Appendices

Appendix 5.6-1 Global Climate Change Analysis

Appendices

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GLOBAL CLIMATE CHANGE ANALYSIS

RESIDENTIAL CARE FACILITY 929 Genevieve Street SOLANA BEACH 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 Resource 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)

Greenhouse 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 97 (SB97), California Environmental Quality Act (CEQA), which is acceptable in the City of Solana Beach. Greenhouse Gases analyzed in this study are Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). To simplify greenhouse gas calculations, both CH₄ and N₂O are converted to equivalent amounts of CO₂ and are identified as CO₂e. In other words CO₂e is an equivalent volume or mass of CO₂ converted from global warming potentials of other gases that may cause equivalent warming.

The proposed project seeks to develop 99 assisted living units. The building is expected to have approximately 83,000 SF combined usable space for the tenants and workers. It is expected that the entire project will be built within 12 months of the initial groundbreaking.

The proposed project will emit GHGs directly throughout the burning of carbon-based fuels such as gasoline and natural gas as well as indirectly through the usage of electricity and water and from the anaerobic bacterial breakdown of organic solid waste disposed into landfills. The Proposed project would generate approximately 658.80 Metric Tons of CO₂e each year without construction and 682.54 Metric Tons including the amortized construction GHG emissions. Given this, the project would not exceed the California Air Pollution Control Officers Association's (CAPCOA) 900 Metric Ton per year screening thresholds and would therefore not be considered a significant source of GHGs within the City of Solana Beach or the State of California.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Greenhouse Gas Assessment (GHG) 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 greenhouse gas emissions be reduced to 1990 levels and SB97 a "companion" bill directed amendments to the California Environmental Quality Act (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 design measures to bring the project to a level considered less than significant.

1.2 Project Location

The proposed development is located in the City of Solana Beach at 929 Genevieve Street. Access to the Project is proposed from a single driveway on Genevieve Street. To reach Genevieve Street, project traffic will be required to use Marine View Avenue. Overall travel to and from the project site is anticipated from Lomas Santa Fe Drive via San Andres Drive and Marine View Avenue. Interstate 5 to the west provides regional access to the Project site. A general project vicinity map is shown in Figure 1–A on the following page.

1.3 Project Description

The Project proposes building 99 senior housing units and an open space park on approximately 2.9 acres within the City of Solana Beach. The project would need to demolish an existing structure and all ancillary storage sheds as grub and grade the entire site. It is expected that the project would begin work in 2018 and be completed within a one year window. Full operations will occur prior to 2020. The proposed site development plan is shown on Figure 1–B on Page 3 below.



Figure 1-A: Project Vicinity Map

Source: (Google, 2016)



Figure 1-B: Proposed Project Site Plan

Source: (Pasco Laret Suiter & Associates, 2016)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gases

Greenhouse gases such as water vapor and carbon dioxide 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 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 CO_2 and to a much lesser extent CO. Additionally, over the years scientist have measured this rise in Carbon Dioxide and fear that it may be heating the planet too. Additionally, it is thought that other greenhouse gases such as Methane and Nitrous Oxide are to blame.

Greenhouse Gases of concern as analyzed in this study are Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). To simply greenhouse gas 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 U.S. Environmental Protection Agency publishes GWPs for various GHGs and reports that the GWP for CH₄ and N₂O is 21 and 310, respectively.

2.2 Existing Setting

The Project site lies in the western portion of San Diego County in the City of Solana Beach and is generally disturbed and is mostly surrounded by commercial and residential uses. The site is currently being used as a single family residential development. Site topography onsite generally slopes with elevations ranging from 111 to 135 feet above mean sea level (AMSL).

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. Meteorological trends within the City of Solana Beach are typically cooler given the close vicinity to the ocean. Median temperatures range from approximately 55°F in the winter to approximately 72°F in the summer (City-Data, 2016).

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% reduction. Significance thresholds have not been adopted but are currently being discussed. AB 32 is specific as to when thresholds shall be defined. 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)

This bill makes a legislative declaration that it is the policy goal of the state that not less than 75% of solid waste generated be source reduced, recycled, or composted by the year 2020, and would require the California Department of Resources Recycling and Recovery (CalRecycle), by January 1, 2014, to provide a report to the Legislature that provides strategies to achieve that policy goal and also includes other specified information and recommendations.

This bill will increase diversion requirements by an additional 25% 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 (Senate Bill 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 are similar to CAFE Standards however are expected to produce a Greenhouse Gas Benefit greater to that of the CAFE Standard and would be expected to double the amount of GHGs saved under CAFE. The Pavley rules or also referred to as California Standards are designed to regulate GHG emissions while the federal standards are aimed at reducing the nation's fuel consumption.

Under Pavley starting with vehicles produced in 2009, manufactures have the flexibility in meeting California standards through a combination of reducing tailpipe emissions of Carbon Dioxide, Nitrous Oxide, Methane and hydrofluorocarbons from vehicle air conditions systems. Furthermore, the California standards are estimated to increase fuel efficiency to 35.7 miles per gallon by (California Air Resource 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 Resource 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 or roughly 2.4% beyond that of Pavley I (California Air Resource Board, 2011). It should be noted that the 2.4% reductions would only be applied to the passenger cars and light duty trucks which account for roughly 78% of the vehicles used onsite. Given this, the expected reduction would be only 1.87%.

3.6 Vehicle Efficiency Measures

Additional vehicle efficiency measures within the 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 remove 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 miles per gallon (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. That the following greenhouse gas emission reduction targets are hereby established for California: 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% 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% 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% 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

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.

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%. 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% which has already been achieved in the baseline year.

