



Energy Assessment for East Avenue Homes, City of Rancho Cucamonga

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1.0 INTRODUCTION

1.1 Project Description

The proposed project consists of 17 single family homes on 10.05 gross acres. The project also includes a 0.46 acre Water Quality/Community Park plus Natural Open Space. The project site is bordered on the west by East Avenue and is approximately 0.32 miles north of the Foothill Freeway. A vicinity map is presented as Exhibit 1 and a site plan is presented as Exhibit 2. Existing residential areas are nearby on all sides of the project.

This report focuses on the potential energy consumption associated with the construction and operation of this project. Consistency of the project with energy regulations is also evaluated.

2.0 REGULATORY REQUIREMENTS

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 are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

2.1 CEQA Requirements

Appendix F - Energy Conservation of the CEQA Guidelines identifies the EIR Contents for an energy assessment. The following items should be included; Project Description, Environmental Setting, Environmental Impacts, and Mitigation Measure, if necessary.

The Energy Section of the CEQA checklist consists of the following two questions.

- a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*
- b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

Exhibit 1 - Vicinity Map

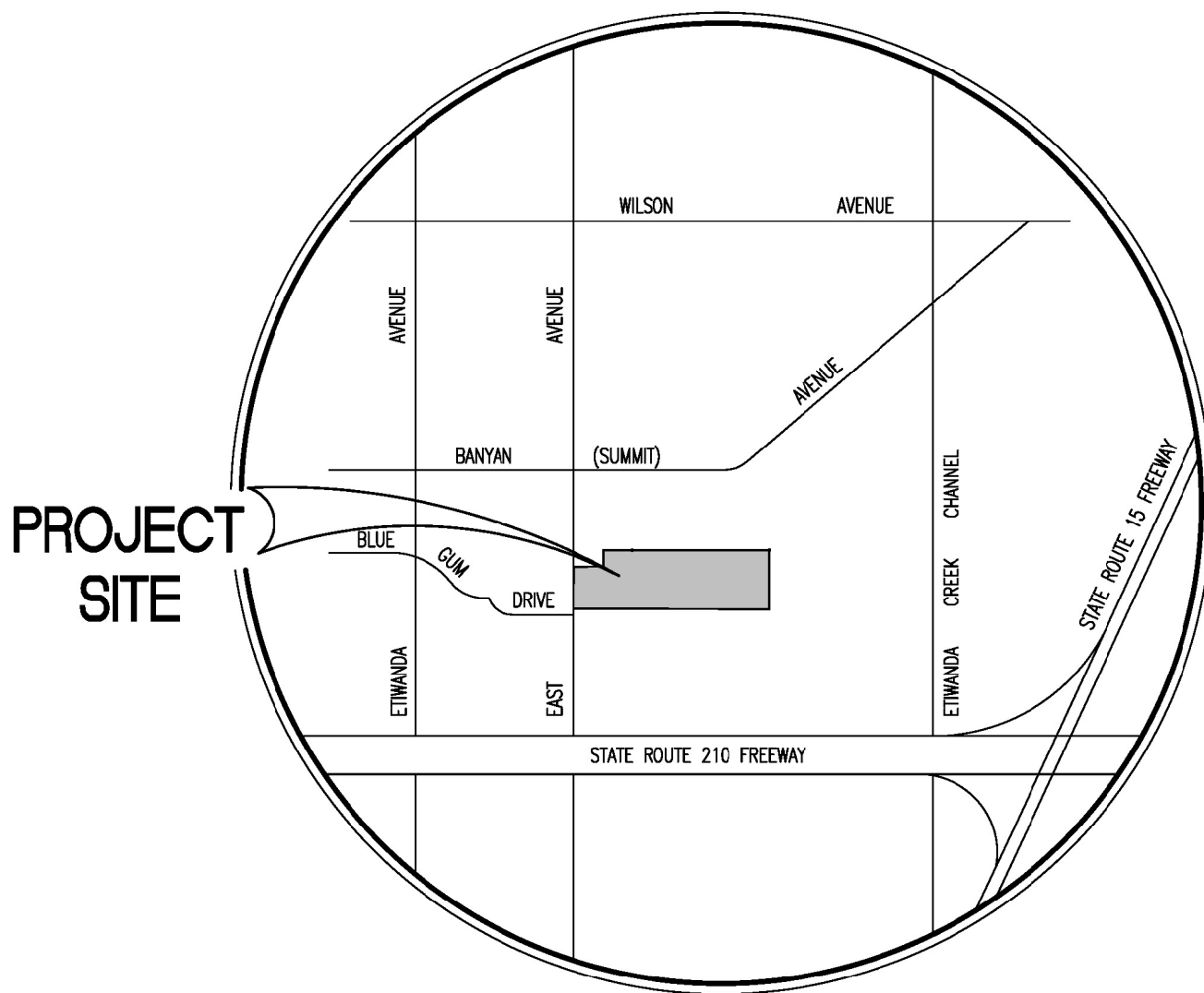
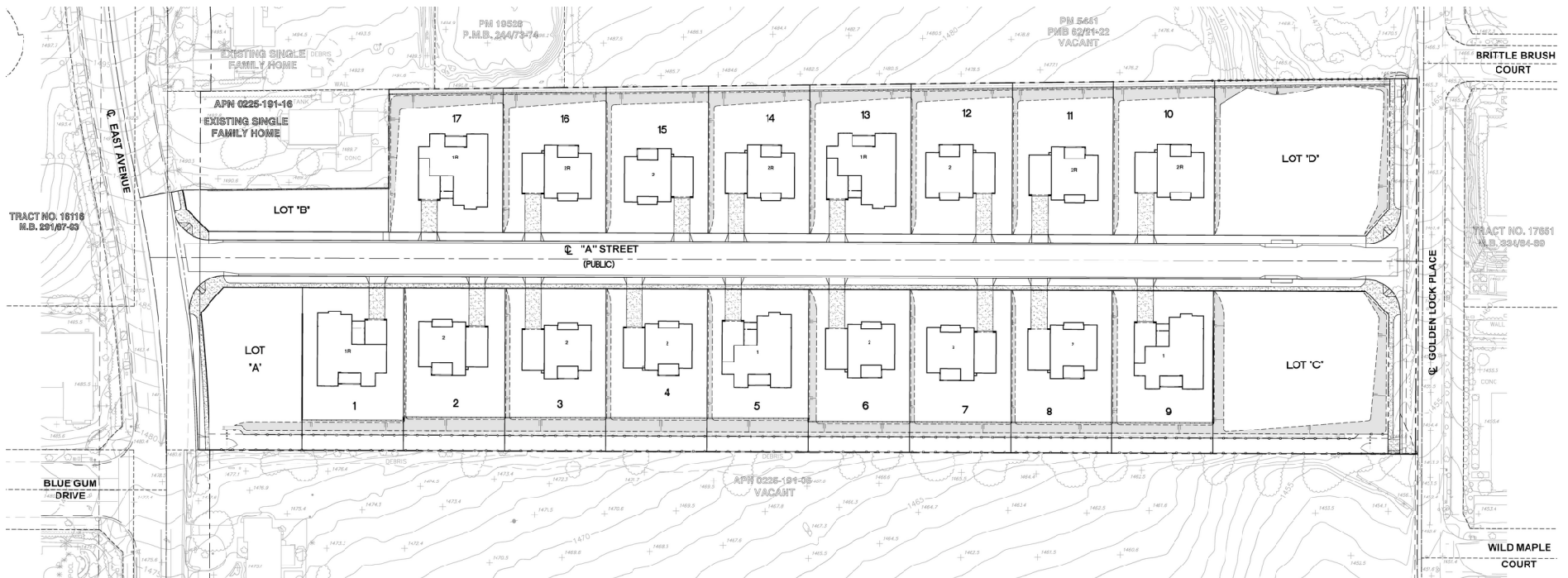


