GLOBAL CLIMATE CHANGE ANALYSIS

Tran Monastery Major Use Permit
County of San Diego, CA

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LIST OF ACRONYMS

Assembly Bill 32 (AB32)

Business as Usual (BAU)

California Air Pollution Control Officers Association's (CAPCOA)

California Air Resources Board (CARB)

California Climate Action Registry General Reporting Protocol Version 3.1 (CCARGRPV3.1)

California Energy Commission (CEC)

California Environmental Quality Act (CEQA)

Carbon Dioxide (CO2)

Cubic Yards (CY)

Environmental Protection Agency (EPA)

Green House Gas (GHG)

International Residential Code (IRC)

Low Carbon Fuel Standard (LCFS)

Methane (CH4)

Nitrous Oxide (N2O)

San Diego Air Basin (SDAB)

San Diego Air Pollution Control District (SDAPCD)

Senate Bill 97 (SB97)

Vehicle Miles Traveled (VMT)

EXECUTIVE SUMMARY

This analysis has been completed in order to quantify greenhouse gas (GHG) emissions from the project site and was prepared according to guidelines established within the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), Senate Bill (SB) 97 (SB97) and the California Environmental Quality Act (CEQA). GHGs analyzed in this study are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). To simplify GHG calculations, both CH4 and N2O are converted to equivalent amounts of CO2 and are identified as CO2e.

The proposed development is located at 33° 9′ 15″ N and 117° 05′ 2″ W at 715 Vista Avenue, Escondido within the unincorporated San Diego County, CA. The Project proposes to expand the site with an 8,272 square foot structure complete with a kitchen, bedrooms, social room, small meditation room, and large meditation room. Accommodations will be provided for up to four on-site residents at any one time. Construction of the project is proposed in June 2017 with full buildout expected late 2017.

Adding both annual construction emissions and the expected operational emissions including design features from Area, Energy, Mobile, Waste and Water sources, the project would generate emissions of 169.09 MT CO_2e. Based on this, the project would not exceed the screening level of 900 MT CO_2e as identified by California Air Pollution Control Officers Association (CAPCOA) and would not require further analysis.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Greenhouse Gas (GHG) Assessment is to show conformance to the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32) and Senate Bill 97 (SB97). AB32 requires that by 2020 the state's GHG emissions be reduced to 1990 levels and SB97 a "companion" bill directed amendments to the CEQA statute to specifically establish that GHG emissions and their impacts are appropriate subjects for CEQA analysis. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to bring the project to a level considered less than significant under CEQA or show that the project GHG emissions would be below CAPCOA screening thresholds.

1.2 Project Location

The proposed development is located at 33° 9′ 15″ N and 117° 05′ 2″ W at 715 Vista Avenue, Escondido within the unincorporated San Diego County, CA. A general project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

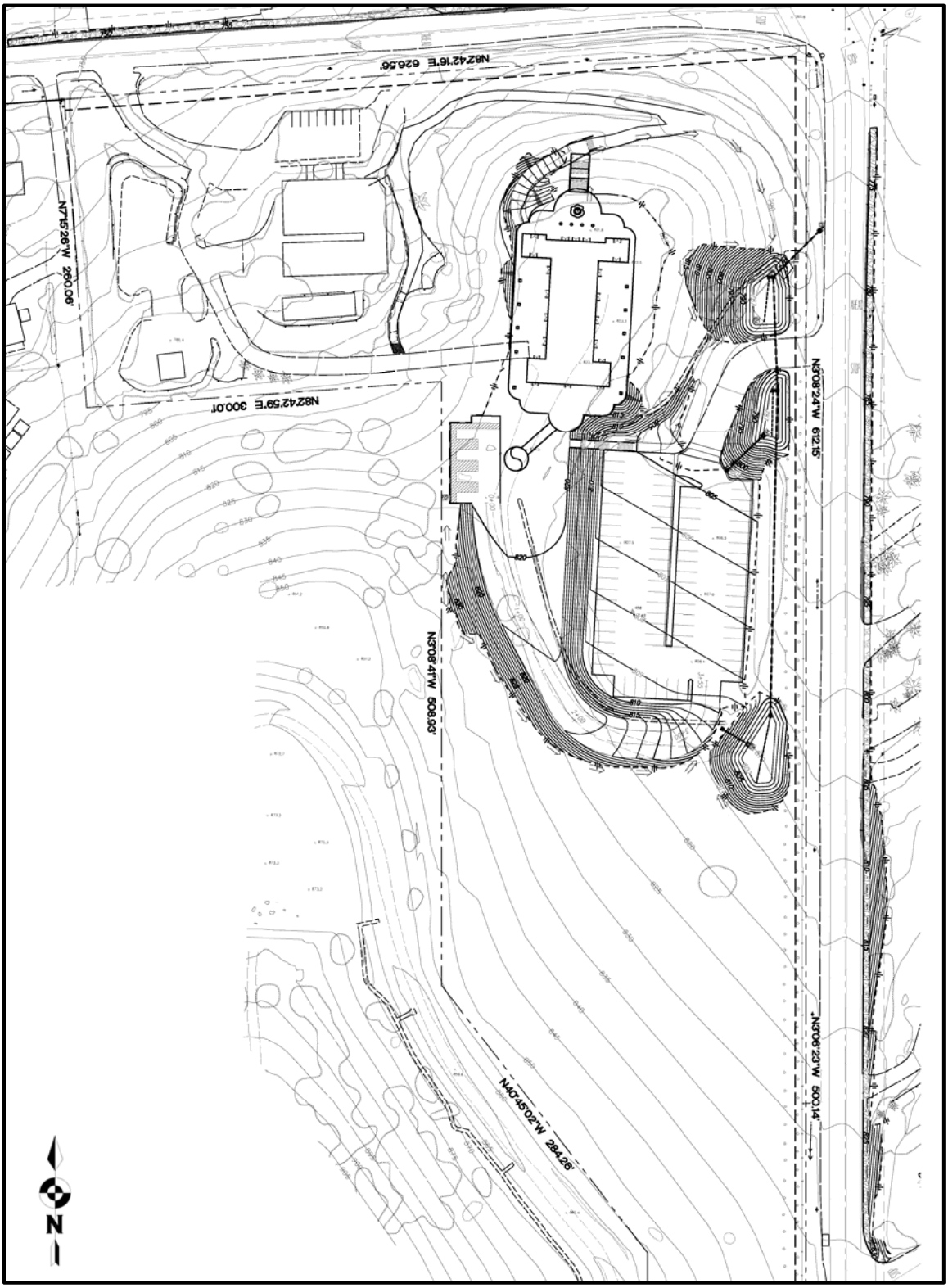
The Project seeks a Major Use Permit to expand an existing monastery through constructing an 8,272 square foot structure complete with a kitchen, bedrooms, social room, small meditation room, and large meditation room with accommodations for up to four (4) on-site residents at any one time. Approximately 2,000 Cubic Yards (CY) of balanced earthwork is expected.

