energy Impact #2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	5.0	*Less Than Significant*	*n/a*

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Jefferson Avenue Apartments (Project). The purpose of this report is to ensure that energy implication is considered by the City of Murrieta (City), as the lead agency, and to quantify anticipated energy usage associated with construction and operation of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed Jefferson Avenue Apartments Project is located along Jefferson Avenue northwest of the intersection of Jefferson Avenue and Murrieta Hot Springs Road in the City of Murrieta, as shown on Exhibit 1-A.

Existing land uses near the site include commercial/business complex to the northwest and a commercial shopping center to the northeast of the Project site. Interstate 15 (I-15) is located approximately 0.28 miles northeast of the Project site. The Project site is currently vacant and is designated for Multiple-Family Residential (MFR) land uses. The MFR designation provides for attached and detached apartments and condominiums. Typical development consists of townhomes, condominiums, apartments, senior housing, and stacked flats. MFR encourages the development of integrated projects that provide complementary open spaces and amenities on-site (2).

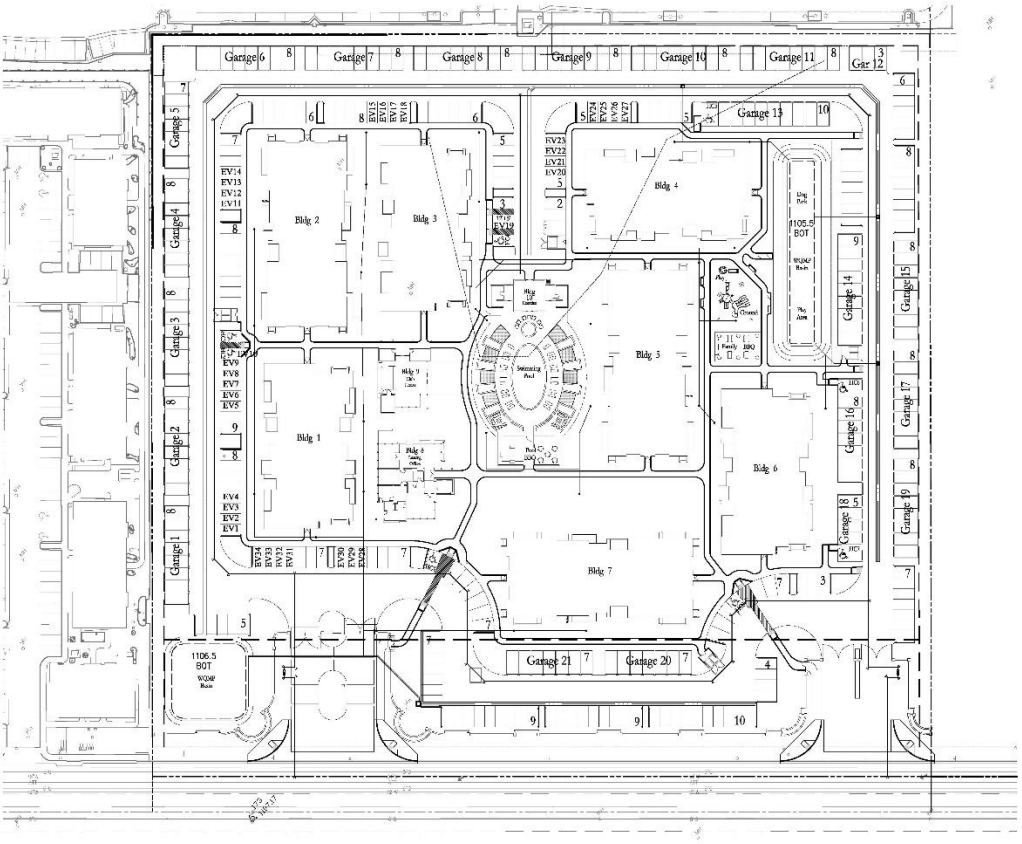
1.2 PROJECT DESCRIPTION

The site plan for the proposed Project is shown on Exhibit 1-B. The Project is to consist of 160 multifamily (mid-rise) dwelling units (DU). It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2022.

EXHIBIT 1-A: LOCATION MAP

LEGEND:
Site Boundary

EXHIBIT 1-B: SITE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project area and region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption is from 2017 and natural gas consumption is from 2018, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2020 and included:

- Approximately 7,881 trillion British Thermal Unit (BTU) of energy was consumed; (3);
- Approximately 2,137 billion cubic feet of natural gas (3)

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (4)
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (4)
    - Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017 (5)

The most recent data provided by the EIA for energy use in California by demand sector is from 2017 and is reported as follows:

- Approximately 40.3% transportation;
- Approximately 23.1% industrial;
- Approximately 18.0% residential; and
- Approximately 18.7% commercial (6)

In 2018, total system electric generation for California was 285,488 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,842 GWh which accounted for approximately 68% of the electricity it uses; the rest was imported from the Pacific Northwest (14%) and the U.S. Southwest (18%) (7). Natural gas is the main source for electricity generation at 47% of the total in-state electric generation system power as shown in Table 2-1.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2018)

Fuel Type	California In-State Generation	Percent of California In-State	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	294	0.15%	399	8,740	9,433	3.30%
Large Hydro	22,096	11.34%	7,418	985	30,499	10.68%
Natural Gas	90,691	46.54%	49	8,904	99,644	34.91%
Nuclear	18,268	9.38%	0	7,573	25,841	9.05%
Oil	35	0.02%	0	0	35	0.01%
Other	430	0.22%	0	9	439	0.15%
Renewables	63,028	32.35%	14,074	12,400	89,502	31.36%
Biomass	5,909	3.03%	772	26	6,707	2.35%
Geothermal	11,528	5.92%	171	1,269	12,968	4.54%
Small Hydro	4,248	2.18%	334	1	4,583	1.61%
Solar	27,265	13.99%	174	5,094	32,533	11.40%
Wind	14,078	7.23%	12,623	6,010	32,711	11.46%
Unspecified Sources of Power	N/A	N/A	17,576	12,519	30,095	10.54%
Total	**194,842**	**100%**	**39,517**	**51,130**	**285,488**	**100%**

Source: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018. (8)
- California's total energy consumption is second-highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs. (9)
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar photovoltaic (PV) and solar thermal installations provided 19% of California's net electricity generation (10).

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

2.2 ELECTRICITY

The usage associated with electricity use were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station (San Onofre). While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California ISO studies had revealed the extent to which the South California Air Basin (SCAB) and the San Diego Air Basin (SDAB) region were vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (IEPR) after a collaborative process with other energy agencies, utilities, and air districts (11). If the resource development outlined in the preliminary plan continues as detailed, reliability in Southern California would likely be assured; however, tight resource margins have led energy agencies and the California Air Resources Board (CARB) to develop a contingency plan. This contingency plan was discussed at a public workshop in Los Angeles on August 20, 2014 and is detailed within this Section (12).

Electricity is provided to the Project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons in 15 counties and in 180 incorporated cities, within a service area encompassing approximately 50,000 square miles. Based on SCE's 2018 Power Content Label Mix, SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers (13).

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator (ISO) is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities [such as SCE] still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that sufficient power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (14).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission owners (investor-owned utilities such as SCE) file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Table 2-2 identifies SCE's specific proportional shares of electricity sources in 2018. As indicated in Table 2-2, the 2018 SCE Power Mix has renewable energy at 36% of the overall energy resources. Geothermal resources are at 8%, wind power is at 13%, large hydroelectric sources are at 1%, solar energy is at 13%, and coal is at 0%. Biomass and waste sources have increased by 1% since 2017. Natural gas remains at 17% since 2017 (15).

TABLE 2-2: SCE 2018 POWER CONTENT MIX

Energy Resources	2018 SCE Power Mix
Eligible Renewable	**36%**
Biomass & waste	1%
Geothermal	8%
Small Hydroelectric	1%
Solar	13%
Wind	13%
Coal	**0%**
Large Hydroelectric	**4%**
Natural Gas	**17%**
Nuclear	**6%**
Other	**0%**
Unspecified Sources of power*	37%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

2.3 NATURAL GAS

The usage associated with natural gas use were calculated using the CalEEMod Version 2016.3.2. The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32% of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 68% of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering, and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35% of their natural gas supply from basins located in the Southwest, 16% from Canada, 40% from the Rocky Mountains, and 9% from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California consumers are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Questar Southern Trails and Mojave Pipeline. Another pipeline, the North Baja – Baja Norte Pipeline, takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, the PUC often participates in FERC regulatory proceedings to represent the interests of California natural gas consumers.

Most of the natural gas transported via the interstate pipelines, as well as some of the California-produced natural gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large noncore customers take natural gas directly off the high-pressure backbone pipeline systems, while core customers and other noncore customers take natural gas off the utilities' distribution pipeline systems. The PUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82% of the total amount of natural gas delivered to California's gas consumers in 2012.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, and currently receive all of their natural gas from the SoCalGas system (Southwest Gas also

provides natural gas distribution service in the Lake Tahoe area). Some other municipal wholesale customers are the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Some of the natural gas delivered to California customers may be delivered directly to them without being transported over the regulated utility systems. For example, the Kern River/Mojave pipeline system can deliver natural gas directly to some large customers, "bypassing" the utilities' systems. Much of California-produced natural gas is also delivered directly to large consumers.

PG&E and SoCalGas own and operate several natural gas storage fields that are located in northern and southern California. These storage fields, and four independently owned storage utilities – Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage – help meet peak seasonal natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently. (A portion of the Gill Ranch facility is owned by PG&E).

California's regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the FERC in the mid-1980's and is determined by "market forces." However, the PUC decides whether California's utilities have taken reasonable steps in order to minimize the cost of natural gas purchased on behalf of their core customers." (16)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The PUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. In March 2018, the Department of Motor Vehicles (DMV) identified 35 million registered vehicles in California (17), and those vehicles (as noted previously) consume an estimated 19 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

California's on-road transportation system includes 170,000 miles of highways and major roadways, more than 27 million passenger vehicles and light trucks, and almost 8 million medium- and heavy-duty vehicles (17). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 92% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (18). Nearly 19 billion

[1] Fuel consumptions estimated utilizing information from EMFAC2017.

gallons of on-highway fuel are burned each year, including 15.1 billion gallons of gasoline (including ethanol) and 3.9 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2016, Californians also used 194 million therms of natural gas as a transportation fuel (19), or the equivalent of 155 million gallons of gasoline.

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3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency (EPA) are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the CEC are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below. Project consistency with applicable federal and state regulations is also presented in *italicized* text.

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

The ISTEA promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions. *Transportation and access to the Project site is provided primarily by the local and regional roadway systems. The Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be realized pursuant to the ISTEA because SCAG is not planning for intermodal facilities on or through the Project site.*

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The TEA-21 was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety*. The Project site is located along major transportation corridors with proximate access to the Interstate freeway system. The site selected for the Project facilitates access, acts to reduce vehicle miles traveled, takes advantage of existing infrastructure systems, and promotes land use compatibilities through collocation of similar uses. The Project supports the strong planning processes emphasized under TEA-21. The Project is therefore consistent with, and would not otherwise interfere with, nor obstruct implementation of TEA-21.*

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT (IEPR)

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301a]). The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 IEPR was adopted January 31, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as including the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast (20). The 2020 IEPR Update is currently in progress but is not anticipated to be adopted until February 2021. *Electricity would be provided to the Project by SCE and natural gas is provided by SoCalGas. SCE's Clean Power and Electrification Pathway (CPEP) white paper and SoCalGas 2018 Corporate Sustainability Report builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the 2019 IEPR.*

3.2.2 STATE OF CALIFORNIA ENERGY PLAN

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies several strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access. *The Project site is located along major transportation corridors with proximate access to the Interstate freeway system. The site selected for the Project facilitates access, acts to reduce VMT by developing residential uses on a multifamily-residential-designated site. The Project therefore is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.*

3.2.3 CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative

mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the CEC and will become effective on January 1, 2020. The 2019 Title 24 standards go into effect on January 1, 2020 and are applicable to building permit applications submitted on or after that date. The 2019 Title 24 standards require solar PV systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar PV systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades (21). *The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and will become effective on January 1, 2020. It should be noted that the analysis herein assumes compliance with the 2019 Title 24 Standards.*

3.2.4 AB 1493 Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required ARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions, specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption. *AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.*

3.2.5 California's Renewable Portfolio Standard (RPS)

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 33 percent of total retail sales by 2020 (22). *California's Renewable Portfolio Standard is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.*

3.2.6 SB 350— Clean Energy and Pollution Reduction Act of 2015

In October 2015, the legislature approved, and the Governor signed SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition

and concern that it would prevent the Bill's passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

This measure is not directly applicable to development projects, but the proposed Project would use energy from Southern California Edison, which has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources.