Exhibit 2 - Site Plan



2.2 City of Rancho Cucamonga Requirements

In April 2017, the “Rancho Cucamonga Community Sustainable Community Action Plan” was adopted. It identifies future goals for sustainability in Ranch Cucamonga. It provides general goals to reduce greenhouse gas emissions, reduce resource consumption (e.g., water, energy, and fuel), protection of habitat and biological resources, and improve air quality. For energy conservation the plan relies heavily on California laws and regulations including the California Building Codes with the 2016 updates. The document also establishes EE Policy 1 to “Reduce energy demand by improved efficiency and building design.” This would be implemented primarily by adding energy efficiency standards to the Rancho Cucamonga Municipal Code. According to the document, the strategy might include adoption of a green building ordinance that exceeds Title 24 building standards by achieving at least Tier 1 voluntary standards within CalGreen2 for all new residential and nonresidential buildings. As of this time, the City has not modified the municipal code with more stringent energy standards. The proposed development is consistent with current Rancho Cucamonga requirements.

2.3 California Regulations

Integrated Energy Policy Report. Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the California Energy Commission 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 2017 Integrated Energy Policy Report (2017 IEPR) was published in April 2018, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2017 IEPR focuses on a variety of topics such as including the environmental performance of the electricity generation system, landscape-scale planning, 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. Electricity would be provided to the project by Southern California Edison (SCE). SCE’s Clean Power and Electrification Pathway (CPEP) white paper builds on existing state programs and policies. The project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the IEPR.

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 a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access. The project site is located near major transportation corridors with proximate access to the Interstate freeway system. The project supports urban design and planning processes identified under the State of California Energy Plan, is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

California Code Title 24, Part 6, Energy Efficiency Standards. California Code Title 24, Part 6 (also referred to as the California Energy Code), was promulgated by the CEC in 1978 in response to a legislative mandate to create uniform building codes to reduce California's energy consumption. To these ends, the California Energy Code provides energy efficiency standards for residential and nonresidential buildings. According to the CEC, the Energy Commission's energy efficiency standards have saved Californians billions in reduced electricity bills since 1977.

The newest 2016 version of Title 24 was adopted by the California Energy Commission (CEC) and became effective on January 1, 2017. The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24.

The project would be designed, constructed and operated in a manner consistent with the Title 24 Energy Standards. Compliance with the energy standards is enforced by the City of Rancho Cucamonga. On this basis, the project is determined to be consistent with, and would not interfere with, nor otherwise obstruct implementation of Title 24 Energy Efficiency Standards.

2.4 Federal Regulations

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). The Intermodal Surface Transportation Efficiency Act of 1991 (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.

The Transportation Equity Act for the 21st Century (TEA-21). The Transportation Equity Act for the 21st Century (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. 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.