Project operations or site activities would take place during the both the weekdays and weekends. Based on information provided by the applicant, weekday activities would be unsubstantial in terms of traffic generation. The Project proposes an instructional facility for the four (4) on-site residents who, consistent with Buddhist teachings, adhere to a daily regimen of studying, silent meditation, silent communal meals, and maintenance of the facility. Onsite residents make only a few (typically one) trip per week outside the facility. The typical activity of the Project site will be the regular meditation and prayer practice which would occur every Sunday between the hours of 3:00 PM and 5:00 PM. Construction of the project is proposed in June 2017 with full buildout expected late 2017. The project site plan is shown on in Figure 1-B on Page 3 of this report.

Figure 1-A: Project Vicinity Map

Source: (Google, 2017)

Figure 1-B: Proposed Project Site Plan



Source: (Latitude 33, 2015)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gasses

GHGs such as water vapor and CO_2 are abundant in the earth's atmosphere. These gases are called "greenhouse gases" because they absorb and emit thermal infrared radiation which acts like an insulator to the planet. Without these gases, the earth's ambient temperature would either be extremely hot during the day or blistering cold at night. However, because these gases can both absorb and emit heat, the earth's temperature does not sway too far in either direction.

Over the years as human activities require the use of burning fossil fuels, stored carbon is released into the air in the form of CO2 and to a much lesser extent Carbon Monoxide CO. Additionally, over the years, scientists have measured this rise in CO_2 and fear that it may be heating the planet too. Additionally, it is thought that other greenhouse gases such as methane (CH_4) and nitrous oxide (N_2O) are to blame.

GHGs of concern as analyzed in this study CO2, CH4, and N2O. To simply GHG calculations, both CH4 and N2O can be converted to an equivalent amount of CO2 or CO2e. CO2e is calculated by multiplying the calculated levels of CH4 and N2O by a global warming potential (GWP). The Intergovernmental Panel on Climate Change (IPCC) publishes 100 year GWPs for various GHGs. The IPCC's latest 4th assessment report (AR4) shows the GWP for CH4 and N2O is 25 and 298 respectively(IPCC, 2007).

2.2 Existing Setting

The project site is located at 715 Vista Avenue in the North County Metropolitan Subregional Plan area (Hidden Meadows), within unincorporated San Diego County. The site is subject to the Semi-Rural (SR) General Plan Regional Category, SR-1 Land Use Designation, and Residential (RS) Zoning Regulations. The site is developed with an existing structure that would be retained as part of this project. Access to the existing structure is provided by an existing driveway connecting to Vista Avenue, and access to the proposed monastery would be provided by a driveway connecting to North Ash Street. The development plan is generally represented by a diverse topography with elevations ranging from approximately 775 feet to 820 feet above mean sea level. The surrounding land uses are mostly rural residential and agriculture.

2.3 Climate and Meteorology

Climate within the San Diego Air Basin (SDAB) area varies dramatically over short geographical distances due to size and topography. Most of southern California is dominated by high-pressure systems for much of the year, which keeps the high desert

mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. Prevailing winds are generally westerly flowing towards the east for most of the year; however, during the autumn and winter, it is common for strong warm dry winds originating in the desert having a more easterly flow characteristic.

Meteorological trends within the Escondido area typically have daytime highs that range between 68ºF in the winter to approximately 89ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 54ºF in the winter to approximately 76ºF in the summer. The average humidity is approximately 65 Percent in the winter and about 75 Percent in the summer (City-Data, 2017). Escondido usually receives approximately 15 inches of rain per year with February usually being the wettest month (weather.com, 2017).

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 Regulatory Standards (Assembly Bill 32)

The Global Warming Solutions Act of 2006 (AB 32), requires that by 2020 the state's greenhouse gas emissions be reduced to 1990 levels or roughly a 28.3 Percent reduction. The pertinent Sections are referenced within Part 4 of AB 32 Titled *Greenhouse Gas Emissions Reductions* are shown below:

Section 38560.5 (b) states:

On or before January 1, 2010, the state board shall adopt regulations to implement the measures identified on the list published pursuant to subdivision (a).

Section 38562 states:

(A) On or before January 1, 2011, the state board shall adopt greenhouse gas emission limits and emission reduction measures by regulation to achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions in furtherance of achieving the statewide greenhouse gas emissions limit, to become operative beginning on January 1, 2012.

(B) In adopting regulations pursuant to this Section and Part 5 (commencing with Section (38570), to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit, the state board shall do all of the following:

1. *Design the regulations, including distribution of emissions allowances where appropriate, in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California, and encourages early action to reduce greenhouse gas emissions.*
2. *Ensure that activities undertaken to comply with the regulations do not disproportionately impact low-income communities.*
3. *Ensure that entities that have voluntarily reduced their greenhouse gas emissions prior to the implementation of this Section receive appropriate credit for early voluntary reductions.*
4. *Ensure that activities undertaken pursuant to the regulations complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions.*
5. *Consider cost-effectiveness of these regulations.*
6. *Consider overall societal benefits, including reductions in other air pollutants, diversification of energy sources, and other benefits to the economy, environment, and public health.*
7. *Minimize the administrative burden of implementing and complying with these regulations.*
8. *Minimize leakage.*
9. *Consider the significance of the contribution of each source or category of sources to statewide emissions of greenhouse gases.*

(C) In furtherance of achieving the statewide greenhouse gas emissions limit, by January 1, 2011, the state board may adopt a regulation that establishes a system of market-based declining annual aggregate emission limits for sources or categories of sources that emit greenhouse gas emissions, applicable from January 1, 2012, to December 31, 2020, inclusive, that the state board determines will achieve the maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, in the aggregate, from those sources or categories of sources.

(D) Any regulation adopted by the state board pursuant to this part or Part 5 (commencing with Section 38570) shall ensure all of the following:

1. *The greenhouse gas emission reductions achieved are real, permanent, quantifiable, verifiable, and enforceable by the state board.*
2. *For regulations pursuant to Part 5 (commencing with Section 38570), the reduction is in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.*
3. *If applicable, the greenhouse gas emission reduction occurs over the same time period and is equivalent in amount to any direct emission reduction required pursuant to this division.*

3.2 Regulatory Standards (Assembly Bill 341)

AB 341 sets a policy goal for the state of California to reduce, recycle or compost not less than 75 Percent of solid waste generated by the year 2020. This bill requires businesses and multi-family residential uses that generate more than 4 cubic yards of solid waste per week have more than 5 dwelling units respectively arrange for recycling services.

This bill will increases diversion requirements by an additional 25 Percent over Business as Usual, as was defined under AB 939 and SB 1322, which were signed into law as the Integrated Waste Management Act of 1989, which as of the year 2000 only required 50 percent diversion.

3.3 Regulatory Standards SB 97

SB 97 requires the Office of Planning and Research (OPR) to prepare and transmit to the Resources Agency, guidelines and directed amendments to the CEQA statute specifically for the mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions.

