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Greenhouse Gas Analysis for the Eastlake Behavioral Health Hospital Project
Chula Vista, California

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Acronyms and Abbreviations

AB	Assembly Bill
AQMD	Air Quality Management District
BAU	business as usual
CalEEMod	California Emissions Estimator Model
CalGreen	California Green Building Standards Code
CalRecycle	California Department of Resources Recycling and Recovery
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH_4	methane
City	City of Chula Vista
CO_2	carbon dioxide
CO_2E	carbon dioxide equivalent
EO	Executive Order
GHG	greenhouse gas
GWP	Global warming potential
kW	kilowatt
kWh	kilowatt-hour
MMT	million metric ton
MPO	Metropolitan Planning Organizations
MT	metric ton
MWh	megawatt hour
N_2O	nitrous oxide
project	Eastlake Behavioral Health Hospital Project
PV	photovoltaic
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SB	Senate Bill
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas & Electric
U.S. EPA	United States Environmental Protection Agency

Executive Summary

The Eastlake Behavioral Health Hospital Project (project) is located 830 and 831 Showroom Place in the EastLake Business Center II Sectional Planning Area of the city of Chula Vista. The 10.4-acre project site was previously graded and is currently undeveloped. The project would construct a 120-bed behavioral health facility in a 92,349-square-foot building with exterior activity areas and a staff outdoor area.

This report evaluates the potential global climate change impacts associated with the project. In accordance with California Environmental Quality Act (CEQA), this analysis evaluates the significance of the global climate change impacts in terms of whether (1) the project would result in greenhouse gas (GHG) emissions that may have a significant impact on the environment and (2) the project would conflict with plans, policies, and regulations adopted for the purpose of reducing GHG emissions. The City of Chula Vista (City) has not adopted its own GHG Thresholds of Significance for CEQA; this analysis follows guidance from the South Coast Air Quality Management District (AQMD). Guidance from South Coast AQMD recommends a tiered approach for land use development projects. As the project is subject to CEQA (Tier 1) and is project emissions have not been addressed be a regional GHG emissions reduction plan (Tier 2), the project is assessed against the Tier 3 Residential/Commercial Screening Level of 3,000 metric tons (MT) of carbon dioxide equivalent (CO_2E).

Project-related GHG emission sources include construction (off-road vehicles, worker trips, and truck trips), mobile (on-road vehicles), area sources (landscape maintenance equipment), water and wastewater, and solid waste. Project emissions were calculated using the California Emissions Estimator Model Version 2016.3.2. The project would result in the annual equivalent of 2,986 MT CO_2E, which less than the 3,000 MT CO_2E Residential/Commercial Screening Level. GHG emissions impacts would be less than significant.

Significance screening levels from South Coast AQMD guidance are based on the concept of establishing a 90 percent GHG emission market capture rate. The aggregate emissions from all projects with individual annual emissions that are equal to or less than applicable screening levels would not impede achievement of the state GHG emissions reduction targets. Therefore, as the project GHG emissions would be less than the applicable screening level, the project would not conflict with plans to achieve statewide GHG emissions reduction targets.

In 2017, the City released a new Climate Action Plan (CAP). The project would be consistent with all applicable reduction strategies from the CAP. Therefore the project would not conflict with local plans for the purpose of reducing the emission of GHGs and impacts would be less than significant.

1.0 Introduction

1.1 Purpose of the Report

This report evaluates the significance of greenhouse gas (GHG) emissions associated with the Eastlake Behavioral Health Hospital Project (project). This report characterizes existing conditions at the project site and in the region, identifies applicable rules and regulations, and assesses impacts to climate change from construction and operation of the project. The significance of potential GHG impacts is assessed following guidance from the South Coast Air Quality Management District (AQMD).