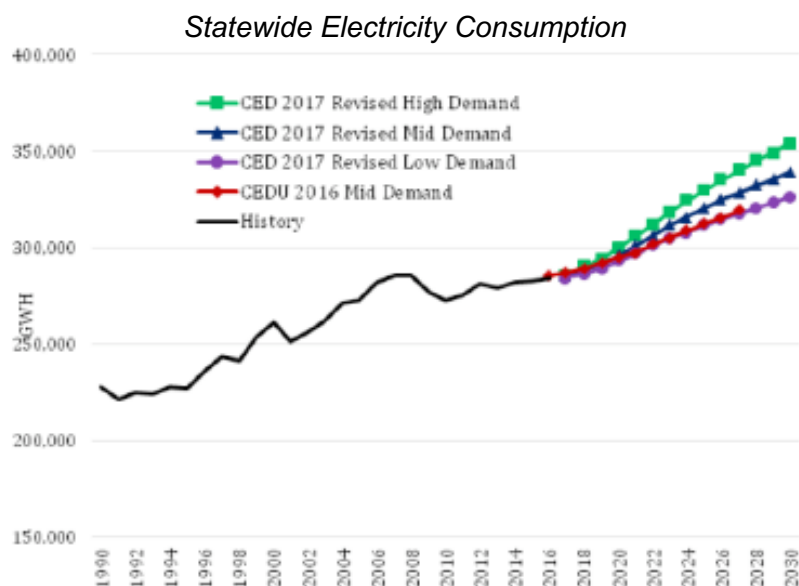
The project was evaluated in light of the Rancho Cucamonga Sustainability Plan, the California Integrated Energy Project, the California Energy Plan, the California Energy Efficiency Standards, the Federal Intermodal Surface Transportation Efficiency Act, and the Federal The Transportation Equity Act for the 21st Century. The project will comply with all State and Federal regulations as well as, being consistent with the City's Sustainability Plan. Therefore, the response to the second CEQA Checklist question would be "No Impact" because the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency?"

3.0 ENVIRONMENTAL SETTING

3.1 Electric Consumption

The California Energy Commission provides full forecasts for electricity and natural gas demand every two years as part of the Integrated Energy Policy Report (IEPR) process. The forecast includes three demand cases designed to capture a reasonable range of demand outcomes over the next 10 years. The high energy demand case incorporates relatively high economic/demographic growth, relatively low electricity and natural gas rates, and relatively low committed efficiency program, self-generation, and climate change impacts. The low energy demand case includes lower economic/demographic growth, higher assumed rates, and higher committed efficiency program and self-generation impacts. The mid case uses input assumptions at levels between the high and low cases. The forecasts include estimates of the effects of new legislation and trends in electric consumption such as the use of zero-emission automobiles. Additionally, the Title 24 building standards updates expected in 2019 will include requirements for photovoltaic installations for new homes as a contributor toward the state's zero-net-energy goals, and is included in the forecasts.

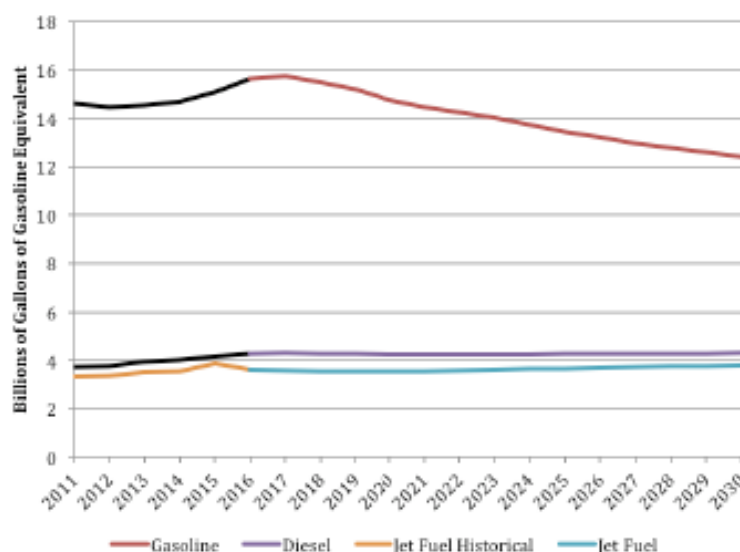
The figure below, taken from the 2017 IEPR, shows the electric consumption from 1990 to current with forecasts through 2030. The graphic shows relatively stable consumption rates from 2005 through 2018, with an increase in consumption beginning in 2020.



3.2 Transportation Energy

California is home to 30 million registered cars, trucks, buses, and other motorized on-road vehicles. The state's history has been, in part, a history of the automobile and the associated impacts on personal mobility, land-use planning, and air quality. In recognition of these challenges, California has enacted a suite of policies and goals to shift the transportation sector toward cleaner, sustainable fuels and more efficient technology vehicles.

The figure below, taken from the 2017 IEPR, shows the fuel demand forecast from 2011 for gasoline, diesel, and jet fuel. Forecasts are presented from current conditions to 2030. The graphic shows very stable consumption rates for jet fuel and diesel. Gasoline consumption is forecasted to decline starting in 2018 through 2030. The demand for gasoline is expected to wane over time, primarily due to increases in fuel efficiency and electrification.