3.4 AB 1493 (Pavley Standards)

AB 1493 regulations, also know as Pavley rules are California Standards for vehicle fleets. These regulations are designed to reduce GHG emissions and also reduce fuel consumption.

Under Pavley, starting with vehicles produced in 2009, manufacturers have the flexibility in meeting California standards through a combination of reducing tailpipe emissions of CO_2 N_2O, CH_4 as well as hydrofluorocarbons from vehicle air conditioning systems. Furthermore, the California standards were estimated to increase fleet fuel efficiency to 31.6 miles per gallon (mpg) starting in 2015 (California Air Resourrces Board, 2013).

3.5 Advanced Clean Car Program

Pavley II along with other low-Emission Vehicle (LEV) regulations including new approaches to increase zero emission vehicles and hybrids have since been combined into a single effort program termed Advanced Clean Cars (California Air Resources Board, 2014). The new effort uses a number of emission control programs to control smog, soot and global warming and would be in effect from 2017 to 2025. This program is estimated to reduce GHGs by 4.0 Million MT CO_2e ($MMTCO_2e$) or roughly 2.47 Percent beyond that of Pavley I (California Air Resources Board, 2011).

3.6 Vehicle Efficiency Measures

Additional vehicle efficiency measures within the 2008 Scoping Plan include Low Friction Oil, Tire Pressure Regulation, Tire Tread Program, and Solar Reflective Automotive Paint and specialized window glazing and according to the scooping plan will reduce GHGs by 4.5 MMTCO2e in 2020. To date however, some of the reduction measures under Vehicle Efficacy are still under review with the exception of the Tire Pressure Regulations which estimate to reduce GHGs by 0.6 MMTCO2e by 2020.

3.7 Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 (P.L. 110-140, H.R. 6) is an energy policy law adopted by congress which consists mainly of provisions designed to increase energy efficiency and the availability of renewable energy. The law will require automakers to boost fleet wide gas mileage averages from the current 25 mpg to 35 mpg by 2020. The rule was updated in 2010 which required fleet-wide fuel economy standard to be set at 34.1 mpg by 2016 and affect cars built in 2012 through 2016. Also, in October 2012, the rules were further changed to 54.5 mpg for cars and light-duty trucks by Model Year 2025. This fleet wide average is known as the Corporate Average Fuel Economy (CAFE) standard..

3.8 Executive Order S-3-05

Executive Order S-3-05 was signed by Governor Arnold Schwarzenegger in June 2005 and established GHG reduction goals for the State of California as follows:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.

- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

3.9 Executive Order S-01-07

Executive Order S-01-07 was signed by Governor Arnold Schwarzenegger in January 2007 and is effectively known as the Low Carbon Fuel Standard or LCFS. The Executive Order seeks to reduce the carbon intensity of California's passenger vehicle fuels by at least 10 percent by 2020. The LCFS will require fuel providers in California to ensure that the mix of fuel they sell into the California market meet, on average, a declining standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold.

3.10 Executive Order B-30-15

Executive Order B-30-15 established a statewide emissions reduction target of 40 percent below 1990 levels by 2030. This interim measure was identified by the Governor as one way to keep the State on a trajectory needed to meet the 2050 goal of reducing GHG emissions to 80 percent below 1990 levels by 2050 pursuant to Executive Order S-3-05. The 2030 and 2050 goals described in both these Executive Orders are an expression of executive policy and have not been adopted through legislative or regulatory action as of this writing. (Office of Governor Edmund G. Brown Jr., 2015).

3.11 Executive Order S-14-08 and SB X1-2

Executive Order S-14-08 was signed by Governor Arnold Schwarzenegger and is effectively known as the Renewable Portfolio Standard (RPS). According to S-14-08, the RPS will require that all retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020. State government agencies are hereby directed to take all appropriate actions to implement this target in all regulatory proceedings, including siting, permitting, and procurement for renewable energy power plants and transmission lines. In April 2011 Governor Jerry Brown signed SB X1-2 which effectively required RPS goals of 20 percent of electrical retail sales from renewables by the end of 2013, 25 percent by the end of 2016, and the 33 percent by the end of 2020.

3.12 Senate Bill 375

SB 375 addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. In 2010, CARB adopted the

SB 375 targets for the regional metropolitan planning organizations. The targets for the San Diego Association of Governments (SANDAG) are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035.

It should be noted that Governor Jerry Brown is committed to increasing this regulation such that the renewable portfolio in 2030 would be at least 50 Percent. This commitment was entered into agreement with multiple international states signed on May 19, 2015 by California (Subnational Global Climate Leadership Memorandum of Understanding, 2015). For purposes of the post-2020 analysis, the emission reduction benefits of achieving a 50 percent RPS by 2030 has been quantified as a 17 percent increase over RPS in 2020 or 30 percent over the 20 Percent which has already been achieved in the baseline year.

3.13 Title 24 Standards

The California Energy Code, or Title 24, Part 6 of the California Code of Regulations, also titled The Energy Efficiency Standards for Residential and Nonresidential Buildings, were established 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 efficiency technologies and methods (California Energy Code, 2015)

The Energy Commission adopted the 2008 changes to the Building Energy Efficiency Standards for some of the following reasons and would reduce both Natural Gas and Electrical demand:

1. *To provide California with an adequate, reasonably-priced, and environmentally-sound supply of energy.*
2. *To respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its greenhouse gas emissions to 1990 levels by 2020.*
3. *To pursue California energy policy that energy efficiency is the resource of first choice for meeting California's energy needs.*
4. *To act on the findings of California's Integrated Energy Policy Report (IEPR) that Standards are the most cost effective means to achieve energy efficiency, expects the Building Energy Efficiency Standards to continue to be upgraded over time to reduce electricity and peak demand, and recognizes the role of the Standards in reducing energy related to meeting California's water needs and in reducing greenhouse gas emissions.*
5. *To meet the West Coast Governors' Global Warming Initiative commitment to include aggressive energy efficiency measures into updates of state building codes.*

6. *To meet the Executive Order in the Green Building Initiative to improve the energy efficiency of nonresidential buildings through aggressive standards.*

Title 24 2008 has been found reduce electrical emissions by 22.7 percent when comparing prototype buildings built to the minimum standards in 2005 and then comparing the prototypes within duplicate models built to standards in 2008. (Architectural Energy Corporation for California Energy Commission, November 7, 2007)

Title 24 2010 incorporated California Green Building (CALGreen) standards and added a voluntary tiered approach which compared efficiency over Title 24 2008. (California Building Standards Commission, June 2010).

Title 24 2013 were effective as of July 1, 2014. Looking at the entire construction outlook for low-rise single-family detached homes, electricity use is reduced by 36.4 percent and 23.3 percent for multi-family uses and natural gas consumption is reduced by 6.5 percent for single family developments and 3.8 Percent for multi- family structures (Architectural Energy Corporation (AEC), 2013). Nonresidential Newly Constructed Buildings would have a reduction from the 2010 Standards of 21.8 percent for electricity and 16.8 percent for natural gas. It should be noted that these reductions would be for Title 24 energy sources such as heating, cooling and lighting.