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

4.1 EVALUATION CRITERIA

In compliance with Appendix G of the *State CEQA Guidelines* (1), this report analyzes the project's anticipated energy use to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

In addition, Appendix F of the *State CEQA Guidelines* (23), states that the means of achieving the goal of energy conservation includes the following:

- 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.

4.2 METHODOLOGY

Information from the CalEEMod Version 2016.3.2 outputs for the *Jefferson Avenue Apartments Air Quality Impact Analysis* (Urban Crossroads, Inc.) (AQIA) (24) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands. These outputs can be referenced in Appendix 4.1.

4.3 CONSTRUCTION ENERGY DEMANDS

4.3.1 CONSTRUCTION EQUIPMENT ELECTRICITY USAGE ESTIMATES

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project. Based on the *2017 National Construction Estimator*, Richard Pray (2017) (25), the typical power cost per 1,000 square feet of construction per month is estimated to be $2.32. For the Jefferson Avenue Apartments development, the Project plans to develop 160 multi-family DUs over the course of 15 months. Based on Table 4-1, the total power cost of the on-site electricity usage during the construction of the Project is estimated to be approximately $13,101.96.

The SCE's general service rate schedule and domestic service rate were used to determine the Project's electrical usage. As of January 1, 2020, SCE's general service rate is $0.10 per kWh of electricity for domestic services (26). As shown on Table 4-2, the total electricity usage from on-site Project construction related activities is estimated to be approximately 137,727 kWh.

TABLE 4-1: PROJECT CONSTRUCTION POWER COST

Land Use	Power Cost (per 1,000 SF of construction per month)	Total Building Size (1,000 SF)	Construction Duration (months)	Project Construction Power Cost
Other Asphalt Surfaces	$2.32	80.493	15	$2,801.16
Parking Lot	$2.32	136.000	15	$4,732.80
Apartments (Mid-Rise)	$2.32	160.000	15	$5,568.00
			CONSTRUCTION POWER COST	***$13,101.96***

TABLE 4-2: PROJECT CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Project Construction Electricity Usage (kWh)
Other Asphalt Surfaces	$0.10	29,446
Parking Lot	$0.10	49,751
Apartments (Mid-Rise)	$0.10	58,530
CONSTURCTION ELECTRICTY USAGE (kWh)		***137,727***

4.3.2 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Tables 4-3. Eight-hour daily use of all equipment is assumed. The aggregate fuel consumption rate for all equipment is estimated at 18.5 horsepower hour per gallon (hp-hr-gal.), obtained from CARB 2018 Emissions Factors Tables and cited fuel consumption rate factors presented in Table D-24 of the Moyer guidelines (27). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is standard practice consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the City and region.

As presented in Table 4-3, Project construction activities would consume an estimated 77,359 gallons of diesel fuel. Project construction would represent a “single-event” diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-3: PROJECT CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Activity/Duration	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Site Preparation (10 days)	Crawler Tractors	212	4	8	0.43	2,917	1,577
	Rubber Tired Dozers	247	3	8	0.40	2,371	1,282
Grading (158 days)	Crawler Tractors	212	3	8	0.43	2,188	18,685
	Excavators	158	1	8	0.38	480	4,102
	Graders	187	1	8	0.41	613	5,238
	Rubber Tired Dozers	247	1	8	0.40	790	6,750
Building Construction (180 days)	Cranes	231	1	8	0.29	536	5,214
	Crawler Tractors	212	3	8	0.43	2,188	21,287
	Forklifts	89	3	8	0.20	427	4,157
	Generator Sets	84	1	8	0.74	497	4,838
	Welders	46	1	8	0.45	166	1,611
Paving (20 days)	Pavers	130	2	8	0.42	874	944
	Paving Equipment	132	2	8	0.36	760	822
	Rollers	80	2	8	0.38	486	526
Architectural Coating (20 days)	Air Compressors	78	1	8	0.48	300	324
TOTAL CONSTRUCTION PROCESS FUEL DEMAND (GALLONS DIESEL FUEL)							***77,359***

4.3.3 CONSTRUCTION WORKER FUEL ESTIMATES

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated vehicle miles traveled (VMT) for the Project, the construction worker trips would generate an estimated 599,025 VMT (24). Data regarding Project related construction worker trips were based on CalEEMod defaults utilized within the AQIA.

Vehicle fuel efficiencies for LDA were estimated using information generated within the 2017 version of the EMissions FACtor model (EMFAC) developed by CARB. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (28). EMFAC2017 was run for the LDA vehicle class within the California sub-area for the 2021 and 2022 calendar year. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, an aggregated fuel economy of LDAs ranging from model year 1974 to model years 2021 and 2022 are estimated to have fuel efficiencies of 31.59 miles per gallon (mpg) and 32.53 mpg, respectively. Table 4-4 provides an estimated annual fuel consumption resulting from LDAs related to the Project construction worker trips. Based on Table 4-4, it is estimated that 18,467 gallons of fuel will be consumed related to construction worker trips during full construction of the Project.

TABLE 4-4: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES

Construction Activity	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
2021					
Site Preparation (10 days)	18	14.7	2,646	31.59	84
Grading (158 days)	15	14.7	34,839	31.59	1,103
Building Construction (7 days)	206	14.7	21,197	31.59	671
2022					
Building Construction (173 days)	206	14.7	523,879	32.53	16,103
Paving (20 days)	15	14.7	4,410	32.53	136
Architectural Coating (20 days)	41	14.7	12,054	32.53	371
CONSTRUCTION WORKER FUEL CONSUMPTION					***18,467***

4.3.4 CONSTRUCTION VENDOR/HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction vendor/hauling trips would generate an estimated 25,058,832 VMT along area roadways for the Project (24). It is assumed that 50% of

all vendor trips are from medium-heavy duty trucks (MHDT) and 50% are from heavy-heavy duty trucks (HHDT). It is assumed that 100% of all hauling trips are from HHDT. These assumptions are consistent with the CalEEMod defaults utilized within the within the AQIA (24). Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2017. For purposes of this analysis, as all vendor and hauling activities occur during 2021 and 2022, EMFAC2017 was run for the MHDT and HHDT vehicle class within the California sub-area for the 2021 and 2022 calendar years. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, an aggregated fuel economy of MHDTs ranging from model year 1974 to model years 2021 and 2022 are estimated to have fuel efficiencies of 9.73 mpg and 10.01 mpg, respectively. Based on Table 4-5, it is estimated that 3,479 gallons of fuel will be consumed related to construction vendor trips (MHDTs) during full construction of the Project.

TABLE 4-5: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES – MHDT

Construction Activity	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
2021					
Building Construction (7 days)	28	6.9	1,352	9.73	139
2022					
Building Construction (173 days)	28	6.9	33,424	10.01	3,340
				MHDT TOTAL	***3,479***

As generated by EMFAC2017, an aggregated fuel economy of HHDTs ranging from model year 1974 to model years 2021 and 2022 are estimated to have fuel efficiencies of 6.93 mpg and 7.10 mpg, respectively. Based on Table 4-6, it is estimated that 3,609,755 gallons of fuel will be consumed related to construction vendor trips (HHDTs) during full construction of the Project.

TABLE 4-6: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES – HHDT (1 OF 2)

Construction Activity	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
2021					
Building Construction (7 days)	28	6.9	1,352	6.93	195
2022					
Building Construction (173 days)	28	6.9	33,424	7.10	4,708

TABLE 4-6: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES – HHDT (2 OF 2)

Construction Activity	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Hauling					
2021					
Grading (158 days)	7,908	20	24,989,280	6.93	3,604,852
				HHDT TOTAL	***3,609,755***

4.3.5 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

The equipment used for Project construction would conform to CARB regulations and California emissions standards. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The Project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, certain incidental construction-source energy efficiencies would likely accrue through implementation of California regulations and best available control measures (BACM). More specifically, CCR Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. To this end, "grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling." In this manner, construction equipment operators are informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Indirectly, construction energy efficiencies and energy conservation would be achieved for the proposed development through energy efficiencies realized from bulk purchase, transport and use of construction materials.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, the construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing, and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.4 OPERATIONAL ENERGY DEMANDS

Energy consumption in support of or related to Project operations would include transportation energy demands (energy consumed by resident, employee, and patron vehicles accessing the Project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

4.4.1 TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Project-generated traffic is a function of total VMT and estimated vehicle fuel economies of vehicles accessing the Project site. The following vehicle subcategories included in this analysis are consistent with CalEEMod and EMFAC.

LIGHT-DUTY AUTOS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 2,174,986 annual VMT along area roadways for all LDAs with full build-out of the Project (24). Table 4-7 provides an estimated range of annual fuel consumption resulting from Project generated LDAs. Based on Table 4-7, it is estimated that 66,854 gallons of fuel will be consumed from Project generated LDA trips.

TABLE 4-7: PROJECT-GENERATED LDA VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
2,174,986	32.53	66,854

LIGHT-DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 146,943 annual VMT along area roadways for all Light-Duty Trucks (LDT1)[2] vehicles with full build-out of the Project (24).

[2] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.

Table 4-8 provides an estimated range of annual fuel consumption resulting from Project generated LDT1s. Based on Table 4-8, it is estimated that 5,402 gallons of fuel will be consumed from Project generated LDT1 trips.

TABLE 4-8: PROJECT-GENERATED LDT1 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
146,943	27.20	5,402

Additionally, the Project would generate an estimated 741,698 annual VMT along area roadways for all LDT2[3] vehicles with full build-out of the Project (24). Table 4-9 provides an estimated range of annual fuel consumption resulting from Project generated LDT2s. Based on Table 4-9, it is estimated that 28,882 gallons of fuel will be consumed from Project generated LDT2 trips.

TABLE 4-9: PROJECT-GENERATED LDT2 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
741,698	25.68	28,882

MEDIUM-DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 459,845 annual VMT along area roadways for all Medium-Duty Trucks (MDV) vehicles with full build-out of the Project (24). Table 4-10 provides an estimated range of annual fuel consumption resulting from Project generated MDVs. Based on Table 4-10, it is estimated that 22,338 gallons of fuel will be consumed from Project generated MDV trips.

TABLE 4-10: PROJECT-GENERATED MDV VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
459,845	20.59	22,338

LIGHT-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 60,689 annual VMT along area roadways for all Light-Heavy-Duty Trucks (LHDT1)[4] vehicles with full build-out of the Project (24). Table 4-11 provides an estimated range of annual fuel consumption resulting from Project generated LHDT1s. Based on Table 4-11, it is estimated that 4,252 gallons of fuel will be consumed from Project generated LHDT1 trips.

[3] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.
[4] Vehicles under the LHDT1 category have a GVWR of 8,501 to 10,000 lbs.

TABLE 4-11: PROJECT-GENERATED LHDT1 TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
60,689	14.27	4,252

Additionally, the Project would generate an estimated 19,815 annual VMT along area roadways for all LHDT2[5] vehicles with full build-out of the Project (24). Table 4-12 provides an estimated range of annual fuel consumption resulting from Project generated LHDT2s. Based on Table 4-12, it is estimated that 1,340 gallons of fuel will be consumed from Project generated LHDT2 trips.

TABLE 4-12: PROJECT-GENERATED LHDT2 TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
19,815	14.79	1,340

MEDIUM-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 69,871 annual VMT along area roadways for all MHDTs with full build-out of the Project (24). Table 4-13 provides an estimated range of annual fuel consumption resulting from Project generated MHDTs. Based on Table 4-13, it is estimated that 6,982 gallons of fuel will be consumed from Project generated MHDT trips.

TABLE 4-13: PROJECT-GENERATED MHDT TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
69,871	10.01	6,982

HEAVY-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 277,204 annual VMT along area roadways for all HHDTs with full build-out of the Project (24). Table 4-14 provides an estimated range of annual fuel consumption resulting from Project generated HHDTs. Based on Table 4-14, it is estimated that 39,046 gallons of fuel will be consumed from Project generated HHDT trips.

TABLE 4-14: PROJECT-GENERATED HHDT TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
277,204	7.10	39,046

[5] Vehicles under the LHDT2 category have a GVWR of 10,001 to 14,000 lbs.

OTHER BUSES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 5,570 annual VMT along area roadways for all Other Buses (OBUS) with full build-out of the Project (24). Table 4-15 provides an estimated range of annual fuel consumption resulting from Project generated OBUS vehicles. Based on Table 4-15, it is estimated that 850 gallons of fuel will be consumed from Project generated OBUS trips.