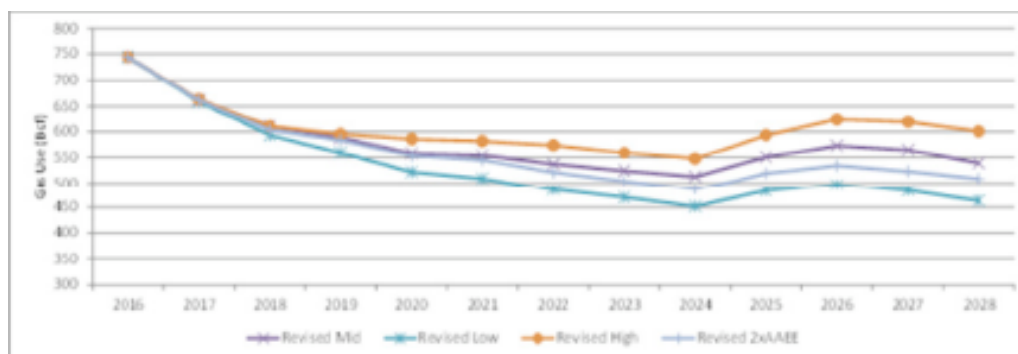
Revised Conventional Fuel Demand Forecast (Mid Case)

3.3 Natural Gas

Natural gas is a large and important energy source for California. It provides energy to heat homes, cook food, and generate electricity. Some portion of this will likely remain so even as California moves away from fossil fuels to meet climate goals. Currently in California, natural gas serves more than 10.5 million homes, about 445,000 businesses, about 37,000 factories and industrial consumers, and more than 640 electric generating units.

The greatest consumers of natural gas in decreasing order of usage are electric power generation, residential, industrial, mining, commercial, and other. In California since 1990, natural gas demand has remained relatively flat in all but the electric power sector which has steadily increased. This is despite adding 9.2 million additional residents, a 31 percent population growth.

The figure below, taken from the 2017 IEPR, generally show a decreasing reliance on natural gas. The results show that, with the implementation of increased preferred resources and energy efficiency, natural gas generation decreases between 2017 and 2024. The CEC accounts for the increased gas generation between 2024 and 2026 by pointing to the expiration of long-term power supply contracts (purchase agreements) with coal facilities outside California.

California Annual Natural Gas Use for Power Generation

3.4 Local Suppliers of Energy

Southern California Edison (SCE) is the electrical utility provider for the City of Rancho Cucamonga. SCE provides electrical power to homes and businesses, in addition to providing information on energy efficiency, rotating outages, emergency preparedness, electrical safety tips, and tree planting guidelines to ensure non-interference with electrical utility lines.

Southern California Gas Company (The Gas Company) is the provider of natural gas to those residing or operating a business in the City of Rancho Cucamonga. The Gas Company also provides customers with appliance services, an energy efficiency and rebate program, and information on emergency preparedness and air quality.

4.0 PROJECT ENERGY DEMANDS

4.1 Construction Energy Demands

The focus of this section is the energy usage during construction. Electrical energy during construction, fuel consumed by construction equipment, and fuel consumed by employees and vendors are considered.

Power cost from on-site electricity consumption during construction of the proposed project is based on the 2017 National Construction Estimator, Richard Pray (2017). The typical power cost per 1,000 square feet of building construction per month is estimated to be \$2.32. The proposed project consists of the construction 30,600 square feet of residences over the course of approximately 10 months. The total electricity usage from on-site project construction related activities is estimated to be approximately 10,142 kWh. (Spreadsheet provided in Appendix.)

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 were determined by the CalEEMod model (refer to the Air Quality Assessment for the Project). The aggregate fuel consumption rate for all equipment is

estimated at 18.5 hp-hr-gal., obtained from California Air Resources Board (ARB) Emissions Factors Tables. 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 County and region. The project construction activities would consume an estimated 55,043 gallons of diesel fuel. (Spreadsheet provided in Appendix.)

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 158,760 VMT per the CalEEMod modeling. Vehicle fuel efficiencies for LDA were estimated using information generated within the 2017 version of the Emissions Factor model (EMFAC) developed by the Air Resources Board (ARB). EMFAC 2017 is a computer 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. EMFAC 2017 was run for the LDA vehicle class within the California sub-area. As generated by EMFAC 2017, an aggregated fuel economy of LDAs is estimated to have a fuel efficiency of 29.32 miles per gallon (mpg). Therefore, it is estimated that 5,415 gallons of fuel will be consumed related to construction worker trips during full construction of the proposed project.

A similar approach was used to estimate diesel fuel usage for medium-heavy duty trucks and heavy-heavy duty trucks involved in vendor trips during construction. Fuel consumption from construction vendor trips (medium and heavy-duty trucks) will total approximately 2,755 gallons. (Spreadsheets provided in Appendix.)

4.2 Operational Energy Demands

Energy consumption related to the project operations would include fuel usage by vehicles associated with the project, natural gas consumption used for water and space heating, and electric consumption used for lighting and appliances.

CalEEMod provides an estimate of VMT. The project would generate an estimated 557,249 annual VMT along area roadways for all passenger cars. As generated by EMFAC2017, an aggregated fuel economy for automobiles is estimated to have a fuel usage of 29.32 mpg. Therefore, it is estimated that 19,006 gallons of gasoline will be consumed from project generated vehicular trips. (Spreadsheets provided in the Appendix.)

Residents would consume natural gas and electricity. Natural gas would be supplied to the project by Southern California Gas; electricity would be supplied to the project by Southern California Edison. Annual natural gas usage is estimated by CalEEMod and projected to be 1,425 kBtu per year. Electricity demands of the project are based on historical data for Rancho Cucamonga with a total projection of 113,746 kWh per year. (Spreadsheets provided in the Appendix.)

4.3 Summary of Energy Usage

The energy usage for the project is summarized in Table 1. Both energy usage during construction and operation of the project is shown.