In addition, the 2016 Title 24 standards have been approved and are now required as of January 1, 2017. Further, both the California Energy Commission (CEC) and the California Public Utilities Commission (CPUC) remain committed to their goal that all new residential construction in California achieves zero net energy standards starting in 2020.

Looking at the entire construction outlook for low-rise single-family detached homes, under Title 24 (2016), electricity use is reduced from 2013 standards by 11.7 percent and 15.2 percent for single and multi-family uses and natural gas consumption is reduced by 21.1 percent for single family developments and 30.7 Percent for multi-family structures (California Energy Commission, 2015). Nonresidential Newly Constructed Buildings would have a reduction from the 2013 Standards of 4.4 percent for electricity and no significant change for natural gas.

3.14 California Environmental Quality Act Requirements

As directed by SB 97, the Natural Resources Agency adopted Amendments to Title 14 Division 6 Chapter 3 CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and

filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010. The pertinent Sections are shown below:

Section 15064.4 - Determining the Significance of Impacts from Greenhouse Gas

(A) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

1. *Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or*
2. *Rely on a qualitative analysis or performance-based standards.*

(B) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:

1. *The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;*
2. *Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.*
3. *The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.*

General Questions recommended within the environmental checklist are:

(a) Will the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

(b) Will the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

3.15 CARB Scoping Plan Measures

In response to AB 32, California Air Resources Board (CARB) developed the Climate Change Scoping Plan. In that plan, the Board developed GHG emission reduction strategies which expanded energy efficiency programs, increased utility renewable energy requirements, developed clean car and (LCFS, developed the cap-and-trade program and identified adopted discretionary measures to assist the state in meeting the 2020 limits established by AB 32.

In May 2014, the CARB adopted the first update to the original scoping plan which was necessary to help establish long-term GHG policies to make deep GHG emission reductions to put the state on a trajectory to help achieve goals established in S-3-05. The update includes key recommendations for six key economic sectors (energy, transportation, agriculture, water, waste management, and natural and working lands) as well as short-lived climate pollutants, green buildings, and the Cap-and-Trade Program. The findings largely affect regulatory measures that will indirectly reduce GHG emissions and generate a need to update local policies.

In November 2017, CARB released California's Climate Change Scoping Plan (Second Update) for public review and comment (CARB, 2017). This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32, including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20 percent. As of the publication date of this report, CARB's Governing Board has not yet approved the Second Update.

3.16 Project Specific Guidelines

Projects that exceed the California Air Pollution Control Officers Association (CAPCOA) screening level of 900 metric tons of carbon dioxide equivalent (MT CO_2e) (California Air Pollution Control Officers Association, 2008), may need further address potential GHG impacts. Currently the County does not have a design standard though is working on a Climate Action Plan (CAP) which will further define these levels once adopted. For purposes of this analysis however the 900 MT CO_2e CAPCOA Screening level was utilized.

4.0 METHODOLOGY

4.1 Construction CO_2e Emissions Calculation Methodology

The Project construction dates were estimated based on a hypothetical construction kickoff starting in June 2017 and buildout roughly 6 months later. CalEEMod 2016.3.1 was utilized for all calculations. CalEEMod has been updated to reflect SDAPCD Rule 67 paint VOC limits. Table 4.1 shows the expected timeframes for the construction processes for all the project infrastructure, facilities, improvements and commercial structures at the proposed project location, as well as the expected number of pieces of equipment.

Table 4.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Site Preparation	6/1/2017	6/7/2017	
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			1
Grading	6/8/2017	6/28/2017	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			3
Paving	6/29/2017	7/5/2017	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	7/6/2017	12/1/2017	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	8/1/2017	12/1/2017	
This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions from Projects of similar size and scope in the County of San Diego.			

4.2 Operational Emissions Calculation Methodology

Once construction is completed the proposed project would generate GHG emissions from daily operations which would include sources such as consumer products, Area, Energy, Mobile, Solid waste and Water uses, which are calculated within CalEEMod 2016.3.1. Area Sources include usage of landscaping and architectural coatings as part of regular maintenance. Energy sources would be from uses such as electricity and natural gas. Solid

waste generated in the form of trash is also considered as decomposition of organic material breaks down to form biogenic GHGs or GHGS generated through biological processes. Also, biogenic GHGs are typically considered to be renewable sources with a shorter lifecycle than fossil fuels. GHGs from water are also indirectly generated through the conveyance of the resource via pumping throughout the state and as necessary for wastewater treatment. Finally, the project would also generate GHGs through the use of carbon fuel burning vehicles for transportation. The annual CalEEMod inputs are shown in Attachments A at the end of this report. Both Biogenic and non-biogenic GHGs are produced by this project however for purposes of this analysis they are treated the same.

4.3 CalEEMod Mobile Calculations

CalEEMod calculates the emissions associated with on-road mobile sources. The traffic inputs for CalEEMod were modified to reflect estimates by the traffic engineer (LLG Engineers, 2014). The analysis determined that the project would generate 108 daily worst case trips on Sundays. Also for purposes of this analysis, the 4 bedrooms for the 4 persons staying onsite were assumed to be 4 apartment complexes within the model which would be worst case and all trips associated with the worst case assumptions are above and beyond the 108 trips identified within the traffic study. Also, there would be three special events; however, these events would generate fewer trips than Sundays so no modifications were made to the trip generation for these events.

4.4 CalEEMod Area Calculations

The area source module is used to calculate direct sources of air emissions located at the project site and includes consumer products, architectural coatings and landscape maintenance equipment. The area source model does not include the emissions associated with natural gas usage for space heating or water heating as these are calculated in the building energy use module (CAPCOA, 2016).

4.5 CalEEMod Energy Usage Calculations

GHGs are emitted as a result of activities in buildings for which electricity and natural gas are used as energy sources. Combustion of any type of fuel emits criteria pollutants and GHGs directly into the atmosphere. Electricity generation typically takes place offsite at the power plant therefore the GHG emissions will be calculated from electricity generation from the Utility provider or San Diego Gas & Electric. CalEEMod utilizes input sources recommended for the proposed uses for both natural gas and electricity. Based on current law, the project applicant would be required to meet Title 24 standards (2016); CalEEMod

2016.3.1 utilizes Title 24 (2013) standards. Energy reductions for 2016 requirements were not included in the GHG model and this is acceptable since this would be worst-case.

4.6 CalEEMod Sold Waste Usage Calculations

Municipal solid waste (MSW) is the amount of material that is disposed of by landfilling, recycling, or composting. CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the CalRecycle data for individual land uses.