TABLE 4-15: PROJECT-GENERATED OBUS TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
5,570	6.55	850

URBAN BUSES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 4,625 annual VMT along area roadways for all Urban Buses (UBUS) with full build-out of the Project (24). Table 4-16 provides an estimated range of annual fuel consumption resulting from Project generated UBUS vehicles. Based on Table 4-16, it is estimated that 928 gallons of fuel will be consumed from Project generated UBUS trips.

TABLE 4-16: PROJECT-GENERATED UBUS TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
4,625	4.98	928

MOTORCYCLES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 18,129 annual VMT along area roadways for all Motorcycles (MCY) with full build-out of the Project (24). Table 4-17 provides an estimated range of annual fuel consumption resulting from Project generated MCY vehicles. Based on Table 4-17, it is estimated that 474 gallons of fuel will be consumed from Project generated MCY trips.

TABLE 4-17: PROJECT-GENERATED MCY TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
18,129	38.27	474

SCHOOL BUSES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 3,716 annual VMT along

area roadways for all School Buses (SBUS) with full build-out of the Project (24). Table 4-18 provides an estimated range of annual fuel consumption resulting from Project generated SBUS vehicles. Based on Table 4-18, it is estimated that 463 gallons of fuel will be consumed from Project generated SBUS trips.

TABLE 4-18: PROJECT-GENERATED SBUS TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
3,716	8.03	463

MOTOR HOMES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 3,847 annual VMT along area roadways for all Motor Homes (MH) with full build-out of the Project (24). Table 4-19 provides an estimated range of annual fuel consumption resulting from Project generated MH vehicles. Based on Table 4-19, it is estimated that 627 gallons of fuel will be consumed from Project generated MH trips.

TABLE 4-19: PROJECT-GENERATED MH TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
3,847	6.13	627

As summarized on Table 4-20 the Project will result in 3,986,938 annual VMT and an estimated annual fuel consumption of 178,439 gallons of fuel.

TABLE 4-20: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION – ALL VEHICLES (1 OF 2)

Vehicle Type	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	2,174,986	66,854
LDT1	146,943	5,402
LDT2	741,698	28,882
MDV	459,845	22,338
LHDT1	60,689	4,252
LHDT2	19,815	1,340
MHDT	69,871	6,982
HHDT	277,204	39,046
OBUS	5,570	850
UBUS	4,625	928
MCY	18,129	474

TABLE 4-20: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION – ALL VEHICLES (2 OF 2)

Vehicle Type	Annual VMT	Estimated Annual Fuel Consumption (gallons)
SBUS	3,716	463
MH	3,847	627
TOTAL (ALL VEHICLES)	***3,986,938***	***178,439***

4.4.2 FACILITY ENERGY DEMANDS

Project building operations and Project site maintenance activities would result in the consumption of natural gas and electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied to the Project by SCE. Annual natural gas and electricity demands of the Project are summarized in Table 4-21.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting (29). Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

TABLE 4-21: PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Natural Gas Demand	kBTU/year
Apartments Mid Rise	1,623,860
Other Asphalt Surfaces	0
Parking Lot	0
TOTAL PROJECT NATURAL GAS DEMAND	***1,623,860***
Electricity Demand	**kWh/year**
Apartments Mid Rise	602,480
Other Asphalt Surfaces	0
Parking Lot	47,600
TOTAL PROJECT ELECTRICITY DEMAND	***650,080***

kBTU – kilo-British Thermal Units

4.4.3 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title24, California Green Building Standards Code).

It should also be noted that the Project would not result in a substantial increase in demand or transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure because it would be served by the existing electric utility lines in the Project vicinity.

ENHANCED VEHICLE FUEL EFFICIENCIES

Project annual fuel consumption estimates presented previously in Tables 4-20 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project site can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the Project is assumed to be around $13,101.96. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project build-out, is calculated to be around 137,727 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 77,359 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. BACMs inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the Project would result in the estimated fuel consumption of 18,467 gallons of fuel. Additionally, fuel consumption from construction vendor and hauling trips (MHDTs and HHDTs) will total approximately 3,613,234 gallons. Diesel fuel would be supplied by City and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved through the use of bulk purchases, transport and use of construction materials. The 2019 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (30). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Annual vehicular trips and related VMT generated by the operational of the Project would result in an estimated 66,854 gallons of fuel consumption per year for LDAs, 5,402 gallons of fuel of LDT1s, 28,882 gallons of fuel for LDT2s, 22,338 gallons for fuel for MDVs, 4,252 gallons of fuel for LHDT1s, 1,340 gallons of fuel for LHDT2s, 6,982 gallons of fuel for MHDTs, 39,046 gallons for fuel for HHDTs, 850 gallons of fuel of OBUS, 928 gallons of fuel for UBUS, 474 gallons for fuel for MCYs, 463 gallons of fuel for SBUS, and 627 gallons of fuel for MHs. The total estimated annual fuel consumption from Project generated VMT would result in a fuel demand 178,439 gallons of fuel.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other residential and commercial uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Ed., 2017); and CalEEMod. That is, the Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of vehicles to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. In compliance with the California Green Building Standards Code, the Project would promote the use of bicycles as an alternative mean of transportation by providing short-term and/or long-term bicycle parking accommodations. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

FACILITY ENERGY DEMANDS

Project facility operational energy demands are estimated at: 1,623,860 kBTU/year of natural gas; and 650,080 kWh/year of electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional residential uses reflecting contemporary energy efficient/energy conserving designs and operational programs. Uses proposed by the Project are not inherently energy intensive, and the Project energy demands in total would be comparable to, or less than, other projects of similar scale and configuration.

Additionally, the Project is will be required to comply with the applicable Title 24 standards which will further ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary.

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5 CONCLUSIONS

5.1 ENERGY IMPACT 1

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

As supported by the preceding analyses, Project construction and operations would not result in the inefficient, wasteful, or unnecessary consumption of energy. Further, the energy demands of the Project can be accommodated within the context of available resources and energy delivery systems. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California.

5.2 ENERGY IMPACT 2

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

The Project is subject to California Building Code requirements. New buildings must achieve compliance with 2019 Building and Energy Efficiency Standards and the 2019 California Green Building Standards requirements.

The Project would provide for, and promote, energy efficiencies equal to or beyond those required under other applicable federal and State of California standards and regulations, and in so doing would meet or exceed all California Building Standards Code Title 24 standards. Moreover, energy consumed by the Project's operation is calculated to be comparable to, or less than, energy consumed by other residential uses of similar scale and intensity that are constructed and operating in California. On this basis, the Project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Further, the Project would not cause or result in the need for additional energy producing facilities or energy delivery systems.

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7 CERTIFICATIONS

The contents of this energy analysis report represent an accurate depiction of the environmental impacts associated with the proposed Jefferson Avenue Apartments Project. The information contained in this energy analysis report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 4.1:

CALEEMOD MODEL OUTPUTS

Jefferson Avenue Apartment (Unmitigated)

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	80.49	1000sqft	1.85	80,493.00	0
Parking Lot	340.00	Space	3.12	136,000.00	0
Apartments Mid Rise	160.00	Dwelling Unit	4.21	160,000.00	458

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)	589.93	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The Projected 2022 RPS target is derived based on a linear trajectory to reach the 50% project RPS consistent with SB 32 and SB 350.

Land Use - Total Project Area is 9.18 acres.

Construction Phase - It is assumed that Paving and Architectural Coating will overlap with Building Construction activities

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT - Based on information provided by the Project Applicant, haul trucks will have a 15 CY haul capacity

Grading - As a conservative measure, it is assumed that 5 acres will be disturbed per day during site preparation and grading activities

Architectural Coating - Rule 1113

Vehicle Trips - Trip characteristics based on information provided in the TIA.

Woodstoves - Rule 445

Energy Use - The Project will design building shells and building components to meet 2019 Title 24 Standards which expects 53% less energy for residential uses

Construction Off-road Equipment Mitigation - Rule 403

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblConstructionPhase	NumDays	230.00	180.00
tblConstructionPhase	NumDays	20.00	158.00
tblEnergyUse	LightingElect	741.44	348.48
tblEnergyUse	T24E	772.17	362.92
tblEnergyUse	T24NG	8,764.08	4,119.12

Jefferson Avenue Apartment (Unmitigated) - Riverside-South Coast County, Annual

tblFireplaces	NumberGas	136.00	160.00
tblFireplaces	NumberNoFireplace	16.00	0.00
tblFireplaces	NumberWood	8.00	0.00
tblGrading	AcresOfGrading	316.00	790.00
tblGrading	AcresOfGrading	20.00	50.00
tblGrading	MaterialImported	0.00	59,300.00
tblLandUse	LotAcreage	3.06	3.12
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
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tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6000e-003	1.4270e-003
tblVehicleEF	LDT2	2.3460e-003	1.8750e-003
tblVehicleEF	LDT2	1.4710e-003	1.3130e-003
tblVehicleEF	LDT2	2.1570e-003	1.7240e-003
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.09
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.43
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	3.4320e-003	3.2310e-003

tblVehicleEF	LDT2	8.1000e-004	6.8200e-004
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.05	0.09
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.43
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	5.8560e-003	4.3030e-003
tblVehicleEF	LDT2	5.6090e-003	0.06
tblVehicleEF	LDT2	0.87	1.10
tblVehicleEF	LDT2	1.23	2.34
tblVehicleEF	LDT2	372.88	349.63
tblVehicleEF	LDT2	78.65	68.30
tblVehicleEF	LDT2	0.07	0.07
tblVehicleEF	LDT2	1.6000e-003	1.4270e-003
tblVehicleEF	LDT2	2.3460e-003	1.8750e-003
tblVehicleEF	LDT2	1.4710e-003	1.3130e-003
tblVehicleEF	LDT2	2.1570e-003	1.7240e-003
tblVehicleEF	LDT2	0.13	0.21
tblVehicleEF	LDT2	0.13	0.16
tblVehicleEF	LDT2	0.10	0.16
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.43
tblVehicleEF	LDT2	0.08	0.27
tblVehicleEF	LDT2	3.7360e-003	3.4590e-003
tblVehicleEF	LDT2	8.0700e-004	6.7600e-004
tblVehicleEF	LDT2	0.13	0.21

tblVehicleEF	LDT2	0.13	0.16
tblVehicleEF	LDT2	0.10	0.16
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.43
tblVehicleEF	LDT2	0.08	0.29
tblVehicleEF	LDT2	4.9650e-003	3.6320e-003
tblVehicleEF	LDT2	6.6500e-003	0.07
tblVehicleEF	LDT2	0.67	0.84
tblVehicleEF	LDT2	1.42	2.71
tblVehicleEF	LDT2	333.62	319.57
tblVehicleEF	LDT2	78.65	69.04
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6000e-003	1.4270e-003
tblVehicleEF	LDT2	2.3460e-003	1.8750e-003
tblVehicleEF	LDT2	1.4710e-003	1.3130e-003
tblVehicleEF	LDT2	2.1570e-003	1.7240e-003
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.07	0.49
tblVehicleEF	LDT2	0.09	0.31
tblVehicleEF	LDT2	3.3410e-003	3.1620e-003
tblVehicleEF	LDT2	8.1000e-004	6.8300e-004
tblVehicleEF	LDT2	0.05	0.08
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.04	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.49
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LHD1	5.1810e-003	4.7600e-003
tblVehicleEF	LHD1	9.5070e-003	4.8390e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.93
tblVehicleEF	LHD1	9.26	9.38
tblVehicleEF	LHD1	602.20	632.13
tblVehicleEF	LHD1	29.86	10.36
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.06	1.46
tblVehicleEF	LHD1	9.7000e-004	9.7900e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.2900e-004	2.2300e-004
tblVehicleEF	LHD1	9.2800e-004	9.3700e-004
tblVehicleEF	LHD1	2.5490e-003	2.5040e-003
tblVehicleEF	LHD1	0.01	9.9950e-003
tblVehicleEF	LHD1	7.6200e-004	2.0500e-004
tblVehicleEF	LHD1	3.7780e-003	3.0170e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.8760e-003	1.4960e-003
tblVehicleEF	LHD1	0.07	0.06

tblVehicleEF	LHD1	0.31	0.47
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9030e-003	6.1480e-003
tblVehicleEF	LHD1	3.4200e-004	1.0300e-004
tblVehicleEF	LHD1	3.7780e-003	3.0170e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.8760e-003	1.4960e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.31	0.47
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.1810e-003	4.7720e-003
tblVehicleEF	LHD1	9.6980e-003	4.9170e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.89	0.67
tblVehicleEF	LHD1	2.15	0.88
tblVehicleEF	LHD1	9.26	9.38
tblVehicleEF	LHD1	602.20	632.14
tblVehicleEF	LHD1	29.86	10.28
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	1.94	1.37
tblVehicleEF	LHD1	9.7000e-004	9.7900e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.2900e-004	2.2300e-004