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

The latest standards are Title 24 2013 and are 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% for multi-family structures (Architectural Energy Corporation (AEC), 2013). Nonresidential Newly Constructed Buildings would have a reduction from the 2008 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 CEC currently anticipates adopting the 2016 Title 24 standards in 2015, and assigning those standards with an effective date of January 1, 2017 Further, both the CEC and CPUC remain committed to their goal that all new residential construction in California achieves zero net energy standards by 2020 It is likely that a subsequent, more rigorous iteration of the Title 24 standards will apply to the project at the time of building permit issuance. The GHG emission and energy savings associated with those standards have not been quantified at this time because the savings are unknown. Furthermore, it should be noted that energy the CEC indicated that Title 24 reductions would include lighting as well.

3.13 California Environmental Quality Act (CEQA) 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?

3.14 ARB Scoping Plan Measures

In response to AB 32, California Air Resource Board (ARB) 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 Low Carbon Fuel Standards (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 ARB 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.

3.15 City of Solana Beach Guidelines

The City of Solana Beach recommends using screening thresholds published by the California Air Pollution Control Officers Association (CAPCOA) for determining the need for additional analysis and mitigation for GHG-related impacts under CEQA. The CAPCOA white paper recommends a 900 MT CO_2e /year screening level to determine the size of projects that would be likely to have a less than considerable contribution to the cumulative impact of climate change. Project exceeding this would require further analysis and mitigation, as necessary (California Air Pollution Control Officers Association, 2008).

When projects exceed this screening threshold, it is assumed that the project would cumulatively impact the City's ability to meet the guidelines of AB 32. Therefore, projects which exceed the 900 MT thresholds are required to show an emissions reduction over a Business as Usual calculation from the 2005 baseline year (BAU) by the year 2020.

4.0 METHODOLOGY

4.1 Construction CO₂e Emissions Calculation Methodology

The Project construction dates were estimated based a hypothetical construction kickoff in early 2018 with demo of the existing residential unit onsite, grading and paving expected to last about two months. Once building Construction begins, it's expected that the project would be completed roughly 10 months later for a total construction duration of one year. Operations would be expected to begin 2019. It should be noted that the project would be export roughly 26,200 CY of soil and all demolition debris from removing the onsite structures. Table 4.1 below 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.

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	1/1/2018	1/7/2018	
Concrete/Industrial Saws			1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			1
Site Preparation	1/8/2018	1/12/2018	
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			1
Grading	1/16/2018	2/20/2018	
Graders		<u> </u>	1
Rubber Tired Dozers			1
Tractors/Loaders/Backhoes			2
Paving	2/21/2018	2/28/2018	
Cement and Mortar Mixers			1
Pavers			1
Paving Equipment			1
Rollers			2
Tractors/Loaders/Backhoes			1
Building Construction	3/1/2018	12/31/2018	
Forklifts			2
Generator Sets			1
Tractors/Loaders/Backhoes			1
Welders			3
Building Construction Crane	6/1/2018	6/21/2018	
Forklifts		<u> </u>	2
Architectural Coating	5/1/2018	12/31/2018	
This equipment list is based upon equipment ir provided by the project applicant.	ventory within CalEEMod	. The quantity and types are ba	ased upon assumptions

Table 4.1: Expected Construction Equipment

4.2 Operational Vehicular Emissions Calculation Methodology

Once construction is completed the proposed project would generate air pollutant and GHG emissions from daily operations which would include sources such as Area, Energy, Mobile, Solid waste and Water uses, which are calculated within the latest CalEEMod 2016.3.1 emissions model. Area Sources include usage of fireplaces, consumer products, 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 GHGs. 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 air emissions and 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.

4.3 CalEEMod Mobile Calculations

CalEEMod calculates the emissions associated with on-road mobile sources. These are associated with residents, workers, customers, and delivery vehicles visiting the land use types in the project. The emissions associated with on-road mobile sources includes running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Starting and evaporative emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. All of the other emissions are dependent on vehicle miles traveled (VMT) which are calculated within CalEEMod for a 99 bed congregate care facility.

4.4 CalEEMod Area Calculations

The area source module is used to calculate direct sources of air emissions located at the project site. This includes hearths, consumer product use, architectural coatings, and landscape maintenance equipment. This does not include the emissions associated with natural gas usage in space heating, water heating, and stoves as these are calculated in the building energy use module (CAPCOA, 2013). For this analysis, a 99 bed congregate care facility was assumed.

4.5 CalEEMod Energy 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 and Electric. CalEEMod utilizes input sources recommended for the prosed uses for both Natural Gas and Electricity.

4.6 CalEEMod Sold Waste Usage Calculations

Municipal solid waste (MSW) is the amount of material that is disposed of by land filling, 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 California Department of Resources Recycling and Recovery (CalRecycle) data for individual land uses. For purposes of analysis, the project was assumed to generate 289 tons of waste per year which was derived based on a 16 lb per day per bed assumption. CalEEMod was updated to reflect these changes.

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 methane and nitrous oxide. These emissions are calculated within the model. For purposes of analysis, the project was assumed to generate 75 gallons per day per bed and that 75% of that water was used within the indoor setting and 25% was used within the outdoor setting. CalEEMod was updated to reflect these changes.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CALEEMOD 2016.3.1 inputs for the model as shown in Table 4.1 above, we find that grading and construction of the project will produce approximately 474.86 metric tons of CO_2e over the construction life of the project for an average of 23.74 MT. The CALEEMOD model 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 20-year period. A summary of the construction emissions is shown in Table 5.1 below.

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N20	CO2e (MT)	
2018	0.00	473.29	473.29	0.06	0.00	474.86	
Total	0.00	473.29	473.29	0.06	0.00	474.86	
Yearly Average Construction Emissions (Metric Tons/year over 20 years) 23.74							
Expected Construction emissions are based upon CalEEMod modeling assumptions for equipment and durations listed in Table 4.1 above.							