4.7 Water Use Emission Calculation Methodology

The amount of water used and wastewater generated by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. It will often be the case that the water treatment and wastewater treatment occur outside of the project area. In this case, it is still important to quantify the energy and associated GHG emissions attributable to the water use. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both CH_4 and N_2O. These emissions are calculated within the model.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod Version 2016.3.1 inputs for the model as shown in Table 4.1 above, grading and construction of the project will produce approximately 159.92 metric tons of CO2e over the construction life of the project for an average of 5.33 MT CO_2e. The CalEEMod outputs are provided as ***Attachment A*** to this report. Given the fact that the total emissions will ultimately contribute to 2020 cumulative levels, it is acceptable to average the total construction emission over a project's lifecycle. Guidance from the South Coast Air Quality Management District (SCAQMD) supports using a 30-year project life to analyze a project's GHG emissions under CEQA., A summary of the construction emissions is shown in Table 5.1 below.

Table 5.1: Expected Annual Construction CO_2e Emissions Summary

Year	Bio-CO_2	NBio-CO_2	Total CO2	CH4	N2O	CO2e (MT)
2017	0.00	158.98	158.98	0.04	0.00	159.92
Total	**0.00**	**158.98**	**158.98**	**0.04**	**0.00**	**159.92**
Yearly Average Construction Emissions (Metric Tons/year over 30 years)						**5.33**
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 4.1 above.						

5.2 Project-Related Operational Emissions

As previously discussed, emissions generated from area, energy, mobile, solid waste and water uses are calculated within CalEEMod. These settings, which are mostly automatically populated throughout the model, are based on the proposed use and include a worst-case assumption for the four live in residents as four apartment complexes. Also the model was adjusted to meet the project traffic study and architectural coating requirements within the County under Rule 67. The calculated operational emissions for the 2020 scenario are shown on the following page in Table 5.2.

Adding both annual construction emissions and the expected operational emissions from Consumer products, Area, Energy, Mobile, Waste and Water sources, the project would generate emissions of 169.09 MT CO_2e per year. Based on this, the project would not

generate emissions in excess of the 900 MT screening level and would therefore not require further analysis under CEQA.

Table 5.2: 2020 Operational Emissions Summary MT/Year

Source	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e (MT/Yr)
Area	0.000	0.049	0.049	0.000	0.000	0.050
Electricity	0.00	0.00	28.774	0.001	0.000	28.874
Natural Gas	0.000	8.179	8.179	0.000	0.000	8.227
Mobile	0.000	96.840	96.840	0.006	0.000	96.978
Waste	9.943	0.000	9.943	0.588	0.000	24.632
Water	0.165	4.276	4.441	0.017	0.000	4.998
Sub Total (MT/Year)						**163.76**
Amortized Construction Emissions (Table 5.1 above)						**5.33**
Total Operations (MT/Year)						**169.09**

Data is presented in decimal format and may have rounding errors.
All zero calculations are only zero to the number of significant figures presented

6.0 REFERENCES

Architectural Energy Corporation (AEC). (2013, July). Retrieved 2015, from http://www.energy.ca.gov/2013publications/CEC-400-2013-008/CEC-400-2013-008.pdf

Architectural Energy Corporation for California Energy Commission. (November 7, 2007). *2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings.* Sacramento, California. Retrieved from http://www.energy.ca.gov/title24/2008standards/rulemaking/documents/2007-11-07_IMPACT_ANALYSIS.PDF

California Air Pollution Control Officers Association. (2008). *CAPCOA*. Retrieved from http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf

California Air Resources Board. (2011). *STATUS OF SCOPING PLAN RECOMMENDED MEASURES*. Retrieved 2015, from http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf

California Air Resources Board. (2014, June 2). *Amendments to the Low-Emission Vehicle Program - LEV III*. Retrieved March 2015, from http://www.arb.ca.gov/msprog/levprog/leviii/leviii.htm

California Air Resourrces Board. (2013, May 6). *Clean Car Standards - Pavely, Assembly BIll 1493*. Retrieved 2015, from http://www.arb.ca.gov/cc/ccms/ccms.htm

California Building Standards Commission. (June 2010). *California Green Building Standards Code .* Sacramento: California Building Standards Commission. Retrieved from http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf

California Energy Code. (2015). Retrieved from http://en.wikipedia.org/wiki/California_Energy_Code

California Energy Commission. (2015, June 3). Retrieved from http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/15-day_language/impact_analysis/2016_Impact_Analysis_2015-06-03.pdf

CAPCOA. (2016). *Appendix A - Calculation Details for CalEEMod.*

CARB. (2017). *California's Climate Change Scoping Plan Update.* Retrieved from https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf

City-Data. (2017). *Escondido City Data*. Retrieved 2015, from http://www.city-data.com/city/Escondido-California.html

Google. (2017). Retrieved 2015, from maps.google.com

IPCC. (2007). *IPCC Fourth Assessment Report: Climate Change 2007 : Working Group I: The Physical Science Basis.* Retrieved from https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

Latitude 33. (2015). *Tran Monastery Site Plan.*

LLG Engineers. (2014). *Tran Monastery – Traffic Letter Report.* County of San Diego.

Office of Governor Edmund G. Brown Jr. (2015, April 29). *gov.ca.gov*. Retrieved June 7, 2015, from http://gov.ca.gov/news.php?id=18938

Subnational Global Climate Leadership Memorandum of Understanding. (2015, May). *http://under2mou.org*. Retrieved June 2015, from California - Appendix to MOU - Specific Actions and Commitments: http://under2mou.org/?page_id=146

weather.com. (2017, 1 1). *monthly averages and record temperatures*. Retrieved from https://weather.com/weather/monthly/l/USCA0356:1:US

7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the projected CO_2e emissions from the proposed project development based upon the best available information at the time of preparation. The report was prepared by Jeremy Louden; a County approved CEQA Consultant for Air Quality and Greenhouse Gas.

DRAFT

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Date January 15, 2018

ATTACHMENT A

CALEEMOD 2016.3.1 - Annual (2020)

Tran Monastery

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	8.27	1000sqft	8.65	8,272.00	0
Apartments Low Rise	4.00	Dwelling Unit	0.25	4,000.00	11

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2020

Land Use - 8.9 acre site
4 monks live onsite... a 4 unit apartment was selected which is worst case

Construction Phase - cs

Off-road Equipment - ce

Off-road Equipment -

Off-road Equipment - ce

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - ce

Grading - 8.9 acre site

Architectural Coating - Rule 67 Compliant Paint

Vehicle Trips - 108 ADT Mad on Sundays per Traffic Study

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - Rule 67 Compliant Paint

Energy Use -

Woodstoves - no hearth options installes within the development

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblConstructionPhase	NumDays	20.00	89.00
tblConstructionPhase	NumDays	230.00	107.00
tblConstructionPhase	NumDays	20.00	15.00

tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	10.00	5.00
tblFireplaces	NumberGas	2.20	0.00
tblFireplaces	NumberNoFireplace	0.40	4.00
tblFireplaces	NumberWood	1.40	0.00
tblGrading	AcresOfGrading	7.50	8.90
tblGrading	AcresOfGrading	0.00	8.90
tblLandUse	BuildingSpaceSquareFeet	8,270.00	8,272.00
tblLandUse	LandUseSquareFeet	8,270.00	8,272.00
tblLandUse	LotAcreage	0.19	8.65
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	3.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	2.00	1.00
tblTripsAndVMT	WorkerTripNumber	5.00	18.00
tblTripsAndVMT	WorkerTripNumber	6.00	3.00
tblVehicleTrips	SU_TR	36.63	13.05
tblWoodstoves	NumberCatalytic	0.20	0.00
tblWoodstoves	NumberNoncatalytic	0.20	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					
2017	0.2131	1.5882	1.1151	1.6700e-003	0.0730	0.1065	0.1795	0.0350	0.1000	0.1350	0.0000	149.8977	149.8977	0.0366	0.0000	150.8126
2018	0.1036	0.0693	0.0651	1.1000e-004	2.8000e-004	5.2000e-003	5.4700e-003	7.0000e-005	5.2000e-003	5.2700e-003	0.0000	9.0750	9.0750	8.5000e-004	0.0000	9.0962
Maximum	**0.2131**	**1.5882**	**1.1151**	**1.6700e-003**	**0.0730**	**0.1065**	**0.1795**	**0.0350**	**0.1000**	**0.1350**	**0.0000**	**149.8977**	**149.8977**	**0.0366**	**0.0000**	**150.8126**

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					
2017	0.2131	1.5882	1.1151	1.6700e-003	0.0730	0.1065	0.1795	0.0350	0.1000	0.1350	0.0000	149.8976	149.8976	0.0366	0.0000	150.8124
2018	0.1036	0.0693	0.0651	1.1000e-004	2.8000e-004	5.2000e-003	5.4700e-003	7.0000e-005	5.2000e-003	5.2700e-003	0.0000	9.0750	9.0750	8.5000e-004	0.0000	9.0962
Maximum	**0.2131**	**1.5882**	**1.1151**	**1.6700e-003**	**0.0730**	**0.1065**	**0.1795**	**0.0350**	**0.1000**	**0.1350**	**0.0000**	**149.8976**	**149.8976**	**0.0366**	**0.0000**	**150.8124**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2017	8-31-2017	0.9080	0.9080
2	9-1-2017	11-30-2017	0.8254	0.8254
3	12-1-2017	2-28-2018	0.1697	0.1697
4	3-1-2018	5-31-2018	0.0644	0.0644
		Highest	0.9080	0.9080

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	0.0609	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499
Energy	8.3000e-004	7.3400e-003	5.0700e-003	5.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	36.9520	36.9520	1.3100e-003	3.9000e-004	37.1009
Mobile	0.0316	0.1337	0.3426	1.0500e-003	0.0859	1.0700e-003	0.0869	0.0230	1.0000e-003	0.0240	0.0000	96.8397	96.8397	5.5300e-003	0.0000	96.9778
Waste						0.0000	0.0000		0.0000	0.0000	9.9425	0.0000	9.9425	0.5876	0.0000	24.6321
Water						0.0000	0.0000		0.0000	0.0000	0.1648	4.2762	4.4410	0.0171	4.4000e-004	4.9981
Total	**0.0933**	**0.1414**	**0.3776**	**1.1000e-003**	**0.0859**	**1.8000e-003**	**0.0877**	**0.0230**	**1.7300e-003**	**0.0247**	**10.1073**	**138.1165**	**148.2237**	**0.6116**	**8.3000e-004**	**163.7588**

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	0.0609	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499
Energy	8.3000e-004	7.3400e-003	5.0700e-003	5.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	36.9520	36.9520	1.3100e-003	3.9000e-004	37.1009
Mobile	0.0316	0.1337	0.3426	1.0500e-003	0.0859	1.0700e-003	0.0869	0.0230	1.0000e-003	0.0240	0.0000	96.8397	96.8397	5.5300e-003	0.0000	96.9778
Waste						0.0000	0.0000		0.0000	0.0000	9.9425	0.0000	9.9425	0.5876	0.0000	24.6321
Water						0.0000	0.0000		0.0000	0.0000	0.1648	4.2762	4.4410	0.0171	4.4000e-004	4.9981
Total	**0.0933**	**0.1414**	**0.3776**	**1.1000e-003**	**0.0859**	**1.8000e-003**	**0.0877**	**0.0230**	**1.7300e-003**	**0.0247**	**10.1073**	**138.1165**	**148.2237**	**0.6116**	**8.3000e-004**	**163.7588**

	ROG	NOx	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	6/1/2017	6/7/2017	5	5	
2	Grading	Grading	6/8/2017	6/28/2017	5	15	
3	Building Construction	Building Construction	6/29/2017	11/24/2017	5	107	
4	Paving	Paving	11/25/2017	12/1/2017	5	5	
5	Architectural Coating	Architectural Coating	12/2/2017	4/5/2018	5	89	

Acres of Grading (Site Preparation Phase): 8.9

Acres of Grading (Grading Phase): 8.9

Acres of Paving: 0

Residential Indoor: 8,100; Residential Outdoor: 2,700; Non-Residential Indoor: 12,408; Non-Residential Outdoor: 4,136; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
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
Building Construction	Cranes	1	3.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	3.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2017

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					0.0198	0.0000	0.0198	8.7900e-003	0.0000	8.7900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8700e-003	0.0410	0.0176	3.0000e-005		2.2100e-003	2.2100e-003		2.0300e-003	2.0300e-003	0.0000	2.7039	2.7039	8.3000e-004	0.0000	2.7246
Total	**3.8700e-003**	**0.0410**	**0.0176**	**3.0000e-005**	**0.0198**	**2.2100e-003**	**0.0220**	**8.7900e-003**	**2.0300e-003**	**0.0108**	**0.0000**	**2.7039**	**2.7039**	**8.3000e-004**	**0.0000**	**2.7246**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.7000e-004	1.6500e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3574	0.3574	1.0000e-005	0.0000	0.3577
Total	**2.1000e-004**	**1.7000e-004**	**1.6500e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3574**	**0.3574**	**1.0000e-005**	**0.0000**	**0.3577**

3.2 Site Preparation - 2017

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					0.0198	0.0000	0.0198	8.7900e-003	0.0000	8.7900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.8700e-003	0.0410	0.0176	3.0000e-005		2.2100e-003	2.2100e-003		2.0300e-003	2.0300e-003	0.0000	2.7039	2.7039	8.3000e-004	0.0000	2.7246
Total	**3.8700e-003**	**0.0410**	**0.0176**	**3.0000e-005**	**0.0198**	**2.2100e-003**	**0.0220**	**8.7900e-003**	**2.0300e-003**	**0.0108**	**0.0000**	**2.7039**	**2.7039**	**8.3000e-004**	**0.0000**	**2.7246**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.7000e-004	1.6500e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3574	0.3574	1.0000e-005	0.0000	0.3577
Total	**2.1000e-004**	**1.7000e-004**	**1.6500e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3574**	**0.3574**	**1.0000e-005**	**0.0000**	**0.3577**