Table 1 Summary of Energy Usage

Construction (Total Energy Used)

Electricity	10,142	kWh
Construction Equipment	55,043	Gallons of diesel fuel
Vendor Trips	2,755	Gallons of diesel fuel
Total Diesel Fuel	57,798	Gallons of diesel fuel
Worker Trips	5,415	Gallons of gasoline

Operational (Annual Energy Consumption)

Vehicular Travel	19,006	Gallons of gasoline
Electricity	113,746	kWh
Natural Gas	1,425	kBTU

4.4 CEQA Checklist Questions

The following are suggested responses to the energy related CEQA Checklist questions.

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

The project would not be wasteful, inefficient, or unnecessarily consume energy resources during construction or operation. The project would comply with all state, federal, and city regulations which control the use of energy consumption. The project will comply with the latest building code which includes energy conservation measures.

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

The project is consistent with state and local energy plans, and therefore, would not obstruct plans for energy efficiency.

5.0 MITIGATION MEASURES

No impacts are identified and mitigation measures will not be needed.

6.0 UNAVOIDABLE SIGNIFICANT IMPACTS

Impacts will be less than significant.

7.0 REFERENCES

"California Emissions Estimator Model (CalEEMod)," online at <http://www.caleemod.com>

"CEQA, The California Environmental Quality Act, Appendix F, Energy Conservation,"
http://resources.ca.gov/ceqa/guidelines/Appendix_F.html

"Integrated Energy Policy Report Update," California Energy Commission Staff, 2017.

"Rancho Cucamonga Sustainable Community Action Plan," City of Rancho Cucamonga, April 2017.

"Title 24, Part 6, of the California Code of Regulations. California's Energy Efficiency Standards for Residential and Nonresidential Buildings," State of California
<http://www.energy.ca.gov/title24/>.

APPENDIX

Manning - East Avenue Homes - South Coast AQMD Air District, Winter

Manning - East Avenue Homes
South Coast AQMD Air District, Winter

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	17.00	Dwelling Unit	8.70	30,600.00	49.0
Parking Lot	0.93	Acre	0.93	40,510.80	0.0
City Park	0.42	Acre	0.42	18,295.20	0.0
	0.00		0.00	0.00	0.0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31.0
Climate Zone	10.0			Operational Year	2022.0
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.4	CH4 Intensity (lb/MW hr)	0.0	N2O Intensity (lb/MW hr)	0.0

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Acreages adjusted for actual site plan.

Construction Phase - No demolition.

Woodstoves - Only natural gas fireplaces.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
------------	-------------	---------------	-----------

tblFireplaces	NumberGas	14.45	17.00
tblFireplaces	NumberNoFireplace	1.70	0.00
tblFireplaces	NumberWood	0.85	0.00
tblLandUse	LotAcreage	5.52	8.70
tblWoodstoves	NumberCatalytic	0.85	0.00
tblWoodstoves	NumberNoncatalytic	0.85	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.5488	50.2641	32.6945	0.0642	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,219.9383	6,219.9383	1.9486	0.0000	6,268.6522
2021	2.0761	18.5708	17.9033	0.0329	0.4169	0.9634	1.3803	0.1122	0.9057	1.0179	0.0000	3,165.4262	3,165.4262	0.6441	0.0000	3,181.5284
2022	10.3675	16.6914	17.5955	0.0327	0.4169	0.8134	1.2303	0.1122	0.7653	0.8774	0.0000	3,152.2936	3,152.2936	0.7178	0.0000	3,168.2547
Maximum	10.3675	50.2641	32.6945	0.0642	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	6,219.9383	6,219.9383	1.9486	0.0000	6,268.6522

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	lb/day										lb/day					

2020	4.5488	50.2641	32.6945	0.0642	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,219.9383	6,219.9383	1.9486	0.0000	6,268.6522
2021	2.0761	18.5708	17.9033	0.0329	0.4169	0.9634	1.3803	0.1122	0.9057	1.0179	0.0000	3,165.4262	3,165.4262	0.6441	0.0000	3,181.5284
2022	10.3675	16.6914	17.5955	0.0327	0.4169	0.8134	1.2303	0.1122	0.7653	0.8774	0.0000	3,152.2936	3,152.2936	0.7178	0.0000	3,168.2547
Maximum	10.3675	50.2641	32.6945	0.0642	7.2470	2.1989	9.4460	3.9263	2.0230	5.9494	0.0000	6,219.9383	6,219.9383	1.9486	0.0000	6,268.6522

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	57.69	0.00	47.76	59.34	0.00	43.57	0.00	0.00	0.00	0.00	0.00	0.00

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	lb/day										lb/day					
Area	0.7521	0.2982	1.5242	1.8700e-003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e-003	6.6000e-003	364.7259
Energy	0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464
Mobile	0.2934	1.6094	3.8413	0.0148	1.2826	0.0119	1.2945	0.3432	0.0111	0.3543		1,506.9993	1,506.9993	0.0732		1,508.8296
Total	1.0609	2.0389	5.4213	0.0175	1.2826	0.0531	1.3357	0.3432	0.0523	0.3955	0.0000	2,037.1751	2,037.1751	0.0858	9.6700e-003	2,042.2019

Mitigated Operational

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

Area	0.7521	0.2982	1.5242	1.8700e-003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e-003	6.6000e-003	364.7259
Energy	0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464
Mobile	0.2934	1.6094	3.8413	0.0148	1.2826	0.0119	1.2945	0.3432	0.0111	0.3543		1,506.9993	1,506.9993	0.0732		1,508.8296
Total	1.0609	2.0389	5.4213	0.0175	1.2826	0.0531	1.3357	0.3432	0.0523	0.3955	0.0000	2,037.1751	2,037.1751	0.0858	9.6700e-003	2,042.2019