Table 5.1: Expected Annual Construction CO₂e Emissions Summary

5.2 Project Related Operational Emissions/Conclusions

As previously discussed, emissions generated from Area, Energy, Mobile, Solid Waste and Water uses is also calculated within CalEEMod. Statewide averages for utility emissions were utilized for the calculations throughout the model. The calculated operational emissions would be 658.80 MT CO₂e and are identified in Table 5.2 on the following page.

Finally, adding both annual construction emissions and the expected operational emissions, the project would generate emissions of 682.54 MT CO₂e. Given this, the project would not exceed the recommended 900 MT screening threshold and would therefore not be considered a significant impact under CEQA and would not require further analysis or mitigation to move forward.

Table 5.2:	Expected	Unmitigated	Operational	Emissions	Summary I	MT/Year
------------	----------	-------------	-------------	-----------	-----------	---------

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N20	CO2e (MT/Yr)	
Area	0.00	1.20	1.20	0.00	0.00	1.23	
Energy	0.00	184.85	184.85	0.01	0.00	185.61	
Mobile	0.00	308.80	308.80	0.02	0.00	309.22	
Waste	58.66	0.00	58.66	3.47	0.00	145.34	
Water	0.81	13.89	14.69	0.08	0.00	17.39	
	658.80						
	23.74						
	Total Operations (MT/Year)						
Data is presented in decimal format and may have rounding errors.							

6.0 References

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Specific Actions and Commitments: http://under2mou.org/?page_id=146

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 August 7, 2017

ATTACHMENT A

CALEEMOD 2016.3.1 - Annual

Solana Beach Senior Housing 2020

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	99.00	Dwelling Unit	2.90	83,001.00	283

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 (Ib/MWhr)	720.49	CH4 Intensity (Ib/MWhr)	0.029	N2O Intensity ((Ib/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

CalEEMod Version: CalEEMod.2016.3.1

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Solana Beach Senior Housing 2020 - San Diego County, Annual

Project Characteristics -

- Land Use Proposed Project
- Off-road Equipment -
- Construction Phase cs
- Off-road Equipment ce
- Off-road Equipment ce
- Off-road Equipment ce
- Off-road Equipment -
- Off-road Equipment -
- Off-road Equipment -
- Architectural Coating Rule 67 Paint
- Woodstoves No FP
- Area Coating Rule 67 Paint

Water And Wastewater - Water 75 gallons per day per bed and 75 percent of potable water use for indoor water

- Solid Waste IS states 289 Tons/year
- Grading 26200 CY Export

Construction Off-road Equipment Mitigation - Project will utilize Tier 4 equipment

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	175.00
tblConstructionPhase	NumDays	220.00	218.00
tblConstructionPhase	NumDays	220.00	15.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	6.00	26.00
tblConstructionPhase	NumDays	10.00	6.00
tblConstructionPhase	NumDays	3.00	5.00
tblFireplaces	FireplaceDayYear	82.00	0.00
tblFireplaces	FireplaceHourDay	3.00	0.00
tblFireplaces	NumberGas	54.45	0.00
tblFireplaces	NumberNoFireplace	9.90	99.00
tblFireplaces	NumberWood	34.65	0.00
tblGrading	MaterialExported	0.00	23,200.00
tblGrading	MaterialExported	0.00	3,000.00
tblLandUse	BuildingSpaceSquareFeet	99,000.00	83,001.00
tblLandUse	LandUseSquareFeet	99,000.00	83,001.00
tblLandUse	LotAcreage	6.19	2.90
tblOffRoadEquipment	HorsePower	231.00	226.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	UsageHours	8.00	7.00
tblProjectCharacteristics	OperationalYear	2018	2020
tblSolidWaste	SolidWasteGenerationRate	90.34	289.00
tblWater	IndoorWaterUseRate	6,450,248.54	2,540,674.00
tblWater	OutdoorWaterUseRate	4,066,461.03	846,891.00
tblWoodstoves	NumberCatalytic	4.95	0.00
tblWoodstoves	NumberNoncatalytic	4.95	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00

2.0 Emissions Summary

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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						
2018	1.1678	2.9109	2.3021	5.2800e- 003	0.2167	0.1461	0.3628	0.0825	0.1409	0.2234	0.0000	473.2913	473.2913	0.0628	0.0000	474.8615
Maximum	1.1678	2.9109	2.3021	5.2800e- 003	0.2167	0.1461	0.3628	0.0825	0.1409	0.2234	0.0000	473.2913	473.2913	0.0628	0.0000	474.8615

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						
2018	0.8785	1.1606	2.2145	5.2800e- 003	0.2167	4.5600e- 003	0.2213	0.0825	4.3700e- 003	0.0868	0.0000	473.2910	473.2910	0.0628	0.0000	474.8612
Maximum	0.8785	1.1606	2.2145	5.2800e- 003	0.2167	4.5600e- 003	0.2213	0.0825	4.3700e- 003	0.0868	0.0000	473.2910	473.2910	0.0628	0.0000	474.8612

	ROG	NOx	со	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	24.77	60.13	3.80	0.00	0.00	96.88	39.01	0.00	96.90	61.12	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	1.2829	0.6402
2	4-1-2018	6-30-2018	1.1738	0.4837
3	7-1-2018	9-30-2018	1.2459	0.5705
		Highest	1.2829	0.6402