3.3 Grading - 2017

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					0.0499	0.0000	0.0499	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2542	0.1283	2.2000e-004		0.0133	0.0133		0.0123	0.0123	0.0000	20.6696	20.6696	6.3300e-003	0.0000	20.8279
Total	**0.0230**	**0.2542**	**0.1283**	**2.2000e-004**	**0.0499**	**0.0133**	**0.0632**	**0.0253**	**0.0123**	**0.0376**	**0.0000**	**20.6696**	**20.6696**	**6.3300e-003**	**0.0000**	**20.8279**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	4.3000e-004	4.1300e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8934	0.8934	3.0000e-005	0.0000	0.8942
Total	**5.3000e-004**	**4.3000e-004**	**4.1300e-003**	**1.0000e-005**	**9.0000e-004**	**1.0000e-005**	**9.1000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8934**	**0.8934**	**3.0000e-005**	**0.0000**	**0.8942**

3.3 Grading - 2017

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					0.0499	0.0000	0.0499	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0230	0.2542	0.1283	2.2000e-004		0.0133	0.0133		0.0123	0.0123	0.0000	20.6696	20.6696	6.3300e-003	0.0000	20.8279
Total	**0.0230**	**0.2542**	**0.1283**	**2.2000e-004**	**0.0499**	**0.0133**	**0.0632**	**0.0253**	**0.0123**	**0.0376**	**0.0000**	**20.6696**	**20.6696**	**6.3300e-003**	**0.0000**	**20.8279**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.3000e-004	4.3000e-004	4.1300e-003	1.0000e-005	9.0000e-004	1.0000e-005	9.1000e-004	2.4000e-004	1.0000e-005	2.5000e-004	0.0000	0.8934	0.8934	3.0000e-005	0.0000	0.8942
Total	**5.3000e-004**	**4.3000e-004**	**4.1300e-003**	**1.0000e-005**	**9.0000e-004**	**1.0000e-005**	**9.1000e-004**	**2.4000e-004**	**1.0000e-005**	**2.5000e-004**	**0.0000**	**0.8934**	**0.8934**	**3.0000e-005**	**0.0000**	**0.8942**

3.4 Building Construction - 2017

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	0.1489	1.2103	0.8974	1.2900e-003		0.0863	0.0863		0.0812	0.0812	0.0000	114.3458	114.3458	0.0273	0.0000	115.0286
Total	**0.1489**	**1.2103**	**0.8974**	**1.2900e-003**		**0.0863**	**0.0863**		**0.0812**	**0.0812**	**0.0000**	**114.3458**	**114.3458**	**0.0273**	**0.0000**	**115.0286**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	7.6600e-003	2.1800e-003	1.0000e-005	3.6000e-004	7.0000e-005	4.3000e-004	1.0000e-004	7.0000e-005	1.7000e-004	0.0000	1.4369	1.4369	1.2000e-004	0.0000	1.4400
Worker	7.6000e-004	6.1000e-004	5.9000e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.2746	1.2746	5.0000e-005	0.0000	1.2757
Total	**1.0800e-003**	**8.2700e-003**	**8.0800e-003**	**2.0000e-005**	**1.6500e-003**	**8.0000e-005**	**1.7300e-003**	**4.4000e-004**	**8.0000e-005**	**5.2000e-004**	**0.0000**	**2.7114**	**2.7114**	**1.7000e-004**	**0.0000**	**2.7157**

3.4 Building Construction - 2017

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	0.1489	1.2103	0.8974	1.2900e-003		0.0863	0.0863		0.0812	0.0812	0.0000	114.3457	114.3457	0.0273	0.0000	115.0285
Total	**0.1489**	**1.2103**	**0.8974**	**1.2900e-003**		**0.0863**	**0.0863**		**0.0812**	**0.0812**	**0.0000**	**114.3457**	**114.3457**	**0.0273**	**0.0000**	**115.0285**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	7.6600e-003	2.1800e-003	1.0000e-005	3.6000e-004	7.0000e-005	4.3000e-004	1.0000e-004	7.0000e-005	1.7000e-004	0.0000	1.4369	1.4369	1.2000e-004	0.0000	1.4400
Worker	7.6000e-004	6.1000e-004	5.9000e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.3000e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.2746	1.2746	5.0000e-005	0.0000	1.2757
Total	**1.0800e-003**	**8.2700e-003**	**8.0800e-003**	**2.0000e-005**	**1.6500e-003**	**8.0000e-005**	**1.7300e-003**	**4.4000e-004**	**8.0000e-005**	**5.2000e-004**	**0.0000**	**2.7114**	**2.7114**	**1.7000e-004**	**0.0000**	**2.7157**

3.5 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8600e-003	0.0518	0.0376	6.0000e-005		2.9000e-003	2.9000e-003		2.6700e-003	2.6700e-003	0.0000	5.2858	5.2858	1.6200e-003	0.0000	5.3263
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8600e-003**	**0.0518**	**0.0376**	**6.0000e-005**		**2.9000e-003**	**2.9000e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**5.2858**	**5.2858**	**1.6200e-003**	**0.0000**	**5.3263**

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	1.8000e-004	1.4000e-004	1.3800e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2978	0.2978	1.0000e-005	0.0000	0.2981
Total	**1.8000e-004**	**1.4000e-004**	**1.3800e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2978**	**0.2978**	**1.0000e-005**	**0.0000**	**0.2981**

3.5 Paving - 2017

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.8600e-003	0.0518	0.0376	6.0000e-005		2.9000e-003	2.9000e-003		2.6700e-003	2.6700e-003	0.0000	5.2858	5.2858	1.6200e-003	0.0000	5.3263
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8600e-003**	**0.0518**	**0.0376**	**6.0000e-005**		**2.9000e-003**	**2.9000e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**5.2858**	**5.2858**	**1.6200e-003**	**0.0000**	**5.3263**

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	1.8000e-004	1.4000e-004	1.3800e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2978	0.2978	1.0000e-005	0.0000	0.2981
Total	**1.8000e-004**	**1.4000e-004**	**1.3800e-003**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2978**	**0.2978**	**1.0000e-005**	**0.0000**	**0.2981**

3.6 Architectural Coating - 2017

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	0.0270					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5600
Total	**0.0303**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5600**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0794	0.0794	0.0000	0.0000	0.0795
Total	**5.0000e-005**	**4.0000e-005**	**3.7000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0794**	**0.0794**	**0.0000**	**0.0000**	**0.0795**

3.6 Architectural Coating - 2017

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	0.0270					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3200e-003	0.0219	0.0187	3.0000e-005		1.7300e-003	1.7300e-003		1.7300e-003	1.7300e-003	0.0000	2.5533	2.5533	2.7000e-004	0.0000	2.5600
Total	**0.0303**	**0.0219**	**0.0187**	**3.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.7300e-003**	**1.7300e-003**	**0.0000**	**2.5533**	**2.5533**	**2.7000e-004**	**0.0000**	**2.5600**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	3.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0794	0.0794	0.0000	0.0000	0.0795
Total	**5.0000e-005**	**4.0000e-005**	**3.7000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0794**	**0.0794**	**0.0000**	**0.0000**	**0.0795**