tblVehicleEF	LHD1	9.2800e-004	9.3700e-004
tblVehicleEF	LHD1	2.5490e-003	2.5040e-003
tblVehicleEF	LHD1	0.01	9.9950e-003
tblVehicleEF	LHD1	7.6200e-004	2.0500e-004
tblVehicleEF	LHD1	7.0590e-003	5.6440e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.5660e-003	2.8600e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.32	0.48
tblVehicleEF	LHD1	0.23	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9030e-003	6.1480e-003
tblVehicleEF	LHD1	3.4000e-004	1.0200e-004
tblVehicleEF	LHD1	7.0590e-003	5.6440e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.5660e-003	2.8600e-003
tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.32	0.48
tblVehicleEF	LHD1	0.25	0.08
tblVehicleEF	LHD1	5.1810e-003	4.7590e-003
tblVehicleEF	LHD1	9.4900e-003	4.8280e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.14	0.17
tblVehicleEF	LHD1	0.88	0.66
tblVehicleEF	LHD1	2.26	0.93

tblVehicleEF	LHD1	9.26	9.38
tblVehicleEF	LHD1	602.20	632.12
tblVehicleEF	LHD1	29.86	10.37
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.04	1.44
tblVehicleEF	LHD1	9.7000e-004	9.7900e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.2900e-004	2.2300e-004
tblVehicleEF	LHD1	9.2800e-004	9.3700e-004
tblVehicleEF	LHD1	2.5490e-003	2.5040e-003
tblVehicleEF	LHD1	0.01	9.9950e-003
tblVehicleEF	LHD1	7.6200e-004	2.0500e-004
tblVehicleEF	LHD1	3.3490e-003	2.6630e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7110e-003	1.3580e-003
tblVehicleEF	LHD1	0.07	0.06
tblVehicleEF	LHD1	0.34	0.51
tblVehicleEF	LHD1	0.24	0.07
tblVehicleEF	LHD1	9.2000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9020e-003	6.1480e-003
tblVehicleEF	LHD1	3.4200e-004	1.0300e-004
tblVehicleEF	LHD1	3.3490e-003	2.6630e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7110e-003	1.3580e-003

tblVehicleEF	LHD1	0.09	0.07
tblVehicleEF	LHD1	0.34	0.51
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD2	3.4600e-003	3.0860e-003
tblVehicleEF	LHD2	4.0020e-003	3.5550e-003
tblVehicleEF	LHD2	7.4040e-003	8.4670e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.08	0.54
tblVehicleEF	LHD2	14.41	14.77
tblVehicleEF	LHD2	598.41	631.11
tblVehicleEF	LHD2	23.24	7.16
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.50	1.61
tblVehicleEF	LHD2	1.3120e-003	1.4480e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.1000e-004
tblVehicleEF	LHD2	1.2550e-003	1.3860e-003
tblVehicleEF	LHD2	2.7000e-003	2.7130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	1.0100e-004
tblVehicleEF	LHD2	1.4050e-003	1.6110e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.4200e-004	8.1800e-004
tblVehicleEF	LHD2	0.05	0.06

tblVehicleEF	LHD2	0.08	0.23
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4100e-004
tblVehicleEF	LHD2	5.8170e-003	6.0810e-003
tblVehicleEF	LHD2	2.5200e-004	7.1000e-005
tblVehicleEF	LHD2	1.4050e-003	1.6110e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.4200e-004	8.1800e-004
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.23
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	LHD2	3.4600e-003	3.0930e-003
tblVehicleEF	LHD2	4.0450e-003	3.5800e-003
tblVehicleEF	LHD2	7.1500e-003	8.1830e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.49
tblVehicleEF	LHD2	1.04	0.51
tblVehicleEF	LHD2	14.41	14.77
tblVehicleEF	LHD2	598.41	631.12
tblVehicleEF	LHD2	23.24	7.12
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.41	1.52
tblVehicleEF	LHD2	1.3120e-003	1.4480e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.1000e-004

tblVehicleEF	LHD2	1.2550e-003	1.3860e-003
tblVehicleEF	LHD2	2.7000e-003	2.7130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	1.0100e-004
tblVehicleEF	LHD2	2.6530e-003	3.0380e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.3950e-003	1.5540e-003
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.24
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4100e-004
tblVehicleEF	LHD2	5.8170e-003	6.0810e-003
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tblVehicleEF	LHD2	2.6530e-003	3.0380e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.3950e-003	1.5540e-003
tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.24
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	3.4600e-003	3.0850e-003
tblVehicleEF	LHD2	3.9920e-003	3.5470e-003
tblVehicleEF	LHD2	7.4470e-003	8.5290e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.45	0.48
tblVehicleEF	LHD2	1.09	0.54

tblVehicleEF	LHD2	14.41	14.77
tblVehicleEF	LHD2	598.41	631.11
tblVehicleEF	LHD2	23.24	7.17
tblVehicleEF	LHD2	0.11	0.12
tblVehicleEF	LHD2	1.48	1.59
tblVehicleEF	LHD2	1.3120e-003	1.4480e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.7000e-004	1.1000e-004
tblVehicleEF	LHD2	1.2550e-003	1.3860e-003
tblVehicleEF	LHD2	2.7000e-003	2.7130e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.4000e-004	1.0100e-004
tblVehicleEF	LHD2	1.1040e-003	1.2560e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.2900e-004	6.8000e-004
tblVehicleEF	LHD2	0.05	0.06
tblVehicleEF	LHD2	0.08	0.25
tblVehicleEF	LHD2	0.10	0.04
tblVehicleEF	LHD2	1.4000e-004	1.4100e-004
tblVehicleEF	LHD2	5.8170e-003	6.0810e-003
tblVehicleEF	LHD2	2.5200e-004	7.1000e-005
tblVehicleEF	LHD2	1.1040e-003	1.2560e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.2900e-004	6.8000e-004

tblVehicleEF	LHD2	0.06	0.07
tblVehicleEF	LHD2	0.08	0.25
tblVehicleEF	LHD2	0.11	0.05
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.14	19.26
tblVehicleEF	MCY	9.69	8.57
tblVehicleEF	MCY	166.26	208.19
tblVehicleEF	MCY	45.80	60.41
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.8240e-003	1.8040e-003
tblVehicleEF	MCY	3.3680e-003	2.8470e-003
tblVehicleEF	MCY	1.7050e-003	1.6870e-003
tblVehicleEF	MCY	3.1720e-003	2.6790e-003
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.13	2.14
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.06	1.82
tblVehicleEF	MCY	2.0370e-003	2.0600e-003
tblVehicleEF	MCY	6.7700e-004	5.9800e-004
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.63	2.64
tblVehicleEF	MCY	0.56	1.82

tblVehicleEF	MCY	2.24	1.98
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	19.85	19.92
tblVehicleEF	MCY	9.10	8.00
tblVehicleEF	MCY	166.26	209.15
tblVehicleEF	MCY	45.80	58.86
tblVehicleEF	MCY	0.98	0.98
tblVehicleEF	MCY	1.8240e-003	1.8040e-003
tblVehicleEF	MCY	3.3680e-003	2.8470e-003
tblVehicleEF	MCY	1.7050e-003	1.6870e-003
tblVehicleEF	MCY	3.1720e-003	2.6790e-003
tblVehicleEF	MCY	3.36	3.29
tblVehicleEF	MCY	1.24	1.24
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.11	2.12
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	1.85	1.62
tblVehicleEF	MCY	2.0480e-003	2.0700e-003
tblVehicleEF	MCY	6.6100e-004	5.8200e-004
tblVehicleEF	MCY	3.36	3.29
tblVehicleEF	MCY	1.24	1.24
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.61	2.61
tblVehicleEF	MCY	0.56	1.82
tblVehicleEF	MCY	2.01	1.77
tblVehicleEF	MCY	0.42	0.32

tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	18.68	18.80
tblVehicleEF	MCY	9.65	8.51
tblVehicleEF	MCY	166.26	207.43
tblVehicleEF	MCY	45.80	60.33
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.8240e-003	1.8040e-003
tblVehicleEF	MCY	3.3680e-003	2.8470e-003
tblVehicleEF	MCY	1.7050e-003	1.6870e-003
tblVehicleEF	MCY	3.1720e-003	2.6790e-003
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.04	1.03
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.12	2.13
tblVehicleEF	MCY	0.64	2.07
tblVehicleEF	MCY	2.07	1.82
tblVehicleEF	MCY	2.0300e-003	2.0530e-003
tblVehicleEF	MCY	6.7700e-004	5.9700e-004
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.04	1.03
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.62	2.63
tblVehicleEF	MCY	0.64	2.07
tblVehicleEF	MCY	2.26	1.98
tblVehicleEF	MDV	0.01	4.9040e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.26	1.05

tblVehicleEF	MDV	2.88	3.10
tblVehicleEF	MDV	474.24	407.96
tblVehicleEF	MDV	107.24	85.75
tblVehicleEF	MDV	0.15	0.10
tblVehicleEF	MDV	1.6800e-003	1.4930e-003
tblVehicleEF	MDV	2.4130e-003	1.9530e-003
tblVehicleEF	MDV	1.5490e-003	1.3770e-003
tblVehicleEF	MDV	2.2190e-003	1.7960e-003
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.22	0.41
tblVehicleEF	MDV	4.7510e-003	4.0340e-003
tblVehicleEF	MDV	1.1230e-003	8.4900e-004
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.16
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.24	0.44
tblVehicleEF	MDV	0.01	5.5890e-003
tblVehicleEF	MDV	0.01	0.07
tblVehicleEF	MDV	1.53	1.28
tblVehicleEF	MDV	2.54	2.73
tblVehicleEF	MDV	514.80	432.45

tblVehicleEF	MDV	107.24	84.99
tblVehicleEF	MDV	0.14	0.10
tblVehicleEF	MDV	1.6800e-003	1.4930e-003
tblVehicleEF	MDV	2.4130e-003	1.9530e-003
tblVehicleEF	MDV	1.5490e-003	1.3770e-003
tblVehicleEF	MDV	2.2190e-003	1.7960e-003
tblVehicleEF	MDV	0.21	0.25
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.20
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.19	0.35
tblVehicleEF	MDV	5.1610e-003	4.2760e-003
tblVehicleEF	MDV	1.1170e-003	8.4100e-004
tblVehicleEF	MDV	0.21	0.25
tblVehicleEF	MDV	0.23	0.19
tblVehicleEF	MDV	0.17	0.20
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.11	0.49
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	0.01	4.7070e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.18	0.98
tblVehicleEF	MDV	2.94	3.17
tblVehicleEF	MDV	462.11	400.61
tblVehicleEF	MDV	107.24	85.90
tblVehicleEF	MDV	0.14	0.10

tblVehicleEF	MDV	1.6800e-003	1.4930e-003
tblVehicleEF	MDV	2.4130e-003	1.9530e-003
tblVehicleEF	MDV	1.5490e-003	1.3770e-003
tblVehicleEF	MDV	2.2190e-003	1.7960e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.55
tblVehicleEF	MDV	0.23	0.42
tblVehicleEF	MDV	4.6290e-003	3.9610e-003
tblVehicleEF	MDV	1.1240e-003	8.5000e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.17
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.13	0.55
tblVehicleEF	MDV	0.25	0.46
tblVehicleEF	MH	0.03	3.2770e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.33	0.33
tblVehicleEF	MH	5.58	0.00
tblVehicleEF	MH	998.83	934.95
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.57	4.29
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	8.8390e-003
tblVehicleEF	MH	6.7100e-004	0.00
tblVehicleEF	MH	1.47	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.51	0.00
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MH	0.03	3.2770e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.40	0.33
tblVehicleEF	MH	5.19	0.00
tblVehicleEF	MH	998.83	934.95
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.46	4.05
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	2.69	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	1.00	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.31	0.00
tblVehicleEF	MH	9.9080e-003	8.8390e-003
tblVehicleEF	MH	6.6400e-004	0.00
tblVehicleEF	MH	2.69	0.00
tblVehicleEF	MH	0.09	0.00
tblVehicleEF	MH	1.00	0.00
tblVehicleEF	MH	0.12	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	0.03	3.2770e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.32	0.33
tblVehicleEF	MH	5.61	0.00
tblVehicleEF	MH	998.83	934.95
tblVehicleEF	MH	57.38	0.00
tblVehicleEF	MH	1.55	4.25
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0280e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.13
tblVehicleEF	MH	9.4600e-004	0.00
tblVehicleEF	MH	1.48	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.50	0.00
tblVehicleEF	MH	0.08	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.33	0.00
tblVehicleEF	MH	9.9070e-003	8.8390e-003
tblVehicleEF	MH	6.7200e-004	0.00
tblVehicleEF	MH	1.48	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.50	0.00
tblVehicleEF	MH	0.11	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.36	0.00
tblVehicleEF	MHD	0.02	3.1740e-003
tblVehicleEF	MHD	3.1970e-003	3.4150e-003
tblVehicleEF	MHD	0.05	8.4360e-003
tblVehicleEF	MHD	0.35	0.34
tblVehicleEF	MHD	0.24	0.36
tblVehicleEF	MHD	5.47	0.98
tblVehicleEF	MHD	152.51	72.73
tblVehicleEF	MHD	1,062.94	972.64
tblVehicleEF	MHD	54.61	8.27