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					ton	s/yr							MT	/yr		
Area	0.4245	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300
Energy	4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	184.8534	184.8534	6.4500e- 003	2.0100e- 003	185.6132
Mobile	0.0856	0.3839	1.0299	3.3500e- 003	0.2791	3.3700e- 003	0.2825	0.0748	3.1700e- 003	0.0779	0.0000	308.8027	308.8027	0.0168	0.0000	309.2226
Waste						0.0000	0.0000		0.0000	0.0000	58.6644	0.0000	58.6644	3.4670	0.0000	145.3385
Water	n					0.0000	0.0000		0.0000	0.0000	0.8060	13.8865	14.6925	0.0834	2.0700e- 003	17.3932
Total	0.5148	0.4329	1.7846	3.6500e- 003	0.2791	0.0107	0.2898	0.0748	0.0105	0.0853	59.4704	508.7433	568.2138	3.5747	4.0800e- 003	658.7975

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	C	00	SO2	Fugit PM	tive 10	Exhaust PM10	PM10 Total	Fugi PM	itive 2.5	Exhaust PM2.5	PM2.5 Tota	I Bio-	- CO2	NBio- CO2	Total	CO2	CH4	N2O	С	O2e
Category		_					tons/	⁄yr										MT/yr	ſ			
Area	0.4245	8.5300 003	e- 0.7	7375	4.0000e- 005			4.0600e- 003	4.0600e- 003			4.0600e- 003	4.0600e- 003	0.(0000	1.2008	1.20	08 1	.1700e- 003	0.000) 1.:	2300
Energy	4.7300e- 003	0.040	5 0.0	0172	2.6000e- 004	 		3.2700e- 003	3.2700e- 003			3.2700e- 003	3.2700e- 003	0.(0000	184.8534	184.8	534 6	6.4500e- 003	2.0100 003	e- 185	.6132
Mobile	0.0856	0.383	9 1.0	0299	3.3500e- 003	0.27	791	3.3700e- 003	0.2825	0.0	748	3.1700e- 003	0.0779	0.(0000	308.8027	308.8	027	0.0168	0.000) 309	.2226
Waste	F,					 		0.0000	0.0000			0.0000	0.0000	58.	.6644	0.0000	58.66	644	3.4670	0.000) 145	.3385
Water	F,					 		0.0000	0.0000			0.0000	0.0000	0.8	8060	13.8865	14.69	925	0.0834	2.0700 003	e- 17.	3932
Total	0.5148	0.432	9 1.7	7846	3.6500e- 003	0.27	791	0.0107	0.2898	0.0	748	0.0105	0.0853	59.	.4704	508.7433	568.2	138	3.5747	4.0800 003	è- 658	.7975
	ROG		NOx	С	:0 S	02	Fugiti PM1	ive Exh IO PN	aust P /10 T	M10 otal	Fugiti PM2	ive Ext 2.5 Pl	naust PN M2.5 To	l2.5 otal	Bio- C	O2 NBio	-CO2 1	otal CO	02 Cł	14	N20	CO2e
Percent Reduction	0.00		0.00	0.	00 0	.00	0.00	0 0.	.00 (0.00	0.0	0 0	.00 0	.00	0.00	0.0	00	0.00	0.0	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	Demolition	Demolition	1/1/2018	1/7/2018	5	5	
2	Site Preparation	Site Preparation	1/8/2018	1/12/2018	5	5	
3	Grading	Grading	1/16/2018	2/20/2018	5	26	
4	Paving	Paving	2/21/2018	2/28/2018	5	6	
5	Building Construction	Building Construction	3/1/2018	12/31/2018	5	218	
6	Architectural Coating	Architectural Coating	5/1/2018	12/31/2018	5	175	
7	Building Construction Crane Usage	Building Construction	6/1/2018	6/21/2018	5	15	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 13

Acres of Paving: 0

Residential Indoor: 168,077; Residential Outdoor: 56,026; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction Crane Usage	Cranes	1	7.00	226	0.29

Trips and VMT

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Solana Beach Senior	Housing 2020 - Sar	n Diego County, Annua	al
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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	3	8.00	0.00	18.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	375.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	2,900.00	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	7	71.00	11.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	14.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	1	71.00	11.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Clean Paved Roads

3.2 Demolition - 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					ton	s/yr							MT	/yr		
Fugitive Dust					1.9900e- 003	0.0000	1.9900e- 003	3.0000e- 004	0.0000	3.0000e- 004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.8800e- 003	0.0478	0.0261	4.0000e- 005		2.6600e- 003	2.6600e- 003		2.5000e- 003	2.5000e- 003	0.0000	4.0044	4.0044	9.3000e- 004	0.0000	4.0277
Total	4.8800e- 003	0.0478	0.0261	4.0000e- 005	1.9900e- 003	2.6600e- 003	4.6500e- 003	3.0000e- 004	2.5000e- 003	2.8000e- 003	0.0000	4.0044	4.0044	9.3000e- 004	0.0000	4.0277

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3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	/yr		
Hauling	8.0000e- 005	2.9200e- 003	6.1000e- 004	1.0000e- 005	1.5000e- 004	1.0000e- 005	1.7000e- 004	4.0000e- 005	1.0000e- 005	5.0000e- 005	0.0000	0.7092	0.7092	6.0000e- 005	0.0000	0.7108
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e- 005	7.0000e- 005	6.5000e- 004	0.0000	1.6000e- 004	0.0000	1.6000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.1544	0.1544	1.0000e- 005	0.0000	0.1545
Total	1.7000e- 004	2.9900e- 003	1.2600e- 003	1.0000e- 005	3.1000e- 004	1.0000e- 005	3.3000e- 004	8.0000e- 005	1.0000e- 005	9.0000e- 005	0.0000	0.8636	0.8636	7.0000e- 005	0.0000	0.8653