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1.0	Demolition	Demolition	9/1/2020	9/28/2020	5.0	20.0	
2.0	Site Preparation	Site Preparation	9/29/2020	10/12/2020	5.0	10.0	
3.0	Grading	Grading	10/13/2020	11/23/2020	5.0	30.0	
4.0	Building Construction	Building Construction	11/24/2020	1/17/2022	5.0	300.0	
5.0	Paving	Paving	1/18/2022	2/14/2022	5.0	20.0	
6.0	Architectural Coating	Architectural Coating	2/15/2022	3/14/2022	5.0	20.0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0.93

Residential Indoor: 61,965; Residential Outdoor: 20,655; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 2,431

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1.0	6.00	78.0	0.48
Demolition	Excavators	3.0	8.00	158.0	0.38
Demolition	Concrete/Industrial Saws	1.0	8.00	81.0	0.73

Grading	Excavators	2.0	8.00	158.0	0.38
Building Construction	Cranes	1.0	7.00	231.0	0.29
Building Construction	Forklifts	3.0	8.00	89.0	0.20
Building Construction	Generator Sets	1.0	8.00	84.0	0.74
Paving	Pavers	2.0	8.00	130.0	0.42
Paving	Rollers	2.0	8.00	80.0	0.38
Demolition	Rubber Tired Dozers	2.0	8.00	247.0	0.40
Grading	Rubber Tired Dozers	1.0	8.00	247.0	0.40
Building Construction	Tractors/Loaders/Backhoes	3.0	7.00	97.0	0.37
Grading	Graders	1.0	8.00	187.0	0.41
Grading	Tractors/Loaders/Backhoes	2.0	8.00	97.0	0.37
Paving	Paving Equipment	2.0	8.00	132.0	0.36
Site Preparation	Tractors/Loaders/Backhoes	4.0	8.00	97.0	0.37
Site Preparation	Rubber Tired Dozers	3.0	8.00	247.0	0.40
Grading	Scrapers	2.0	8.00	367.0	0.48
Building Construction	Welders	1.0	8.00	46.0	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6.0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7.0	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8.0	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9.0	31.00	11.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6.0	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1.0	6.00	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 Demolition - 2020

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	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536

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	lb/day										lb/day					
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
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
Worker	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699

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	lb/day										lb/day					

Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

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	lb/day										lb/day					
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
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
Worker	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699

3.3 Site Preparation - 2020

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	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

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	lb/day										lb/day					
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
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
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

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	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	7.0458	2.1974	9.2433	3.8730	2.0216	5.8946	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

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	lb/day										lb/day					

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
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
Worker	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

3.4 Grading - 2020

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	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	8.6733	2.1739	10.8472	3.5965	2.0000	5.5965		6,005.8653	6,005.8653	1.9424		6,054.4257

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	lb/day										lb/day					
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
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
Worker	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265
Total	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265

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	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	4.4501	50.1975	31.9583	0.0620	3.3826	2.1739	5.5565	1.4026	2.0000	3.4026	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257

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	lb/day										lb/day					
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
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
Worker	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265
Total	0.0987	0.0666	0.7362	2.1500e-003	0.2236	1.7000e-003	0.2253	0.0593	1.5600e-003	0.0609		214.0730	214.0730	6.1400e-003		214.2265

3.5 Building Construction - 2020

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
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Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345

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	lb/day										lb/day					
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
Vendor	0.0378	1.1531	0.3064	2.7500e-003	0.0704	5.8000e-003	0.0762	0.0203	5.5500e-003	0.0258		293.1641	293.1641	0.0204		293.6730
Worker	0.1530	0.1032	1.1411	3.3300e-003	0.3465	2.6300e-003	0.3491	0.0919	2.4200e-003	0.0943		331.8131	331.8131	9.5200e-003		332.0510
Total	0.1908	1.2563	1.4475	6.0800e-003	0.4169	8.4300e-003	0.4254	0.1122	7.9700e-003	0.1201		624.9772	624.9772	0.0299		625.7240

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	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345

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	lb/day										lb/day					
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
Vendor	0.0378	1.1531	0.3064	2.7500e-003	0.0704	5.8000e-003	0.0762	0.0203	5.5500e-003	0.0258		293.1641	293.1641	0.0204		293.6730
Worker	0.1530	0.1032	1.1411	3.3300e-003	0.3465	2.6300e-003	0.3491	0.0919	2.4200e-003	0.0943		331.8131	331.8131	9.5200e-003		332.0510
Total	0.1908	1.2563	1.4475	6.0800e-003	0.4169	8.4300e-003	0.4254	0.1122	7.9700e-003	0.1201		624.9772	624.9772	0.0299		625.7240

3.5 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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	lb/day										lb/day					
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
Vendor	0.0322	1.0458	0.2786	2.7300e-003	0.0704	2.1800e-003	0.0726	0.0203	2.0900e-003	0.0224		291.0052	291.0052	0.0195		291.4920
Worker	0.1430	0.0929	1.0495	3.2200e-003	0.3465	2.5500e-003	0.3491	0.0919	2.3500e-003	0.0942		321.0570	321.0570	8.6000e-003		321.2722
Total	0.1752	1.1387	1.3281	5.9500e-003	0.4169	4.7300e-003	0.4216	0.1122	4.4400e-003	0.1166		612.0623	612.0623	0.0281		612.7641

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	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