tblVehicleEF	MHD	0.61	0.57
tblVehicleEF	MHD	0.89	1.55
tblVehicleEF	MHD	9.8000e-004	1.4440e-003
tblVehicleEF	MHD	5.7040e-003	0.05
tblVehicleEF	MHD	7.4900e-004	9.5000e-005
tblVehicleEF	MHD	9.3700e-004	1.3820e-003
tblVehicleEF	MHD	5.4540e-003	0.04
tblVehicleEF	MHD	6.8900e-004	8.7000e-005
tblVehicleEF	MHD	1.6000e-003	6.7900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	8.0100e-004	3.4200e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.33	0.04
tblVehicleEF	MHD	1.4660e-003	6.9000e-004
tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.4200e-004	8.2000e-005
tblVehicleEF	MHD	1.6000e-003	6.7900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.02
tblVehicleEF	MHD	8.0100e-004	3.4200e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.36	0.05
tblVehicleEF	MHD	0.02	3.0150e-003
tblVehicleEF	MHD	3.2380e-003	3.4390e-003

tblVehicleEF	MHD	0.05	8.1570e-003
tblVehicleEF	MHD	0.25	0.29
tblVehicleEF	MHD	0.25	0.36
tblVehicleEF	MHD	5.23	0.94
tblVehicleEF	MHD	161.54	73.65
tblVehicleEF	MHD	1,062.94	972.65
tblVehicleEF	MHD	54.61	8.20
tblVehicleEF	MHD	0.63	0.57
tblVehicleEF	MHD	0.83	1.46
tblVehicleEF	MHD	8.2600e-004	1.2200e-003
tblVehicleEF	MHD	5.7040e-003	0.05
tblVehicleEF	MHD	7.4900e-004	9.5000e-005
tblVehicleEF	MHD	7.9000e-004	1.1680e-003
tblVehicleEF	MHD	5.4540e-003	0.04
tblVehicleEF	MHD	6.8900e-004	8.7000e-005
tblVehicleEF	MHD	3.0890e-003	1.2990e-003
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.5560e-003	6.6700e-004
tblVehicleEF	MHD	0.03	0.05
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.32	0.04
tblVehicleEF	MHD	1.5510e-003	6.9800e-004
tblVehicleEF	MHD	0.01	9.2620e-003
tblVehicleEF	MHD	6.3800e-004	8.1000e-005
tblVehicleEF	MHD	3.0890e-003	1.2990e-003
tblVehicleEF	MHD	0.05	0.02

tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.5560e-003	6.6700e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.35	0.05
tblVehicleEF	MHD	0.02	3.4030e-003
tblVehicleEF	MHD	3.1690e-003	3.3980e-003
tblVehicleEF	MHD	0.05	8.5100e-003
tblVehicleEF	MHD	0.48	0.42
tblVehicleEF	MHD	0.24	0.36
tblVehicleEF	MHD	5.56	0.99
tblVehicleEF	MHD	140.03	71.45
tblVehicleEF	MHD	1,062.94	972.64
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tblVehicleEF	MHD	0.88	1.54
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tblVehicleEF	MHD	5.7040e-003	0.05
tblVehicleEF	MHD	7.4900e-004	9.5000e-005
tblVehicleEF	MHD	1.1400e-003	1.6780e-003
tblVehicleEF	MHD	5.4540e-003	0.04
tblVehicleEF	MHD	6.8900e-004	8.7000e-005
tblVehicleEF	MHD	1.1940e-003	5.2100e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.2900e-004	2.7500e-004
tblVehicleEF	MHD	0.03	0.05

tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.34	0.05
tblVehicleEF	MHD	1.3480e-003	6.7700e-004
tblVehicleEF	MHD	0.01	9.2610e-003
tblVehicleEF	MHD	6.4300e-004	8.2000e-005
tblVehicleEF	MHD	1.1940e-003	5.2100e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.2900e-004	2.7500e-004
tblVehicleEF	MHD	0.03	0.06
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	OBUS	0.01	8.6690e-003
tblVehicleEF	OBUS	6.8270e-003	6.2940e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.49
tblVehicleEF	OBUS	0.46	0.72
tblVehicleEF	OBUS	5.79	2.51
tblVehicleEF	OBUS	74.97	71.08
tblVehicleEF	OBUS	1,092.94	1,371.04
tblVehicleEF	OBUS	69.71	20.56
tblVehicleEF	OBUS	0.31	0.33
tblVehicleEF	OBUS	0.97	1.20
tblVehicleEF	OBUS	6.8000e-005	5.9500e-004
tblVehicleEF	OBUS	5.0070e-003	0.02
tblVehicleEF	OBUS	8.4500e-004	1.9400e-004
tblVehicleEF	OBUS	6.5000e-005	5.6900e-004

tblVehicleEF	OBUS	4.7740e-003	0.02
tblVehicleEF	OBUS	7.7700e-004	1.7800e-004
tblVehicleEF	OBUS	2.1110e-003	2.6170e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.1000e-004	1.1260e-003
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.36	0.12
tblVehicleEF	OBUS	7.2800e-004	6.7800e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9900e-004	2.0300e-004
tblVehicleEF	OBUS	2.1110e-003	2.6170e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	9.1000e-004	1.1260e-003
tblVehicleEF	OBUS	0.04	0.06
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.39	0.13
tblVehicleEF	OBUS	0.01	8.7200e-003
tblVehicleEF	OBUS	6.9570e-003	6.4100e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.26	0.48
tblVehicleEF	OBUS	0.46	0.73
tblVehicleEF	OBUS	5.41	2.35
tblVehicleEF	OBUS	78.41	70.99
tblVehicleEF	OBUS	1,092.94	1,371.06

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tblVehicleEF	OBUS	0.91	1.12
tblVehicleEF	OBUS	5.7000e-005	5.0500e-004
tblVehicleEF	OBUS	5.0070e-003	0.02
tblVehicleEF	OBUS	8.4500e-004	1.9400e-004
tblVehicleEF	OBUS	5.4000e-005	4.8300e-004
tblVehicleEF	OBUS	4.7740e-003	0.02
tblVehicleEF	OBUS	7.7700e-004	1.7800e-004
tblVehicleEF	OBUS	3.9250e-003	4.7670e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	1.7420e-003	2.1480e-003
tblVehicleEF	OBUS	0.03	0.05
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.34	0.12
tblVehicleEF	OBUS	7.6000e-004	6.7700e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9200e-004	2.0100e-004
tblVehicleEF	OBUS	3.9250e-003	4.7670e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	1.7420e-003	2.1480e-003
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tblVehicleEF	OBUS	0.38	0.13
tblVehicleEF	OBUS	0.01	8.6270e-003

tblVehicleEF	OBUS	6.8060e-003	6.2600e-003
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tblVehicleEF	OBUS	70.22	71.20
tblVehicleEF	OBUS	1,092.94	1,371.03
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tblVehicleEF	OBUS	0.97	1.20
tblVehicleEF	OBUS	8.2000e-005	7.1900e-004
tblVehicleEF	OBUS	5.0070e-003	0.02
tblVehicleEF	OBUS	8.4500e-004	1.9400e-004
tblVehicleEF	OBUS	7.9000e-005	6.8800e-004
tblVehicleEF	OBUS	4.7740e-003	0.02
tblVehicleEF	OBUS	7.7700e-004	1.7800e-004
tblVehicleEF	OBUS	1.8300e-003	2.3790e-003
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tblVehicleEF	OBUS	0.36	0.12
tblVehicleEF	OBUS	6.8200e-004	6.7900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	7.9900e-004	2.0400e-004
tblVehicleEF	OBUS	1.8300e-003	2.3790e-003

tblVehicleEF	OBUS	0.02	0.03
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tblVehicleEF	OBUS	8.3900e-004	1.0720e-003
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tblVehicleEF	OBUS	0.40	0.13
tblVehicleEF	SBUS	0.82	0.08
tblVehicleEF	SBUS	0.01	6.3720e-003
tblVehicleEF	SBUS	0.06	7.0630e-003
tblVehicleEF	SBUS	7.82	3.08
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tblVehicleEF	SBUS	6.53	0.94
tblVehicleEF	SBUS	1,137.52	365.13
tblVehicleEF	SBUS	1,098.11	1,104.50
tblVehicleEF	SBUS	54.55	6.09
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tblVehicleEF	SBUS	4.31	4.62
tblVehicleEF	SBUS	9.5680e-003	3.7440e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.2000e-005
tblVehicleEF	SBUS	9.1540e-003	3.5820e-003
tblVehicleEF	SBUS	2.6910e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	3.9000e-005
tblVehicleEF	SBUS	4.8460e-003	1.4040e-003
tblVehicleEF	SBUS	0.03	9.3180e-003

tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	2.2980e-003	6.7500e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.36	0.04
tblVehicleEF	SBUS	0.01	3.4880e-003
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tblVehicleEF	SBUS	6.5900e-004	6.0000e-005
tblVehicleEF	SBUS	4.8460e-003	1.4040e-003
tblVehicleEF	SBUS	0.03	9.3180e-003
tblVehicleEF	SBUS	1.33	0.52
tblVehicleEF	SBUS	2.2980e-003	6.7500e-004
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tblVehicleEF	SBUS	4.05	4.35
tblVehicleEF	SBUS	8.0660e-003	3.1630e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.2000e-005
tblVehicleEF	SBUS	7.7170e-003	3.0260e-003
tblVehicleEF	SBUS	2.6910e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	3.9000e-005
tblVehicleEF	SBUS	8.7430e-003	2.5310e-003
tblVehicleEF	SBUS	0.03	9.8380e-003
tblVehicleEF	SBUS	0.92	0.36
tblVehicleEF	SBUS	4.2770e-003	1.2510e-003
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.30	0.03
tblVehicleEF	SBUS	0.01	3.5790e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2900e-004	5.6000e-005
tblVehicleEF	SBUS	8.7430e-003	2.5310e-003
tblVehicleEF	SBUS	0.03	9.8380e-003
tblVehicleEF	SBUS	1.33	0.52
tblVehicleEF	SBUS	4.2770e-003	1.2510e-003
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.33	0.04
tblVehicleEF	SBUS	0.82	0.08
tblVehicleEF	SBUS	0.01	6.3640e-003
tblVehicleEF	SBUS	0.06	7.3130e-003

tblVehicleEF	SBUS	7.98	3.13
tblVehicleEF	SBUS	0.60	0.51
tblVehicleEF	SBUS	6.89	0.98
tblVehicleEF	SBUS	1,066.27	351.83
tblVehicleEF	SBUS	1,098.11	1,104.50
tblVehicleEF	SBUS	54.55	6.17
tblVehicleEF	SBUS	9.00	3.35
tblVehicleEF	SBUS	4.26	4.59
tblVehicleEF	SBUS	0.01	4.5460e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.7600e-004	4.2000e-005
tblVehicleEF	SBUS	0.01	4.3490e-003
tblVehicleEF	SBUS	2.6910e-003	2.6500e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.3700e-004	3.9000e-005
tblVehicleEF	SBUS	4.2260e-003	1.2200e-003
tblVehicleEF	SBUS	0.03	9.5110e-003
tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	2.2070e-003	6.5000e-004
tblVehicleEF	SBUS	0.10	0.09
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.3620e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6500e-004	6.1000e-005
tblVehicleEF	SBUS	4.2260e-003	1.2200e-003