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					ton	s/yr							МТ	/yr		
Fugitive Dust		, , ,			1.9900e- 003	0.0000	1.9900e- 003	3.0000e- 004	0.0000	3.0000e- 004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1000e- 004	2.2200e- 003	0.0251	4.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	4.0043	4.0043	9.3000e- 004	0.0000	4.0277
Total	5.1000e- 004	2.2200e- 003	0.0251	4.0000e- 005	1.9900e- 003	1.0000e- 005	2.0000e- 003	3.0000e- 004	1.0000e- 005	3.1000e- 004	0.0000	4.0043	4.0043	9.3000e- 004	0.0000	4.0277

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3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	'/yr		
Hauling	8.0000e- 005	2.9200e- 003	6.1000e- 004	1.0000e- 005	1.5000e- 004	1.0000e- 005	1.7000e- 004	4.0000e- 005	1.0000e- 005	5.0000e- 005	0.0000	0.7092	0.7092	6.0000e- 005	0.0000	0.7108
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e- 005	7.0000e- 005	6.5000e- 004	0.0000	1.6000e- 004	0.0000	1.6000e- 004	4.0000e- 005	0.0000	4.0000e- 005	0.0000	0.1544	0.1544	1.0000e- 005	0.0000	0.1545
Total	1.7000e- 004	2.9900e- 003	1.2600e- 003	1.0000e- 005	3.1000e- 004	1.0000e- 005	3.3000e- 004	8.0000e- 005	1.0000e- 005	9.0000e- 005	0.0000	0.8636	0.8636	7.0000e- 005	0.0000	0.8653

3.3 Site Preparation - 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					ton	s/yr							МТ	/yr		
Fugitive Dust					0.0134	0.0000	0.0134	7.2700e- 003	0.0000	7.2700e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1300e- 003	0.0332	0.0147	3.0000e- 005		1.7400e- 003	1.7400e- 003		1.6000e- 003	1.6000e- 003	0.0000	2.3277	2.3277	7.2000e- 004	0.0000	2.3458
Total	3.1300e- 003	0.0332	0.0147	3.0000e- 005	0.0134	1.7400e- 003	0.0151	7.2700e- 003	1.6000e- 003	8.8700e- 003	0.0000	2.3277	2.3277	7.2000e- 004	0.0000	2.3458

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3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	/yr		
Hauling	1.7400e- 003	0.0609	0.0127	1.5000e- 004	3.2100e- 003	2.4000e- 004	3.4500e- 003	8.8000e- 004	2.3000e- 004	1.1100e- 003	0.0000	14.7756	14.7756	1.3300e- 003	0.0000	14.8090
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	4.1000e- 004	0.0000	1.0000e- 004	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.0965	0.0965	0.0000	0.0000	0.0966
Total	1.7900e- 003	0.0609	0.0131	1.5000e- 004	3.3100e- 003	2.4000e- 004	3.5500e- 003	9.1000e- 004	2.3000e- 004	1.1400e- 003	0.0000	14.8721	14.8721	1.3300e- 003	0.0000	14.9055

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					ton	s/yr							МТ	/yr		
Fugitive Dust		, , ,			0.0134	0.0000	0.0134	7.2700e- 003	0.0000	7.2700e- 003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1000e- 004	1.3500e- 003	0.0135	3.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	2.3277	2.3277	7.2000e- 004	0.0000	2.3458
Total	3.1000e- 004	1.3500e- 003	0.0135	3.0000e- 005	0.0134	1.0000e- 005	0.0134	7.2700e- 003	1.0000e- 005	7.2800e- 003	0.0000	2.3277	2.3277	7.2000e- 004	0.0000	2.3458

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3.3 Site Preparation - 2018

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					ton	s/yr							MT	/yr		
Hauling	1.7400e- 003	0.0609	0.0127	1.5000e- 004	3.2100e- 003	2.4000e- 004	3.4500e- 003	8.8000e- 004	2.3000e- 004	1.1100e- 003	0.0000	14.7756	14.7756	1.3300e- 003	0.0000	14.8090
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	4.1000e- 004	0.0000	1.0000e- 004	0.0000	1.0000e- 004	3.0000e- 005	0.0000	3.0000e- 005	0.0000	0.0965	0.0965	0.0000	0.0000	0.0966
Total	1.7900e- 003	0.0609	0.0131	1.5000e- 004	3.3100e- 003	2.4000e- 004	3.5500e- 003	9.1000e- 004	2.3000e- 004	1.1400e- 003	0.0000	14.8721	14.8721	1.3300e- 003	0.0000	14.9055

3.4 Grading - 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					ton	s/yr							МТ	/yr		
Fugitive Dust			, , ,		0.0868	0.0000	0.0868	0.0440	0.0000	0.0440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0280	0.3158	0.1350	2.7000e- 004		0.0152	0.0152		0.0140	0.0140	0.0000	24.5004	24.5004	7.6300e- 003	0.0000	24.6911
Total	0.0280	0.3158	0.1350	2.7000e- 004	0.0868	0.0152	0.1020	0.0440	0.0140	0.0580	0.0000	24.5004	24.5004	7.6300e- 003	0.0000	24.6911

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3.4 Grading - 2018

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					ton	s/yr							МТ	/yr		
Hauling	0.0134	0.4707	0.0982	1.1600e- 003	0.0248	1.8300e- 003	0.0266	6.8200e- 003	1.7500e- 003	8.5700e- 003	0.0000	114.2648	114.2648	0.0103	0.0000	114.5226
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	5.6000e- 004	4.4000e- 004	4.2200e- 003	1.0000e- 005	1.0400e- 003	1.0000e- 005	1.0500e- 003	2.8000e- 004	1.0000e- 005	2.8000e- 004	0.0000	1.0033	1.0033	3.0000e- 005	0.0000	1.0042
Total	0.0140	0.4712	0.1024	1.1700e- 003	0.0259	1.8400e- 003	0.0277	7.1000e- 003	1.7600e- 003	8.8500e- 003	0.0000	115.2681	115.2681	0.0103	0.0000	115.5267