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	lb/day										lb/day					
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
Vendor	0.0322	1.0458	0.2786	2.7300e-003	0.0704	2.1800e-003	0.0726	0.0203	2.0900e-003	0.0224		291.0052	291.0052	0.0195		291.4920
Worker	0.1430	0.0929	1.0495	3.2200e-003	0.3465	2.5500e-003	0.3491	0.0919	2.3500e-003	0.0942		321.0570	321.0570	8.6000e-003		321.2722

Total	0.1752	1.1387	1.3281	5.9500e-003	0.4169	4.7300e-003	0.4216	0.1122	4.4400e-003	0.1166		612.0623	612.0623	0.0281		612.7641
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3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

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	lb/day										lb/day					
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
Vendor	0.0302	0.9919	0.2634	2.7000e-003	0.0704	1.8900e-003	0.0723	0.0203	1.8100e-003	0.0221		288.4137	288.4137	0.0187		288.8819
Worker	0.1345	0.0839	0.9687	3.1100e-003	0.3465	2.4800e-003	0.3490	0.0919	2.2800e-003	0.0942		309.5463	309.5463	7.7700e-003		309.7406
Total	0.1647	1.0758	1.2321	5.8100e-003	0.4169	4.3700e-003	0.4213	0.1122	4.0900e-003	0.1163		597.9600	597.9600	0.0265		598.6225

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	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

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	lb/day										lb/day					
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
Vendor	0.0302	0.9919	0.2634	2.7000e-003	0.0704	1.8900e-003	0.0723	0.0203	1.8100e-003	0.0221		288.4137	288.4137	0.0187		288.8819
Worker	0.1345	0.0839	0.9687	3.1100e-003	0.3465	2.4800e-003	0.3490	0.0919	2.2800e-003	0.0942		309.5463	309.5463	7.7700e-003		309.7406
Total	0.1647	1.0758	1.2321	5.8100e-003	0.4169	4.3700e-003	0.4213	0.1122	4.0900e-003	0.1163		597.9600	597.9600	0.0265		598.6225

3.6 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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Total	1.2247	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745

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	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1218					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2247	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

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	lb/day										lb/day					
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
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
Worker	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745

3.7 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	lb/day										lb/day					
Archit. Coating	10.1370					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	10.3415	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

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	lb/day										lb/day					
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
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

Worker	0.0260	0.0162	0.1875	6.0000e-004	0.0671	4.8000e-004	0.0676	0.0178	4.4000e-004	0.0182		59.9122	59.9122	1.5000e-003		59.9498
Total	0.0260	0.0162	0.1875	6.0000e-004	0.0671	4.8000e-004	0.0676	0.0178	4.4000e-004	0.0182		59.9122	59.9122	1.5000e-003		59.9498

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	lb/day										lb/day					
Archit. Coating	10.1370					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	10.3415	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062

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	lb/day										lb/day					
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
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
Worker	0.0260	0.0162	0.1875	6.0000e-004	0.0671	4.8000e-004	0.0676	0.0178	4.4000e-004	0.0182		59.9122	59.9122	1.5000e-003		59.9498
Total	0.0260	0.0162	0.1875	6.0000e-004	0.0671	4.8000e-004	0.0676	0.0178	4.4000e-004	0.0182		59.9122	59.9122	1.5000e-003		59.9498

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2934	1.6094	3.8413	0.0148	1.2826	0.0119	1.2945	0.3432	0.0111	0.3543		1,506.9993	1,506.9993	0.0732		1,508.8296
Unmitigated	0.2934	1.6094	3.8413	0.0148	1.2826	0.0119	1.2945	0.3432	0.0111	0.3543		1,506.9993	1,506.9993	0.0732		1,508.8296

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.79	9.56	7.03	8,450	8,450
Parking Lot	0.00	0.00	0.00		
Single Family Housing	161.84	168.47	146.54	548,799	548,799
Total	162.63	178.03	153.57	557,249	557,249

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66.0	28.0	6.0
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0.0	0.0	0.0
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86.0	11.0	3.0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
City Park	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Parking Lot	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

Single Family Housing	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
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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	lb/day										lb/day					
NaturalGas Mitigated	0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464
NaturalGas Unmitigated	0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464

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	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	1425.03	0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464
Total		0.0154	0.1313	0.0559	8.4000e-004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e-003	3.0700e-003	168.6464

Mitigated

	Natural Gas 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	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
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
Single Family Housing	1.42503	0.0154	0.1313	0.0559	8.4000e- 004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e- 003	3.0700e- 003	168.6464
Total		0.0154	0.1313	0.0559	8.4000e- 004		0.0106	0.0106		0.0106	0.0106		167.6501	167.6501	3.2100e- 003	3.0700e- 003	168.6464

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	lb/day										lb/day					
Mitigated	0.7521	0.2982	1.5242	1.8700e- 003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e- 003	6.6000e- 003	364.7259
Unmitigated	0.7521	0.2982	1.5242	1.8700e- 003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e- 003	6.6000e- 003	364.7259

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	lb/day										lb/day					
Architectural Coating	0.0556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6212					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0330	0.2820	0.1200	1.8000e-003		0.0228	0.0228		0.0228	0.0228	0.0000	360.0000	360.0000	6.9000e-003	6.6000e-003	362.1393
Landscaping	0.0424	0.0162	1.4042	7.0000e-005		7.7600e-003	7.7600e-003		7.7600e-003	7.7600e-003		2.5257	2.5257	2.4400e-003		2.5866
Total	0.7521	0.2982	1.5242	1.8700e-003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e-003	6.6000e-003	364.7259