tblVehicleEF	SBUS	0.03	9.5110e-003
tblVehicleEF	SBUS	1.34	0.52
tblVehicleEF	SBUS	2.2070e-003	6.5000e-004
tblVehicleEF	SBUS	0.12	0.11
tblVehicleEF	SBUS	0.02	0.07
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.44	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.89	26.06
tblVehicleEF	UBUS	14.42	1.47
tblVehicleEF	UBUS	1,799.80	1,617.41
tblVehicleEF	UBUS	153.89	18.02
tblVehicleEF	UBUS	4.15	0.32
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.9840e-003
tblVehicleEF	UBUS	1.4590e-003	1.6200e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.04	2.8400e-003
tblVehicleEF	UBUS	1.3420e-003	1.4900e-004
tblVehicleEF	UBUS	9.4280e-003	1.8880e-003
tblVehicleEF	UBUS	0.11	0.01
tblVehicleEF	UBUS	4.6810e-003	8.4400e-004
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	1.13	0.08

tblVehicleEF	UBUS	9.6700e-003	4.8660e-003
tblVehicleEF	UBUS	1.8000e-003	1.7800e-004
tblVehicleEF	UBUS	9.4280e-003	1.8880e-003
tblVehicleEF	UBUS	0.11	0.01
tblVehicleEF	UBUS	4.6810e-003	8.4400e-004
tblVehicleEF	UBUS	1.94	3.43
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	1.23	0.08
tblVehicleEF	UBUS	1.44	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.95	26.06
tblVehicleEF	UBUS	12.35	1.25
tblVehicleEF	UBUS	1,799.80	1,617.41
tblVehicleEF	UBUS	153.89	17.65
tblVehicleEF	UBUS	3.87	0.31
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.9840e-003
tblVehicleEF	UBUS	1.4590e-003	1.6200e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.04	2.8400e-003
tblVehicleEF	UBUS	1.3420e-003	1.4900e-004
tblVehicleEF	UBUS	0.02	3.3540e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	9.3920e-003	1.6790e-003
tblVehicleEF	UBUS	0.47	0.05

tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	1.03	0.07
tblVehicleEF	UBUS	9.6710e-003	4.8660e-003
tblVehicleEF	UBUS	1.7640e-003	1.7500e-004
tblVehicleEF	UBUS	0.02	3.3540e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	9.3920e-003	1.6790e-003
tblVehicleEF	UBUS	1.95	3.43
tblVehicleEF	UBUS	0.02	0.06
tblVehicleEF	UBUS	1.12	0.08
tblVehicleEF	UBUS	1.44	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	7.88	26.06
tblVehicleEF	UBUS	14.60	1.46
tblVehicleEF	UBUS	1,799.80	1,617.41
tblVehicleEF	UBUS	153.89	18.00
tblVehicleEF	UBUS	4.12	0.32
tblVehicleEF	UBUS	0.49	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.04	2.9840e-003
tblVehicleEF	UBUS	1.4590e-003	1.6200e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.04	2.8400e-003
tblVehicleEF	UBUS	1.3420e-003	1.4900e-004
tblVehicleEF	UBUS	8.6090e-003	1.9290e-003
tblVehicleEF	UBUS	0.13	0.01

tblVehicleEF	UBUS	4.2750e-003	8.8500e-004
tblVehicleEF	UBUS	0.46	0.05
tblVehicleEF	UBUS	0.03	0.07
tblVehicleEF	UBUS	1.13	0.08
tblVehicleEF	UBUS	9.6700e-003	4.8660e-003
tblVehicleEF	UBUS	1.8030e-003	1.7800e-004
tblVehicleEF	UBUS	8.6090e-003	1.9290e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	4.2750e-003	8.8500e-004
tblVehicleEF	UBUS	1.94	3.43
tblVehicleEF	UBUS	0.03	0.07
tblVehicleEF	UBUS	1.24	0.08
tblVehicleTrips	ST_TR	6.39	8.14
tblVehicleTrips	SU_TR	5.86	6.28
tblVehicleTrips	WD_TR	6.65	7.33
tblWoodstoves	NumberCatalytic	8.00	0.00
tblWoodstoves	NumberNoncatalytic	8.00	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					
2021	0.3334	4.4807	1.6544	7.0900e-003	1.1065	0.1485	1.2550	0.3847	0.1368	0.5215	0.0000	648.6916	648.6916	0.1283	0.0000	651.8981
2022	0.8769	3.1551	2.3080	6.8900e-003	0.2310	0.1189	0.3498	0.0620	0.1109	0.1729	0.0000	614.2786	614.2786	0.1057	0.0000	616.9216
Maximum	**0.8769**	**4.4807**	**2.3080**	**7.0900e-003**	**1.1065**	**0.1485**	**1.2550**	**0.3847**	**0.1368**	**0.5215**	**0.0000**	**648.6916**	**648.6916**	**0.1283**	**0.0000**	**651.8981**

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	0.3334	4.4807	1.6544	7.0900e-003	0.4872	0.1485	0.6357	0.1652	0.1368	0.3020	0.0000	648.6912	648.6912	0.1283	0.0000	651.8977
2022	0.8769	3.1551	2.3080	6.8900e-003	0.2310	0.1189	0.3498	0.0620	0.1109	0.1729	0.0000	614.2782	614.2782	0.1057	0.0000	616.9212
Maximum	**0.8769**	**4.4807**	**2.3080**	**7.0900e-003**	**0.4872**	**0.1485**	**0.6357**	**0.1652**	**0.1368**	**0.3020**	**0.0000**	**648.6912**	**648.6912**	**0.1283**	**0.0000**	**651.8977**

	ROG	NOx	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**	**46.30**	**0.00**	**38.59**	**49.14**	**0.00**	**31.61**	**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	5-1-2021	7-31-2021	1.8514	1.8514
2	8-1-2021	10-31-2021	1.7939	1.7939
3	11-1-2021	1-31-2022	1.5834	1.5834
4	2-1-2022	4-30-2022	1.2299	1.2299
5	5-1-2022	7-31-2022	1.2721	1.2721
6	8-1-2022	9-30-2022	1.1135	1.1135
		Highest	1.8514	1.8514

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	0.6995	0.0523	1.6713	3.0000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	41.1277	41.1277	3.3600e-003	7.0000e-004	41.4217
Energy	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	260.6088	260.6088	0.0102	3.3600e-003	261.8647
Mobile	0.5068	2.3901	4.9157	0.0172	1.5203	0.0220	1.5422	0.4070	0.0208	0.4278	0.0000	1,610.1845	1,610.1845	0.0606	0.0000	1,611.7006
Waste						0.0000	0.0000		0.0000	0.0000	14.9401	0.0000	14.9401	0.8829	0.0000	37.0136
Water						0.0000	0.0000		0.0000	0.0000	3.3073	55.8602	59.1675	0.3424	8.5900e-003	70.2878
Total	**1.2151**	**2.5172**	**6.6188**	**0.0180**	**1.5203**	**0.0399**	**1.5601**	**0.4070**	**0.0387**	**0.4456**	**18.2474**	**1,967.7811**	**1,986.0285**	**1.2996**	**0.0127**	**2,022.2883**

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	0.6995	0.0523	1.6713	3.0000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	41.1277	41.1277	3.3600e-003	7.0000e-004	41.4217
Energy	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	260.6088	260.6088	0.0102	3.3600e-003	261.8647
Mobile	0.5068	2.3901	4.9157	0.0172	1.5203	0.0220	1.5422	0.4070	0.0208	0.4278	0.0000	1,610.1845	1,610.1845	0.0606	0.0000	1,611.7006
Waste						0.0000	0.0000		0.0000	0.0000	14.9401	0.0000	14.9401	0.8829	0.0000	37.0136
Water						0.0000	0.0000		0.0000	0.0000	3.3073	55.8602	59.1675	0.3424	8.5900e-003	70.2878
Total	**1.2151**	**2.5172**	**6.6188**	**0.0180**	**1.5203**	**0.0399**	**1.5601**	**0.4070**	**0.0387**	**0.4456**	**18.2474**	**1,967.7811**	**1,986.0285**	**1.2996**	**0.0127**	**2,022.2883**

	ROG	NOx	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	5/1/2021	5/14/2021	5	10	
2	Grading	Grading	5/15/2021	12/22/2021	5	158	
3	Building Construction	Building Construction	12/23/2021	8/31/2022	5	180	
4	Paving	Paving	8/4/2022	8/31/2022	5	20	
5	Architectural Coating	Architectural Coating	8/4/2022	8/31/2022	5	20	

Acres of Grading (Site Preparation Phase): 50

Acres of Grading (Grading Phase): 790

Acres of Paving: 4.97

Residential Indoor: 324,000; Residential Outdoor: 108,000; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 12,990 (Architectural Coating – sqft)

OffRoad Equipment

Jefferson Avenue Apartment (Unmitigated) - Riverside-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	8.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	7,908.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	206.00	53.00	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	41.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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					0.1168	0.0000	0.1168	0.0525	0.0000	0.0525	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.3039	0.1093	2.8000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	25.0542	25.0542	8.1000e-003	0.0000	25.2568
Total	**0.0267**	**0.3039**	**0.1093**	**2.8000e-004**	**0.1168**	**0.0132**	**0.1301**	**0.0525**	**0.0122**	**0.0647**	**0.0000**	**25.0542**	**25.0542**	**8.1000e-003**	**0.0000**	**25.2568**

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	0.0000	0.0000	0.0000	0.0000	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	3.9000e-004	2.6000e-004	2.8300e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8000	0.8000	2.0000e-005	0.0000	0.8004
Total	**3.9000e-004**	**2.6000e-004**	**2.8300e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8000**	**0.8000**	**2.0000e-005**	**0.0000**	**0.8004**

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					0.0456	0.0000	0.0456	0.0205	0.0000	0.0205	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0267	0.3039	0.1093	2.8000e-004		0.0132	0.0132		0.0122	0.0122	0.0000	25.0542	25.0542	8.1000e-003	0.0000	25.2567
Total	**0.0267**	**0.3039**	**0.1093**	**2.8000e-004**	**0.0456**	**0.0132**	**0.0588**	**0.0205**	**0.0122**	**0.0327**	**0.0000**	**25.0542**	**25.0542**	**8.1000e-003**	**0.0000**	**25.2567**

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	0.0000	0.0000	0.0000	0.0000	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	3.9000e-004	2.6000e-004	2.8300e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8000	0.8000	2.0000e-005	0.0000	0.8004
Total	**3.9000e-004**	**2.6000e-004**	**2.8300e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8000**	**0.8000**	**2.0000e-005**	**0.0000**	**0.8004**

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					0.8984	0.0000	0.8984	0.3073	0.0000	0.3073	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2671	3.1563	1.2942	3.4700e-003		0.1273	0.1273		0.1171	0.1171	0.0000	304.6098	304.6098	0.0985	0.0000	307.0727
Total	**0.2671**	**3.1563**	**1.2942**	**3.4700e-003**	**0.8984**	**0.1273**	**1.0257**	**0.3073**	**0.1171**	**0.4244**	**0.0000**	**304.6098**	**304.6098**	**0.0985**	**0.0000**	**307.0727**

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	0.0197	0.8785	0.1211	2.9500e-003	0.0682	2.6300e-003	0.0708	0.0187	2.5200e-003	0.0212	0.0000	283.6966	283.6966	0.0173	0.0000	284.1297
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	5.0800e-003	3.4200e-003	0.0373	1.2000e-004	0.0130	8.0000e-005	0.0131	3.4600e-003	7.0000e-005	3.5300e-003	0.0000	10.5328	10.5328	2.5000e-004	0.0000	10.5390
Total	**0.0248**	**0.8820**	**0.1584**	**3.0700e-003**	**0.0812**	**2.7100e-003**	**0.0839**	**0.0222**	**2.5900e-003**	**0.0248**	**0.0000**	**294.2294**	**294.2294**	**0.0176**	**0.0000**	**294.6687**

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					0.3504	0.0000	0.3504	0.1199	0.0000	0.1199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2671	3.1563	1.2942	3.4700e-003		0.1273	0.1273		0.1171	0.1171	0.0000	304.6095	304.6095	0.0985	0.0000	307.0724
Total	**0.2671**	**3.1563**	**1.2942**	**3.4700e-003**	**0.3504**	**0.1273**	**0.4776**	**0.1199**	**0.1171**	**0.2369**	**0.0000**	**304.6095**	**304.6095**	**0.0985**	**0.0000**	**307.0724**

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	0.0197	0.8785	0.1211	2.9500e-003	0.0682	2.6300e-003	0.0708	0.0187	2.5200e-003	0.0212	0.0000	283.6966	283.6966	0.0173	0.0000	284.1297
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	5.0800e-003	3.4200e-003	0.0373	1.2000e-004	0.0130	8.0000e-005	0.0131	3.4600e-003	7.0000e-005	3.5300e-003	0.0000	10.5328	10.5328	2.5000e-004	0.0000	10.5390
Total	**0.0248**	**0.8820**	**0.1584**	**3.0700e-003**	**0.0812**	**2.7100e-003**	**0.0839**	**0.0222**	**2.5900e-003**	**0.0248**	**0.0000**	**294.2294**	**294.2294**	**0.0176**	**0.0000**	**294.6687**