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					ton	s/yr							МТ	/yr		
Fugitive Dust		1			0.0868	0.0000	0.0868	0.0440	0.0000	0.0440	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2800e- 003	0.0142	0.1418	2.7000e- 004		7.0000e- 005	7.0000e- 005		7.0000e- 005	7.0000e- 005	0.0000	24.5004	24.5004	7.6300e- 003	0.0000	24.6911
Total	3.2800e- 003	0.0142	0.1418	2.7000e- 004	0.0868	7.0000e- 005	0.0869	0.0440	7.0000e- 005	0.0441	0.0000	24.5004	24.5004	7.6300e- 003	0.0000	24.6911

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3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	/yr		
Hauling	0.0134	0.4707	0.0982	1.1600e- 003	0.0248	1.8300e- 003	0.0266	6.8200e- 003	1.7500e- 003	8.5700e- 003	0.0000	114.2648	114.2648	0.0103	0.0000	114.5226
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	5.6000e- 004	4.4000e- 004	4.2200e- 003	1.0000e- 005	1.0400e- 003	1.0000e- 005	1.0500e- 003	2.8000e- 004	1.0000e- 005	2.8000e- 004	0.0000	1.0033	1.0033	3.0000e- 005	0.0000	1.0042
Total	0.0140	0.4712	0.1024	1.1700e- 003	0.0259	1.8400e- 003	0.0277	7.1000e- 003	1.7600e- 003	8.8500e- 003	0.0000	115.2681	115.2681	0.0103	0.0000	115.5267

3.5 Paving - 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					ton	s/yr							МТ	/yr		
Off-Road	4.2100e- 003	0.0428	0.0359	5.0000e- 005		2.5500e- 003	2.5500e- 003		2.3500e- 003	2.3500e- 003	0.0000	4.8287	4.8287	1.4700e- 003	0.0000	4.8656
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	4.2100e- 003	0.0428	0.0359	5.0000e- 005		2.5500e- 003	2.5500e- 003		2.3500e- 003	2.3500e- 003	0.0000	4.8287	4.8287	1.4700e- 003	0.0000	4.8656

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3.5 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	/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	1.9000e- 004	1.5000e- 004	1.4600e- 003	0.0000	3.6000e- 004	0.0000	3.6000e- 004	1.0000e- 004	0.0000	1.0000e- 004	0.0000	0.3473	0.3473	1.0000e- 005	0.0000	0.3476
Total	1.9000e- 004	1.5000e- 004	1.4600e- 003	0.0000	3.6000e- 004	0.0000	3.6000e- 004	1.0000e- 004	0.0000	1.0000e- 004	0.0000	0.3473	0.3473	1.0000e- 005	0.0000	0.3476

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					ton	s/yr							МТ	ī/yr		
Off-Road	6.3000e- 004	2.7300e- 003	0.0389	5.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	4.8287	4.8287	1.4700e- 003	0.0000	4.8656
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	6.3000e- 004	2.7300e- 003	0.0389	5.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	4.8287	4.8287	1.4700e- 003	0.0000	4.8656

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3.5 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	со	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					ton	s/yr							МТ	/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	1.9000e- 004	1.5000e- 004	1.4600e- 003	0.0000	3.6000e- 004	0.0000	3.6000e- 004	1.0000e- 004	0.0000	1.0000e- 004	0.0000	0.3473	0.3473	1.0000e- 005	0.0000	0.3476
Total	1.9000e- 004	1.5000e- 004	1.4600e- 003	0.0000	3.6000e- 004	0.0000	3.6000e- 004	1.0000e- 004	0.0000	1.0000e- 004	0.0000	0.3473	0.3473	1.0000e- 005	0.0000	0.3476

3.6 Building Construction - 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					ton	s/yr							MT	/yr		
Off-Road	0.2553	1.5137	1.4384	2.1000e- 003		0.1049	0.1049		0.1018	0.1018	0.0000	172.9642	172.9642	0.0318	0.0000	173.7581
Total	0.2553	1.5137	1.4384	2.1000e- 003		0.1049	0.1049		0.1018	0.1018	0.0000	172.9642	172.9642	0.0318	0.0000	173.7581

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3.6 Building Construction - 2018

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					ton	s/yr							МТ	/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	6.2900e- 003	0.1601	0.0440	3.3000e- 004	7.9600e- 003	1.2400e- 003	9.2000e- 003	2.3000e- 003	1.1900e- 003	3.4900e- 003	0.0000	32.0923	32.0923	2.6400e- 003	0.0000	32.1584
Worker	0.0331	0.0262	0.2512	6.6000e- 004	0.0621	4.6000e- 004	0.0625	0.0165	4.2000e- 004	0.0169	0.0000	59.7277	59.7277	2.0600e- 003	0.0000	59.7792
Total	0.0394	0.1862	0.2952	9.9000e- 004	0.0700	1.7000e- 003	0.0717	0.0188	1.6100e- 003	0.0204	0.0000	91.8200	91.8200	4.7000e- 003	0.0000	91.9376

Mitigated Construction On-Site

	ROG	NOx	СО	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					ton:	s/yr							МТ	/yr		
Off-Road	0.0282	0.3884	1.3447	2.1000e- 003		4.2000e- 004	4.2000e- 004		4.2000e- 004	4.2000e- 004	0.0000	172.9640	172.9640	0.0318	0.0000	173.7579
Total	0.0282	0.3884	1.3447	2.1000e- 003		4.2000e- 004	4.2000e- 004		4.2000e- 004	4.2000e- 004	0.0000	172.9640	172.9640	0.0318	0.0000	173.7579