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	lb/day										lb/day					
Architectural Coating	0.0556					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6212					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0330	0.2820	0.1200	1.8000e-003		0.0228	0.0228		0.0228	0.0228	0.0000	360.0000	360.0000	6.9000e-003	6.6000e-003	362.1393
Landscaping	0.0424	0.0162	1.4042	7.0000e-005		7.7600e-003	7.7600e-003		7.7600e-003	7.7600e-003		2.5257	2.5257	2.4400e-003		2.5866
Total	0.7521	0.2982	1.5242	1.8700e-003		0.0306	0.0306		0.0306	0.0306	0.0000	362.5257	362.5257	9.3400e-003	6.6000e-003	364.7259

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Construction Electricity Consumption	
Power Cost per 1000 sf per month	\$2.32
Building Size (1000 sf)	30.6
Construction Duration (months)	10
Total Power Cost	\$709.92
Cost per kWh	\$0.07
Construction Electricity Usage (kWh)	10,142

Construction Equipment Fuel Consumption

								Diesel	
Activity	Duration (days)	Equipment	HP Rating	Quantity	Hours/Day	Load Factor	HP-hrs/Day	Fuel Usage (hp-hr/gal)	Consumption (gallons)
Demolition	20	Concrete Saws	81	1	8	0.73	473	18.5	511
	20	Excavators	158	3	8	0.38	1,441	18.5	1,558
	20	Rubber Tired Dozers	247	2	8	0.40	1,581	18.5	1,709
Site Preparation	10	Rubber Tired Dozers	247	3	8	0.40	2,371	18.5	1,282
	10	Tractors/Loaders/Backhoes	97	4	8	0.37	1,148	18.5	621
Grading	30	Excavators	158	2	8	0.38	961	18.5	1,558
	30	Graders	187	1	8	0.41	613	18.5	995
	30	Rubber Tired Dozers	247	1	8	0.40	790	18.5	1,282
	30	Scrapers	367	2	8	0.48	2,819	18.5	4,571
	30	Tractors/Loaders/Backhoes	97	2	8	0.37	574	18.5	931
Building Construction	300	Cranes	231	1	7	0.29	469	18.5	7,604
	300	Forklifts	89	3	8	0.20	427	18.5	6,928
	300	Generator Sets	84	1	8	0.74	497	18.5	8,064
	300	Tractors/Loaders/Backhoes	97	3	7	0.37	754	18.5	12,222
	300	Welders	46	1	8	0.45	166	18.5	2,685
Paving	20	Pavers	130	2	8	0.42	874	18.5	944
	20	Paving Equipment	132	2	8	0.36	760	18.5	822
	20	Rollers	80	2	8	0.38	486	18.5	526
Architectural Coating	20	Air Compressors	78	1	6	0.48	225	19.5	230
GRAND TOTAL								55,043	

Construction Worker Fuel Consumption						
Activity	Duration	Worker Trips/Day	Trip Length (mi)	VMT	Fuel Rate (mpg)	Gasoline Consumption (gal.)
Demolition	20	15	14.7	4,410	29.32	150
Site Preparation	10	18	14.7	2,646	29.32	90
Grading	30	20	14.7	8,820	29.32	301
Building Construction	300	31	14.7	136,710	29.32	4,663
Paving	20	15	14.7	4,410	29.32	150
Architectural Coating	20	6	14.7	1,764	29.32	60
			Grand Totals	158,760		5,415

Construction Truck Fuel Consumption								
VENDOR TRIPS		% MHD =	50%	%HHD =	50%			
Activity	Duration	Vendor Trips/Day	Trip Length (mi)	VMT	MHD Fuel Rate (mpg)	HHD Fuel Rate (mpg)	Combined Fuel Rate (mpg)	Diesel Consumption (gal.)
Demolition	20	0	6.9	0	10.14	6.39	8.27	0
Site Preparation	10	0	6.9	0	10.14	6.39	8.27	0
Grading	30	0	6.9	0	10.14	6.39	8.27	0
Building Construction	300	11	6.9	22,770	10.14	6.39	8.27	2,755
Paving	20	0	6.9	0	10.14	6.39	8.27	0
Architectural Coating	20	0	6.9	0	10.14	6.39	8.27	0
							Total	2,755
HAULING TRIPS		% MHD =	0%	%HHD =	100%			
Activity	Duration	Worker Trips/Day	Trip Length (mi)	VMT	MHD Fuel Rate (mpg)	HHD Fuel Rate (mpg)	Combined Fuel Rate (mpg)	Diesel Consumption (gal.)
Demolition	20	0	20	0	10.14	6.39	6.39	0
Site Preparation	10	0	20	0	10.14	6.39	6.39	0
Grading	30	0	20	0	10.14	6.39	6.39	0
Building Construction	300	0	20	0	10.14	6.39	6.39	0
Paving	20	0	20	0	10.14	6.39	6.39	0
Architectural Coating	20	0	20	0	10.14	6.39	6.39	0
							Total	0
					Total Diesel Consumption (gallons)			2,755

Operational Energy Consumption		
Traffic Annual Fuel Usage		
Annual VMT	Avg Fuel Rate (mpg)	Annual Fuel Consumption (gal.)
557,249	29.32	19,006
Natural Gas Consumption		
		kBTU/yr
Direct from CalEEMod		1,425
Electric Consumption		
No. of Homes	Avg Monthly Usage	kWh/yr
17	557.58	113,746