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	0.0109	0.1189	0.0637	1.5000e-004		5.1700e-003	5.1700e-003		4.8200e-003	4.8200e-003	0.0000	13.0639	13.0639	3.5600e-003	0.0000	13.1529
Total	**0.0109**	**0.1189**	**0.0637**	**1.5000e-004**		**5.1700e-003**	**5.1700e-003**		**4.8200e-003**	**4.8200e-003**	**0.0000**	**13.0639**	**13.0639**	**3.5600e-003**	**0.0000**	**13.1529**

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	4.4000e-004	0.0173	3.3300e-003	5.0000e-005	1.1700e-003	3.0000e-005	1.2000e-003	3.4000e-004	3.0000e-005	3.7000e-004	0.0000	4.5257	4.5257	3.5000e-004	0.0000	4.5343
Worker	3.0900e-003	2.0800e-003	0.0227	7.0000e-005	7.9200e-003	5.0000e-005	7.9700e-003	2.1000e-003	4.0000e-005	2.1500e-003	0.0000	6.4086	6.4086	1.5000e-004	0.0000	6.4123
Total	**3.5300e-003**	**0.0194**	**0.0260**	**1.2000e-004**	**9.0900e-003**	**8.0000e-005**	**9.1700e-003**	**2.4400e-003**	**7.0000e-005**	**2.5200e-003**	**0.0000**	**10.9343**	**10.9343**	**5.0000e-004**	**0.0000**	**10.9466**

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	0.0109	0.1189	0.0637	1.5000e-004		5.1700e-003	5.1700e-003		4.8200e-003	4.8200e-003	0.0000	13.0639	13.0639	3.5600e-003	0.0000	13.1529
Total	**0.0109**	**0.1189**	**0.0637**	**1.5000e-004**		**5.1700e-003**	**5.1700e-003**		**4.8200e-003**	**4.8200e-003**	**0.0000**	**13.0639**	**13.0639**	**3.5600e-003**	**0.0000**	**13.1529**

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	4.4000e-004	0.0173	3.3300e-003	5.0000e-005	1.1700e-003	3.0000e-005	1.2000e-003	3.4000e-004	3.0000e-005	3.7000e-004	0.0000	4.5257	4.5257	3.5000e-004	0.0000	4.5343
Worker	3.0900e-003	2.0800e-003	0.0227	7.0000e-005	7.9200e-003	5.0000e-005	7.9700e-003	2.1000e-003	4.0000e-005	2.1500e-003	0.0000	6.4086	6.4086	1.5000e-004	0.0000	6.4123
Total	**3.5300e-003**	**0.0194**	**0.0260**	**1.2000e-004**	**9.0900e-003**	**8.0000e-005**	**9.1700e-003**	**2.4400e-003**	**7.0000e-005**	**2.5200e-003**	**0.0000**	**10.9343**	**10.9343**	**5.0000e-004**	**0.0000**	**10.9466**

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	0.2419	2.5746	1.5284	3.7200e-003		0.1102	0.1102		0.1029	0.1029	0.0000	322.5596	322.5596	0.0875	0.0000	324.7474
Total	**0.2419**	**2.5746**	**1.5284**	**3.7200e-003**		**0.1102**	**0.1102**		**0.1029**	**0.1029**	**0.0000**	**322.5596**	**322.5596**	**0.0875**	**0.0000**	**324.7474**

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	0.0102	0.4027	0.0766	1.1600e-003	0.0290	6.9000e-004	0.0296	8.3500e-003	6.6000e-004	9.0100e-003	0.0000	110.8874	110.8874	8.0800e-003	0.0000	111.0895
Worker	0.0716	0.0463	0.5168	1.6900e-003	0.1959	1.1400e-003	0.1970	0.0520	1.0500e-003	0.0531	0.0000	152.6039	152.6039	3.3200e-003	0.0000	152.6868
Total	**0.0818**	**0.4490**	**0.5934**	**2.8500e-003**	**0.2248**	**1.8300e-003**	**0.2266**	**0.0604**	**1.7100e-003**	**0.0621**	**0.0000**	**263.4913**	**263.4913**	**0.0114**	**0.0000**	**263.7763**

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	0.2419	2.5746	1.5284	3.7200e-003		0.1102	0.1102		0.1029	0.1029	0.0000	322.5592	322.5592	0.0875	0.0000	324.7470
Total	**0.2419**	**2.5746**	**1.5284**	**3.7200e-003**		**0.1102**	**0.1102**		**0.1029**	**0.1029**	**0.0000**	**322.5592**	**322.5592**	**0.0875**	**0.0000**	**324.7470**

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	0.0102	0.4027	0.0766	1.1600e-003	0.0290	6.9000e-004	0.0296	8.3500e-003	6.6000e-004	9.0100e-003	0.0000	110.8874	110.8874	8.0800e-003	0.0000	111.0895
Worker	0.0716	0.0463	0.5168	1.6900e-003	0.1959	1.1400e-003	0.1970	0.0520	1.0500e-003	0.0531	0.0000	152.6039	152.6039	3.3200e-003	0.0000	152.6868
Total	**0.0818**	**0.4490**	**0.5934**	**2.8500e-003**	**0.2248**	**1.8300e-003**	**0.2266**	**0.0604**	**1.7100e-003**	**0.0621**	**0.0000**	**263.4913**	**263.4913**	**0.0114**	**0.0000**	**263.7763**

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0276	20.0276	6.4800e-003	0.0000	20.1895
Paving	6.5100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0175**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0276**	**20.0276**	**6.4800e-003**	**0.0000**	**20.1895**

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	6.0000e-004	3.9000e-004	4.3500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2846	1.2846	3.0000e-005	0.0000	1.2853
Total	**6.0000e-004**	**3.9000e-004**	**4.3500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2846**	**1.2846**	**3.0000e-005**	**0.0000**	**1.2853**

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	0.0110	0.1113	0.1458	2.3000e-004		5.6800e-003	5.6800e-003		5.2200e-003	5.2200e-003	0.0000	20.0275	20.0275	6.4800e-003	0.0000	20.1895
Paving	6.5100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0175**	**0.1113**	**0.1458**	**2.3000e-004**		**5.6800e-003**	**5.6800e-003**		**5.2200e-003**	**5.2200e-003**	**0.0000**	**20.0275**	**20.0275**	**6.4800e-003**	**0.0000**	**20.1895**

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	6.0000e-004	3.9000e-004	4.3500e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.2846	1.2846	3.0000e-005	0.0000	1.2853
Total	**6.0000e-004**	**3.9000e-004**	**4.3500e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.2846**	**1.2846**	**3.0000e-005**	**0.0000**	**1.2853**

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	0.5307					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7300e-003	0.0188	0.0242	4.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	3.4043	3.4043	2.2000e-004	0.0000	3.4099
Total	**0.5334**	**0.0188**	**0.0242**	**4.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0900e-003**	**1.0900e-003**	**0.0000**	**3.4043**	**3.4043**	**2.2000e-004**	**0.0000**	**3.4099**

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	1.6500e-003	1.0700e-003	0.0119	4.0000e-005	4.5100e-003	3.0000e-005	4.5300e-003	1.2000e-003	2.0000e-005	1.2200e-003	0.0000	3.5113	3.5113	8.0000e-005	0.0000	3.5132
Total	**1.6500e-003**	**1.0700e-003**	**0.0119**	**4.0000e-005**	**4.5100e-003**	**3.0000e-005**	**4.5300e-003**	**1.2000e-003**	**2.0000e-005**	**1.2200e-003**	**0.0000**	**3.5113**	**3.5113**	**8.0000e-005**	**0.0000**	**3.5132**

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	0.5307					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7300e-003	0.0188	0.0242	4.0000e-005		1.0900e-003	1.0900e-003		1.0900e-003	1.0900e-003	0.0000	3.4043	3.4043	2.2000e-004	0.0000	3.4099
Total	**0.5334**	**0.0188**	**0.0242**	**4.0000e-005**		**1.0900e-003**	**1.0900e-003**		**1.0900e-003**	**1.0900e-003**	**0.0000**	**3.4043**	**3.4043**	**2.2000e-004**	**0.0000**	**3.4099**

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	1.6500e-003	1.0700e-003	0.0119	4.0000e-005	4.5100e-003	3.0000e-005	4.5300e-003	1.2000e-003	2.0000e-005	1.2200e-003	0.0000	3.5113	3.5113	8.0000e-005	0.0000	3.5132
Total	**1.6500e-003**	**1.0700e-003**	**0.0119**	**4.0000e-005**	**4.5100e-003**	**3.0000e-005**	**4.5300e-003**	**1.2000e-003**	**2.0000e-005**	**1.2200e-003**	**0.0000**	**3.5113**	**3.5113**	**8.0000e-005**	**0.0000**	**3.5132**

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	0.5068	2.3901	4.9157	0.0172	1.5203	0.0220	1.5422	0.4070	0.0208	0.4278	0.0000	1,610.1845	1,610.1845	0.0606	0.0000	1,611.7006
Unmitigated	0.5068	2.3901	4.9157	0.0172	1.5203	0.0220	1.5422	0.4070	0.0208	0.4278	0.0000	1,610.1845	1,610.1845	0.0606	0.0000	1,611.7006

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	1,172.00	1,302.40	1004.80	3,986,938	3,986,938
Other Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	1,172.00	1,302.40	1,004.80	3,986,938	3,986,938

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	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
Apartments Mid Rise	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
Other Asphalt Surfaces	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	173.9534	173.9534	8.5500e-003	1.7700e-003	174.6945
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	173.9534	173.9534	8.5500e-003	1.7700e-003	174.6945
NaturalGas Mitigated	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	86.6553	86.6553	1.6600e-003	1.5900e-003	87.1703
NaturalGas Unmitigated	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	86.6553	86.6553	1.6600e-003	1.5900e-003	87.1703

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.62386e+006	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	86.6553	86.6553	1.6600e-003	1.5900e-003	87.1703
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.7600e-003**	**0.0748**	**0.0318**	**4.8000e-004**		**6.0500e-003**	**6.0500e-003**		**6.0500e-003**	**6.0500e-003**	**0.0000**	**86.6553**	**86.6553**	**1.6600e-003**	**1.5900e-003**	**87.1703**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.62386e+006	8.7600e-003	0.0748	0.0318	4.8000e-004		6.0500e-003	6.0500e-003		6.0500e-003	6.0500e-003	0.0000	86.6553	86.6553	1.6600e-003	1.5900e-003	87.1703
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**8.7600e-003**	**0.0748**	**0.0318**	**4.8000e-004**		**6.0500e-003**	**6.0500e-003**		**6.0500e-003**	**6.0500e-003**	**0.0000**	**86.6553**	**86.6553**	**1.6600e-003**	**1.5900e-003**	**87.1703**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	602480	161.2163	7.9300e-003	1.6400e-003	161.9030
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	47600	12.7372	6.3000e-004	1.3000e-004	12.7914
Total		**173.9535**	**8.5600e-003**	**1.7700e-003**	**174.6945**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	602480	161.2163	7.9300e-003	1.6400e-003	161.9030
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	47600	12.7372	6.3000e-004	1.3000e-004	12.7914
Total		**173.9535**	**8.5600e-003**	**1.7700e-003**	**174.6945**

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	0.6995	0.0523	1.6713	3.0000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	41.1277	41.1277	3.3600e-003	7.0000e-004	41.4217
Unmitigated	0.6995	0.0523	1.6713	3.0000e-004		0.0118	0.0118		0.0118	0.0118	0.0000	41.1277	41.1277	3.3600e-003	7.0000e-004	41.4217

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0531					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5922					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.8800e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4219	38.4219	7.4000e-004	7.0000e-004	38.6503
Landscaping	0.0504	0.0191	1.6572	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.7057	2.7057	2.6300e-003	0.0000	2.7714
Total	**0.6995**	**0.0523**	**1.6713**	**3.0000e-004**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**41.1277**	**41.1277**	**3.3700e-003**	**7.0000e-004**	**41.4217**