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3.6 Building Construction - 2018

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					ton	s/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	6.2900e- 003	0.1601	0.0440	3.3000e- 004	7.9600e- 003	1.2400e- 003	9.2000e- 003	2.3000e- 003	1.1900e- 003	3.4900e- 003	0.0000	32.0923	32.0923	2.6400e- 003	0.0000	32.1584
Worker	0.0331	0.0262	0.2512	6.6000e- 004	0.0621	4.6000e- 004	0.0625	0.0165	4.2000e- 004	0.0169	0.0000	59.7277	59.7277	2.0600e- 003	0.0000	59.7792
Total	0.0394	0.1862	0.2952	9.9000e- 004	0.0700	1.7000e- 003	0.0717	0.0188	1.6100e- 003	0.0204	0.0000	91.8200	91.8200	4.7000e- 003	0.0000	91.9376

3.7 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					ton	s/yr							MT	/yr		
Archit. Coating	0.7790		1			0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0261	0.1755	0.1622	2.6000e- 004		0.0132	0.0132		0.0132	0.0132	0.0000	22.3410	22.3410	2.1200e- 003	0.0000	22.3941
Total	0.8052	0.1755	0.1622	2.6000e- 004		0.0132	0.0132		0.0132	0.0132	0.0000	22.3410	22.3410	2.1200e- 003	0.0000	22.3941

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3.7 Architectural Coating - 2018

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					ton	s/yr							МТ	/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	5.2400e- 003	4.1500e- 003	0.0398	1.0000e- 004	9.8200e- 003	7.0000e- 005	9.9000e- 003	2.6100e- 003	7.0000e- 005	2.6800e- 003	0.0000	9.4543	9.4543	3.3000e- 004	0.0000	9.4624
Total	5.2400e- 003	4.1500e- 003	0.0398	1.0000e- 004	9.8200e- 003	7.0000e- 005	9.9000e- 003	2.6100e- 003	7.0000e- 005	2.6800e- 003	0.0000	9.4543	9.4543	3.3000e- 004	0.0000	9.4624

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					ton	s/yr							MT	ī/yr		
Archit. Coating	0.7790	, , ,				0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6000e- 003	0.0113	0.1603	2.6000e- 004		5.0000e- 005	5.0000e- 005		5.0000e- 005	5.0000e- 005	0.0000	22.3410	22.3410	2.1200e- 003	0.0000	22.3941
Total	0.7816	0.0113	0.1603	2.6000e- 004		5.0000e- 005	5.0000e- 005		5.0000e- 005	5.0000e- 005	0.0000	22.3410	22.3410	2.1200e- 003	0.0000	22.3941

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3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/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	5.2400e- 003	4.1500e- 003	0.0398	1.0000e- 004	9.8200e- 003	7.0000e- 005	9.9000e- 003	2.6100e- 003	7.0000e- 005	2.6800e- 003	0.0000	9.4543	9.4543	3.3000e- 004	0.0000	9.4624
Total	5.2400e- 003	4.1500e- 003	0.0398	1.0000e- 004	9.8200e- 003	7.0000e- 005	9.9000e- 003	2.6100e- 003	7.0000e- 005	2.6800e- 003	0.0000	9.4543	9.4543	3.3000e- 004	0.0000	9.4624

3.8 Building Construction Crane Usage - 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					ton	s/yr							MT	/yr		
Off-Road	3.6600e- 003	0.0438	0.0162	4.0000e- 005		1.9000e- 003	1.9000e- 003		1.7400e- 003	1.7400e- 003	0.0000	3.3817	3.3817	1.0500e- 003	0.0000	3.4080
Total	3.6600e- 003	0.0438	0.0162	4.0000e- 005		1.9000e- 003	1.9000e- 003		1.7400e- 003	1.7400e- 003	0.0000	3.3817	3.3817	1.0500e- 003	0.0000	3.4080

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3.8 Building Construction Crane Usage - 2018

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					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e- 004	0.0110	3.0300e- 003	2.0000e- 005	5.5000e- 004	9.0000e- 005	6.3000e- 004	1.6000e- 004	8.0000e- 005	2.4000e- 004	0.0000	2.2082	2.2082	1.8000e- 004	0.0000	2.2127
Worker	2.2800e- 003	1.8000e- 003	0.0173	5.0000e- 005	4.2700e- 003	3.0000e- 005	4.3000e- 003	1.1300e- 003	3.0000e- 005	1.1600e- 003	0.0000	4.1097	4.1097	1.4000e- 004	0.0000	4.1133
Total	2.7100e- 003	0.0128	0.0203	7.0000e- 005	4.8200e- 003	1.2000e- 004	4.9300e- 003	1.2900e- 003	1.1000e- 004	1.4000e- 003	0.0000	6.3179	6.3179	3.2000e- 004	0.0000	6.3260

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					ton	s/yr							МТ	/yr		
Off-Road	4.6000e- 004	1.9700e- 003	0.0167	4.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	3.3817	3.3817	1.0500e- 003	0.0000	3.4080
Total	4.6000e- 004	1.9700e- 003	0.0167	4.0000e- 005		1.0000e- 005	1.0000e- 005		1.0000e- 005	1.0000e- 005	0.0000	3.3817	3.3817	1.0500e- 003	0.0000	3.4080

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3.8 Building Construction Crane Usage - 2018