3.6 Architectural Coating - 2018

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	0.0931					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0692	0.0640	1.0000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	8.8087	8.8087	8.4000e-004	0.0000	8.8297
Total	**0.1034**	**0.0692**	**0.0640**	**1.0000e-004**		**5.1900e-003**	**5.1900e-003**		**5.1900e-003**	**5.1900e-003**	**0.0000**	**8.8087**	**8.8087**	**8.4000e-004**	**0.0000**	**8.8297**

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	1.5000e-004	1.2000e-004	1.1200e-003	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2663	0.2663	1.0000e-005	0.0000	0.2665
Total	**1.5000e-004**	**1.2000e-004**	**1.1200e-003**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2663**	**0.2663**	**1.0000e-005**	**0.0000**	**0.2665**

3.6 Architectural Coating - 2018

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	0.0931					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0103	0.0692	0.0640	1.0000e-004		5.1900e-003	5.1900e-003		5.1900e-003	5.1900e-003	0.0000	8.8087	8.8087	8.4000e-004	0.0000	8.8297
Total	**0.1034**	**0.0692**	**0.0640**	**1.0000e-004**		**5.1900e-003**	**5.1900e-003**		**5.1900e-003**	**5.1900e-003**	**0.0000**	**8.8087**	**8.8087**	**8.4000e-004**	**0.0000**	**8.8297**

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	1.5000e-004	1.2000e-004	1.1200e-003	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2663	0.2663	1.0000e-005	0.0000	0.2665
Total	**1.5000e-004**	**1.2000e-004**	**1.1200e-003**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2663**	**0.2663**	**1.0000e-005**	**0.0000**	**0.2665**

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	0.0316	0.1337	0.3426	1.0500e-003	0.0859	1.0700e-003	0.0869	0.0230	1.0000e-003	0.0240	0.0000	96.8397	96.8397	5.5300e-003	0.0000	96.9778
Unmitigated	0.0316	0.1337	0.3426	1.0500e-003	0.0859	1.0700e-003	0.0869	0.0230	1.0000e-003	0.0240	0.0000	96.8397	96.8397	5.5300e-003	0.0000	96.9778

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Place of Worship	75.34	85.76	107.92	152,429	152,429
Apartments Low Rise	26.36	28.64	24.28	75,347	75,347
Total	101.70	114.40	132.20	227,777	227,777

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
Place of Worship	9.50	7.30	7.30	0.00	95.00	5.00	64	25	11
Apartments Low Rise	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Place of Worship	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271
Apartments Low Rise	0.588316	0.042913	0.184449	0.110793	0.017294	0.005558	0.015534	0.023021	0.001902	0.002024	0.006181	0.000745	0.001271

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	28.7735	28.7735	1.1600e-003	2.4000e-004	28.8738
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	28.7735	28.7735	1.1600e-003	2.4000e-004	28.8738
NaturalGas Mitigated	8.3000e-004	7.3400e-003	5.0700e-003	5.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	8.1785	8.1785	1.6000e-004	1.5000e-004	8.2271
NaturalGas Unmitigated	8.3000e-004	7.3400e-003	5.0700e-003	5.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	8.1785	8.1785	1.6000e-004	1.5000e-004	8.2271

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	57386.6	3.1000e-004	2.6400e-003	1.1300e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	3.0624	3.0624	6.0000e-005	6.0000e-005	3.0806
Place of Worship	95872.5	5.2000e-004	4.7000e-003	3.9500e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1161	5.1161	1.0000e-004	9.0000e-005	5.1465
Total		**8.3000e-004**	**7.3400e-003**	**5.0800e-003**	**5.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**8.1785**	**8.1785**	**1.6000e-004**	**1.5000e-004**	**8.2271**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	57386.6	3.1000e-004	2.6400e-003	1.1300e-003	2.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	3.0624	3.0624	6.0000e-005	6.0000e-005	3.0806
Place of Worship	95872.5	5.2000e-004	4.7000e-003	3.9500e-003	3.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004	0.0000	5.1161	5.1161	1.0000e-004	9.0000e-005	5.1465
Total		**8.3000e-004**	**7.3400e-003**	**5.0800e-003**	**5.0000e-005**		**5.7000e-004**	**5.7000e-004**		**5.7000e-004**	**5.7000e-004**	**0.0000**	**8.1785**	**8.1785**	**1.6000e-004**	**1.5000e-004**	**8.2271**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	18145.4	5.9301	2.4000e-004	5.0000e-005	5.9508
Place of Worship	69898.4	22.8434	9.2000e-004	1.9000e-004	22.9231
Total		**28.7735**	**1.1600e-003**	**2.4000e-004**	**28.8738**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	18145.4	5.9301	2.4000e-004	5.0000e-005	5.9508
Place of Worship	69898.4	22.8434	9.2000e-004	1.9000e-004	22.9231
Total		**28.7735**	**1.1600e-003**	**2.4000e-004**	**28.8738**

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	0.0609	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499
Unmitigated	0.0609	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499

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	0.0120					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0479					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.1000e-004	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499
Total	**0.0609**	**3.5000e-004**	**0.0299**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0487**	**0.0487**	**5.0000e-005**	**0.0000**	**0.0499**

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	0.0120					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0479					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.1000e-004	3.5000e-004	0.0299	0.0000		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004	0.0000	0.0487	0.0487	5.0000e-005	0.0000	0.0499
Total	**0.0609**	**3.5000e-004**	**0.0299**	**0.0000**		**1.6000e-004**	**1.6000e-004**		**1.6000e-004**	**1.6000e-004**	**0.0000**	**0.0487**	**0.0487**	**5.0000e-005**	**0.0000**	**0.0499**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	4.4410	0.0171	4.4000e-004	4.9981
Unmitigated	4.4410	0.0171	4.4000e-004	4.9981

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.260616 / 0.164301	1.7883	8.5600e-003	2.1000e-004	2.0663
Place of Worship	0.258759 / 0.404726	2.6527	8.5400e-003	2.2000e-004	2.9318
Total		**4.4410**	**0.0171**	**4.3000e-004**	**4.9981**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	0.260616 / 0.164301	1.7883	8.5600e-003	2.1000e-004	2.0663
Place of Worship	0.258759 / 0.404726	2.6527	8.5400e-003	2.2000e-004	2.9318
Total		**4.4410**	**0.0171**	**4.3000e-004**	**4.9981**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	9.9425	0.5876	0.0000	24.6321
Unmitigated	9.9425	0.5876	0.0000	24.6321

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1.84	0.3735	0.0221	0.0000	0.9253
Place of Worship	47.14	9.5690	0.5655	0.0000	23.7068
Total		**9.9425**	**0.5876**	**0.0000**	**24.6321**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	1.84	0.3735	0.0221	0.0000	0.9253
Place of Worship	47.14	9.5690	0.5655	0.0000	23.7068
Total		**9.9425**	**0.5876**	**0.0000**	**24.6321**

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