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	0.0531					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5922					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.8800e-003	0.0332	0.0141	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003	0.0000	38.4219	38.4219	7.4000e-004	7.0000e-004	38.6503
Landscaping	0.0504	0.0191	1.6572	9.0000e-005		9.1500e-003	9.1500e-003		9.1500e-003	9.1500e-003	0.0000	2.7057	2.7057	2.6300e-003	0.0000	2.7714
Total	**0.6995**	**0.0523**	**1.6713**	**3.0000e-004**		**0.0118**	**0.0118**		**0.0118**	**0.0118**	**0.0000**	**41.1277**	**41.1277**	**3.3700e-003**	**7.0000e-004**	**41.4217**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	59.1675	0.3424	8.5900e-003	70.2878
Unmitigated	59.1675	0.3424	8.5900e-003	70.2878

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	10.4246 / 6.57206	59.1675	0.3424	8.5900e-003	70.2878
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**59.1675**	**0.3424**	**8.5900e-003**	**70.2878**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	10.4246 / 6.57206	59.1675	0.3424	8.5900e-003	70.2878
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**59.1675**	**0.3424**	**8.5900e-003**	**70.2878**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.9401	0.8829	0.0000	37.0136
Unmitigated	14.9401	0.8829	0.0000	37.0136

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	73.6	14.9401	0.8829	0.0000	37.0136
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**14.9401**	**0.8829**	**0.0000**	**37.0136**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	73.6	14.9401	0.8829	0.0000	37.0136
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**14.9401**	**0.8829**	**0.0000**	**37.0136**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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APPENDIX 4.2:

EMFAC2017 MODEL OUTPUTS

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: RIVERSIDE
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
RIVERSIDE	2021	HHDT	Aggregated	Aggregated	GAS	8.256088183	649.7325832	0.15635274	156.35274	553640.7845	649.7325832	3837906.057	6.93	HHDT
RIVERSIDE	2021	HHDT	Aggregated	Aggregated	DSL	27250.49208	3825933.398	548.6130704	548613.0704		3825933.398			
RIVERSIDE	2021	HHDT	Aggregated	Aggregated	NG	278.9618671	11322.92601	4.871361355	4871.361355		11322.92601			
RIVERSIDE	2021	LDA	Aggregated	Aggregated	GAS	750300.8612	29816029.44	959.9773206	959977.3206	965560.9616	29816029.44	30497458.72	31.59	LDA
RIVERSIDE	2021	LDA	Aggregated	Aggregated	DSL	6761.576428	284051.9489	5.583640967	5583.640967		284051.9489			
RIVERSIDE	2021	LDA	Aggregated	Aggregated	ELEC	10150.83139	397377.3325	0	0		397377.3325			
RIVERSIDE	2021	LDT1	Aggregated	Aggregated	GAS	80587.47931	3017205.799	114.6030537	114603.0537	114639.7103	3017205.799	3030847.153	26.44	LDT1
RIVERSIDE	2021	LDT1	Aggregated	Aggregated	DSL	42.61597748	937.3229162	0.036656565	36.65656499		937.3229162			
RIVERSIDE	2021	LDT1	Aggregated	Aggregated	ELEC	312.6717202	12704.03137	0	0		12704.03137			
RIVERSIDE	2021	LDT2	Aggregated	Aggregated	GAS	246596.5095	9631963.535	392.0360383	392036.0383	393578.008	9631963.535	9744734.894	24.76	LDT2
RIVERSIDE	2021	LDT2	Aggregated	Aggregated	DSL	1288.993364	58422.33846	1.541969714	1541.969714		58422.33846			
RIVERSIDE	2021	LDT2	Aggregated	Aggregated	ELEC	1692.169129	54349.02026	0	0		54349.02026			
RIVERSIDE	2021	LHDT1	Aggregated	Aggregated	GAS	20885.97436	692854.0522	65.01212921	65012.12921	98537.28051	692854.0522	1388805.699	14.09	LHDT1
RIVERSIDE	2021	LHDT1	Aggregated	Aggregated	DSL	19999.77791	695951.6473	33.5251513	33525.1513		695951.6473			
RIVERSIDE	2021	LHDT2	Aggregated	Aggregated	GAS	3292.646696	108726.4545	11.69203093	11692.03093	25761.96958	108726.4545	376440.2063	14.61	LHDT2
RIVERSIDE	2021	LHDT2	Aggregated	Aggregated	DSL	7676.540568	267713.7518	14.06993865	14069.93865		267713.7518			
RIVERSIDE	2021	MCY	Aggregated	Aggregated	GAS	35659.71718	267522.3909	6.987624248	6987.624248	6987.624248	267522.3909	267522.3909	38.29	MCY
RIVERSIDE	2021	MDV	Aggregated	Aggregated	GAS	208791.3729	7677992.855	389.092347	389092.347	395217.4272	7677992.855	7875321.205	19.93	MDV
RIVERSIDE	2021	MDV	Aggregated	Aggregated	DSL	3985.674779	171354.6461	6.125080214	6125.080214		171354.6461			
RIVERSIDE	2021	MDV	Aggregated	Aggregated	ELEC	787.1076762	25973.70389	0	0		25973.70389			
RIVERSIDE	2021	MH	Aggregated	Aggregated	GAS	6261.085587	50694.80757	9.933138973	9933.138973	11918.79395	50694.80757	72156.79568	6.05	MH
RIVERSIDE	2021	MH	Aggregated	Aggregated	DSL	2593.424644	21461.98811	1.985654976	1985.654976		21461.98811			
RIVERSIDE	2021	MHDT	Aggregated	Aggregated	GAS	1963.203703	103976.7898	20.22169968	20221.69968	109638.0089	103976.7898	1067044.901	9.73	MHDT
RIVERSIDE	2021	MHDT	Aggregated	Aggregated	DSL	15756.35982	963068.1107	89.41630921	89416.30921		963068.1107			
RIVERSIDE	2021	OBUS	Aggregated	Aggregated	GAS	589.4801253	27261.01125	5.36936518	5369.36518	8180.419843	27261.01125	52116.13959	6.37	OBUS
RIVERSIDE	2021	OBUS	Aggregated	Aggregated	DSL	347.9929903	24855.12833	2.811054663	2811.054663		24855.12833			
RIVERSIDE	2021	SBUS	Aggregated	Aggregated	GAS	475.4713498	19228.87737	2.150891371	2150.891371	6918.746382	19228.87737	55087.63668	7.96	SBUS
RIVERSIDE	2021	SBUS	Aggregated	Aggregated	DSL	1131.955947	35858.75931	4.767855011	4767.855011		35858.75931			
RIVERSIDE	2021	UBUS	Aggregated	Aggregated	GAS	163.4848401	23017.81637	3.736316018	3736.316018	13112.25473	23017.81637	65327.65273	4.98	UBUS
RIVERSIDE	2021	UBUS	Aggregated	Aggregated	DSL	1.105797941	58.57190354	0.006566346	6.56634569		58.57190354			
RIVERSIDE	2021	UBUS	Aggregated	Aggregated	ELEC	5.058469431	271.5303965	0	0		271.5303965			
RIVERSIDE	2021	UBUS	Aggregated	Aggregated	NG	306.621625	41979.73406	9.369372368	9369.372368		41979.73406			

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: RIVERSIDE
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Fuel_Consumption	Fuel_Consumption	Total Fuel	VMT	Total VMT	Miles per Gallon	Vehicle Class
RIVERSIDE	2022	HHDT	Aggregated	Aggregated	GAS	7.255051716	664.5948944	0.153526957	153.5269575	551883.0316	664.5948944	3918090.953	7.10	HHDT
RIVERSIDE	2022	HHDT	Aggregated	Aggregated	DSL	27819.82011	3904544.33	546.282737	546282.737		3904544.33			
RIVERSIDE	2022	HHDT	Aggregated	Aggregated	NG	316.9853667	12882.0286	5.446767633	5446.767633		12882.0286			
RIVERSIDE	2022	LDA	Aggregated	Aggregated	GAS	772785.866	30295680.28	950.2947165	950294.7165	956074.6572	30295680.28	31104496.06	32.53	LDA
RIVERSIDE	2022	LDA	Aggregated	Aggregated	DSL	7300.590587	301308.548	5.779940701	5779.940701		301308.548			
RIVERSIDE	2022	LDA	Aggregated	Aggregated	ELEC	12758.74743	507507.2353	0	0		507507.2353			
RIVERSIDE	2022	LDT1	Aggregated	Aggregated	GAS	82772.07046	3076687.964	113.8535898	113853.5898	113886.9867	3076687.964	3097672.244	27.20	LDT1
RIVERSIDE	2022	LDT1	Aggregated	Aggregated	DSL	39.17987902	864.4773595	0.033396863	33.39686287		864.4773595			
RIVERSIDE	2022	LDT1	Aggregated	Aggregated	ELEC	485.0753078	20119.80263	0	0		20119.80263			
RIVERSIDE	2022	LDT2	Aggregated	Aggregated	GAS	252998.013	9768781.977	384.1060904	384106.0904	385765.5036	9768781.977	9906416.269	25.68	LDT2
RIVERSIDE	2022	LDT2	Aggregated	Aggregated	DSL	1463.534782	64682.45233	1.659413246	1659.413246		64682.45233			
RIVERSIDE	2022	LDT2	Aggregated	Aggregated	ELEC	2319.019739	72951.84037	0	0		72951.84037			
RIVERSIDE	2022	LHDT1	Aggregated	Aggregated	GAS	20620.88251	680334.7046	63.19981722	63199.81722	96090.00978	680334.7046	1371393.63	14.27	LHDT1
RIVERSIDE	2022	LHDT1	Aggregated	Aggregated	DSL	20161.77202	691058.9252	32.89019256	32890.19256		691058.9252			
RIVERSIDE	2022	LHDT2	Aggregated	Aggregated	GAS	3286.375404	107419.4478	11.44267416	11442.67416	25303.82051	107419.4478	374281.6414	14.79	LHDT2
RIVERSIDE	2022	LHDT2	Aggregated	Aggregated	DSL	7795.76126	266862.1937	13.86114635	13861.14635		266862.1937			
RIVERSIDE	2022	MCY	Aggregated	Aggregated	GAS	36240.6615	267199.3063	6.981836229	6981.836229	6981.836229	267199.3063	267199.3063	38.27	MCY
RIVERSIDE	2022	MDV	Aggregated	Aggregated	GAS	208995.205	7586687.895	373.0302077	373030.2077	379343.7253	7586687.895	7808952.293	20.59	MDV
RIVERSIDE	2022	MDV	Aggregated	Aggregated	DSL	4324.736187	181512.7606	6.313517611	6313.517611		181512.7606			
RIVERSIDE	2022	MDV	Aggregated	Aggregated	ELEC	1262.694008	40751.63814	0	0		40751.63814			
RIVERSIDE	2022	MH	Aggregated	Aggregated	GAS	6006.899407	48243.06745	9.356650581	9356.650581	11275.46068	48243.06745	69133.58244	6.13	MH
RIVERSIDE	2022	MH	Aggregated	Aggregated	DSL	2591.605795	20890.51499	1.918810096	1918.810096		20890.51499			
RIVERSIDE	2022	MHDT	Aggregated	Aggregated	GAS	2027.159212	107896.4899	20.67464454	20674.64454	108170.6844	107896.4899	1082516.825	10.01	MHDT
RIVERSIDE	2022	MHDT	Aggregated	Aggregated	DSL	15610.0447	974620.3351	87.4960399	87496.0399		974620.3351			
RIVERSIDE	2022	OBUS	Aggregated	Aggregated	GAS	588.3426118	26677.78704	5.181782563	5181.782563	8000.723523	26677.78704	52401.56366	6.55	OBUS
RIVERSIDE	2022	OBUS	Aggregated	Aggregated	DSL	351.6438765	25723.77662	2.818940959	2818.940959		25723.77662			
RIVERSIDE	2022	SBUS	Aggregated	Aggregated	GAS	490.8817654	19662.47585	2.188356834	2188.356834	6997.25334	19662.47585	56211.13603	8.03	SBUS
RIVERSIDE	2022	SBUS	Aggregated	Aggregated	DSL	1154.012525	36548.66018	4.808896505	4808.896505		36548.66018			
RIVERSIDE	2022	UBUS	Aggregated	Aggregated	GAS	164.4551683	23154.43353	3.756059553	3756.059553	13187.75228	23154.43353	65715.39058	4.98	UBUS
RIVERSIDE	2022	UBUS	Aggregated	Aggregated	DSL	1.105797941	58.57190354	0.006566346	6.56634569		58.57190354			
RIVERSIDE	2022	UBUS	Aggregated	Aggregated	ELEC	5.058469431	271.5303965	0	0		271.5303965			
RIVERSIDE	2022	UBUS	Aggregated	Aggregated	NG	308.4780966	42230.85475	9.425126379	9425.126379		42230.85475			

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