Mitigated Construction Off-Site

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.3000e- 004	0.0110	3.0300e- 003	2.0000e- 005	5.5000e- 004	9.0000e- 005	6.3000e- 004	1.6000e- 004	8.0000e- 005	2.4000e- 004	0.0000	2.2082	2.2082	1.8000e- 004	0.0000	2.2127
Worker	2.2800e- 003	1.8000e- 003	0.0173	5.0000e- 005	4.2700e- 003	3.0000e- 005	4.3000e- 003	1.1300e- 003	3.0000e- 005	1.1600e- 003	0.0000	4.1097	4.1097	1.4000e- 004	0.0000	4.1133
Total	2.7100e- 003	0.0128	0.0203	7.0000e- 005	4.8200e- 003	1.2000e- 004	4.9300e- 003	1.2900e- 003	1.1000e- 004	1.4000e- 003	0.0000	6.3179	6.3179	3.2000e- 004	0.0000	6.3260

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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	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					ton	s/yr							МТ	/yr		
Mitigated	0.0856	0.3839	1.0299	3.3500e- 003	0.2791	3.3700e- 003	0.2825	0.0748	3.1700e- 003	0.0779	0.0000	308.8027	308.8027	0.0168	0.0000	309.2226
Unmitigated	0.0856	0.3839	1.0299	3.3500e- 003	0.2791	3.3700e- 003	0.2825	0.0748	3.1700e- 003	0.0779	0.0000	308.8027	308.8027	0.0168	0.0000	309.2226

4.2 Trip Summary Information

	Aver	age Daily Trip Ra	ite	Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	271.26	217.80	241.56	740,609	740,609
Total	271.26	217.80	241.56	740,609	740,609

4.3 Trip Type Information

		Miles			Trip %			Trip Purpos	e %
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
Congregate Care (Assisted	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
Congregate Care (Assisted	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
Living)													

5.0 Energy Detail

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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					ton	s/yr							МТ	7/yr		
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	138.0040	138.0040	5.5500e- 003	1.1500e- 003	138.4854
Electricity Unmitigated	fi		 , , , ,			0.0000	0.0000		0.0000	0.0000	0.0000	138.0040	138.0040	5.5500e- 003	1.1500e- 003	138.4854
NaturalGas Mitigated	4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278
NaturalGas Unmitigated	4.7300e- 003	0.0405	0.0172	2.6000e- 004	 	3.2700e- 003	3.2700e- 003	 	3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278

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5.2 Energy by Land Use - NaturalGas

<u>Unmitigated</u>

	NaturalGa s 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					ton	s/yr							MT	/yr		
Congregate Care (Assisted Living)	877925	4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278
Total		4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278

Mitigated

	NaturalGa s 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					ton	s/yr							MT	/yr		
Congregate Care (Assisted Living)	877925	4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278
Total		4.7300e- 003	0.0405	0.0172	2.6000e- 004		3.2700e- 003	3.2700e- 003		3.2700e- 003	3.2700e- 003	0.0000	46.8494	46.8494	9.0000e- 004	8.6000e- 004	47.1278

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5.3 Energy by Land Use - Electricity

<u>Unmitigated</u>

	Electricity Use	Total CO2	CH4	N2O	CO2e			
Land Use	kWh/yr	MT/yr						
Congregate Care (Assisted Living)	422278	138.0040	5.5500e- 003	1.1500e- 003	138.4854			
Total		138.0040	5.5500e- 003	1.1500e- 003	138.4854			

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr		MT	/yr	
Congregate Care (Assisted Living)	422278	138.0040	5.5500e- 003	1.1500e- 003	138.4854
Total		138.0040	5.5500e- 003	1.1500e- 003	138.4854

6.0 Area Detail

6.1 Mitigation Measures Area

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	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					ton	s/yr							MT	/yr		
Mitigated	0.4245	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300
Unmitigated	0.4245	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300

6.2 Area by SubCategory

<u>Unmitigated</u>

	ROG	NOx	СО	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					ton	s/yr							МТ	/yr		
Architectural Coating	0.0779					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3242					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	0.0225	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300
Total	0.4245	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300

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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					ton	s/yr							МТ	/yr		
Architectural Coating	0.0779					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3242					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	0.0225	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300
Total	0.4245	8.5300e- 003	0.7375	4.0000e- 005		4.0600e- 003	4.0600e- 003		4.0600e- 003	4.0600e- 003	0.0000	1.2008	1.2008	1.1700e- 003	0.0000	1.2300

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e					
Category		MT/yr							
Mitigated	14.6925	0.0834	2.0700e- 003	17.3932					
Unmitigated	14.6925	0.0834	2.0700e- 003	17.3932					

7.2 Water by Land Use

<u>Unmitigated</u>

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		MT	/yr	
Congregate Care (Assisted Living)	2.54067 / 0.846891	14.6925	0.0834	2.0700e- 003	17.3932
Total		14.6925	0.0834	2.0700e- 003	17.3932

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7.2 Water by Land Use

Mitigated

	Indoor/Out door Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal		МТ	/yr	
Congregate Care (Assisted Living)	2.54067 / 0.846891	14.6925	0.0834	2.0700e- 003	17.3932
Total		14.6925	0.0834	2.0700e- 003	17.3932

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
		MT	ī/yr	
Mitigated	58.6644	3.4670	0.0000	145.3385
Unmitigated	58.6644	3.4670	0.0000	145.3385

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8.2 Waste by Land Use

<u>Unmitigated</u>

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	/yr	
Congregate Care (Assisted Living)	289	58.6644	3.4670	0.0000	145.3385
Total		58.6644	3.4670	0.0000	145.3385

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons		МТ	/yr	
Congregate Care (Assisted Living)	289	58.6644	3.4670	0.0000	145.3385
Total		58.6644	3.4670	0.0000	145.3385

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