1.2 Project Description

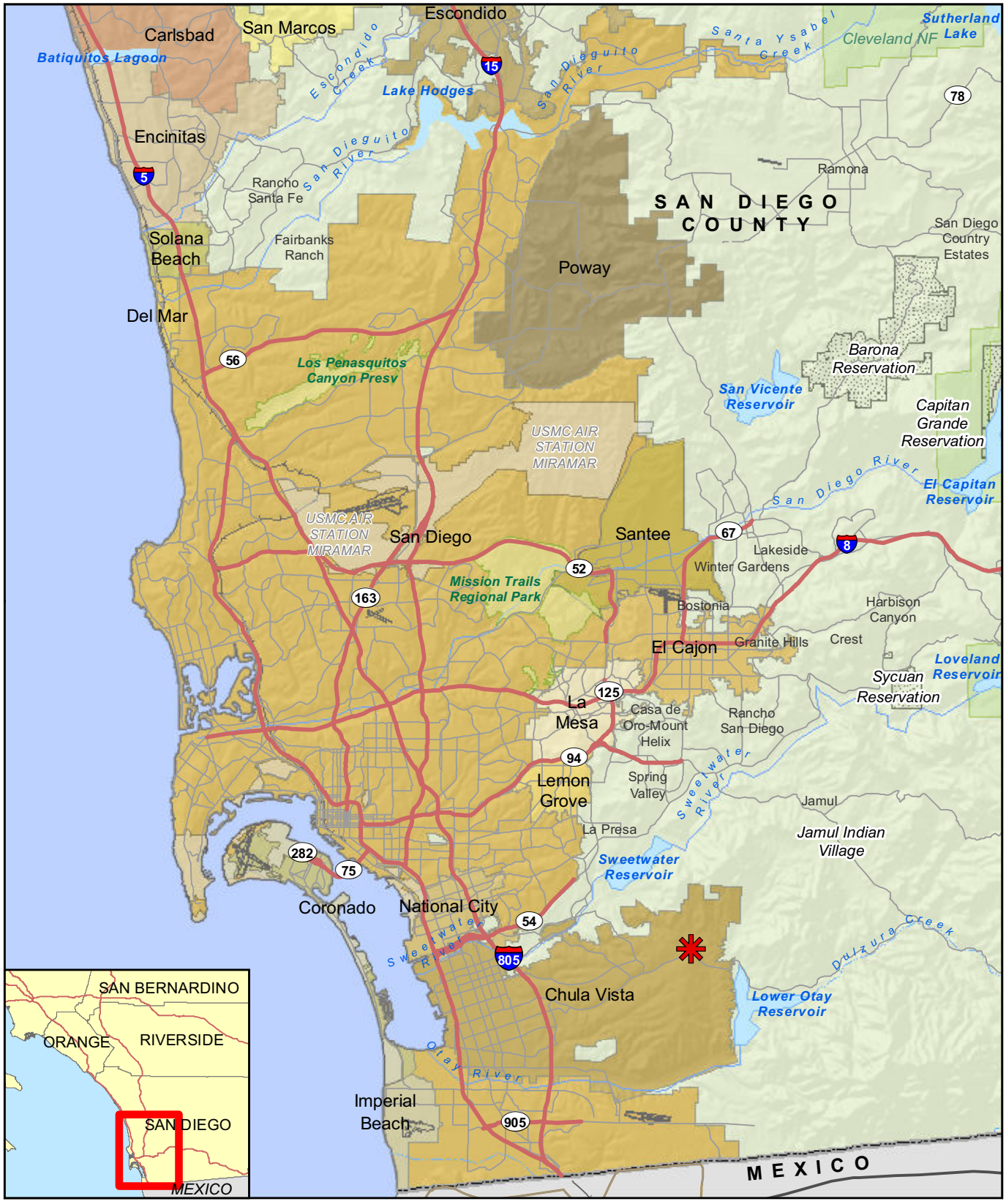
The project is located at 830 and 831 Showroom Place in the city of Chula Vista, California, north Fenton Street, west of Hunte Parkway, and east of Lane Avenue. The 10.4-acre project site is a previously graded pad in the EastLake Business Center and is currently undeveloped. The project site is bounded by single-family residential uses to the north and southeast, commercial uses to the west and south, and a boat and recreational vehicle storage lot to the south. Figure 1 shows the regional location of the project. Figure 2 shows an aerial photograph of the project and vicinity.

The project would construct a 120-bed behavioral health facility in a 92,349-square-foot building with exterior activity areas and a staff outdoor area. Figure 3 shows the site plan.

1.3 Fundamentals of Climate Change

1.3.1 Understanding Global Climate Change

Global climate change is a change in the average weather of the earth, which can be measured by wind patterns, storms, precipitation, and temperature. The earth's climate is in a state of constant flux with periodic warming and cooling cycles. Extreme periods of cooling are termed "ice ages," which may then be followed by extended periods of warmth. For most of the earth's geologic history, these periods of warming and cooling have been the result of many complicated interacting natural factors that include: volcanic eruptions that spew gases and particles (dust) into the atmosphere; the amount of water, vegetation, and ice covering the earth's surface; subtle changes in the earth's orbit; and the amount of energy released by the sun (sun cycles). However, since the beginning of the Industrial Revolution around 1750, the average temperature of the earth has been increasing at a rate that is faster than can be explained by natural climate cycles alone.



Project Location

FIGURE 1
Regional Location

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Image Source: Nearmap (Flown February 2019)

Project Boundary

FIGURE 2

Project Location on Aerial Photograph

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Map Source: SWA Architects

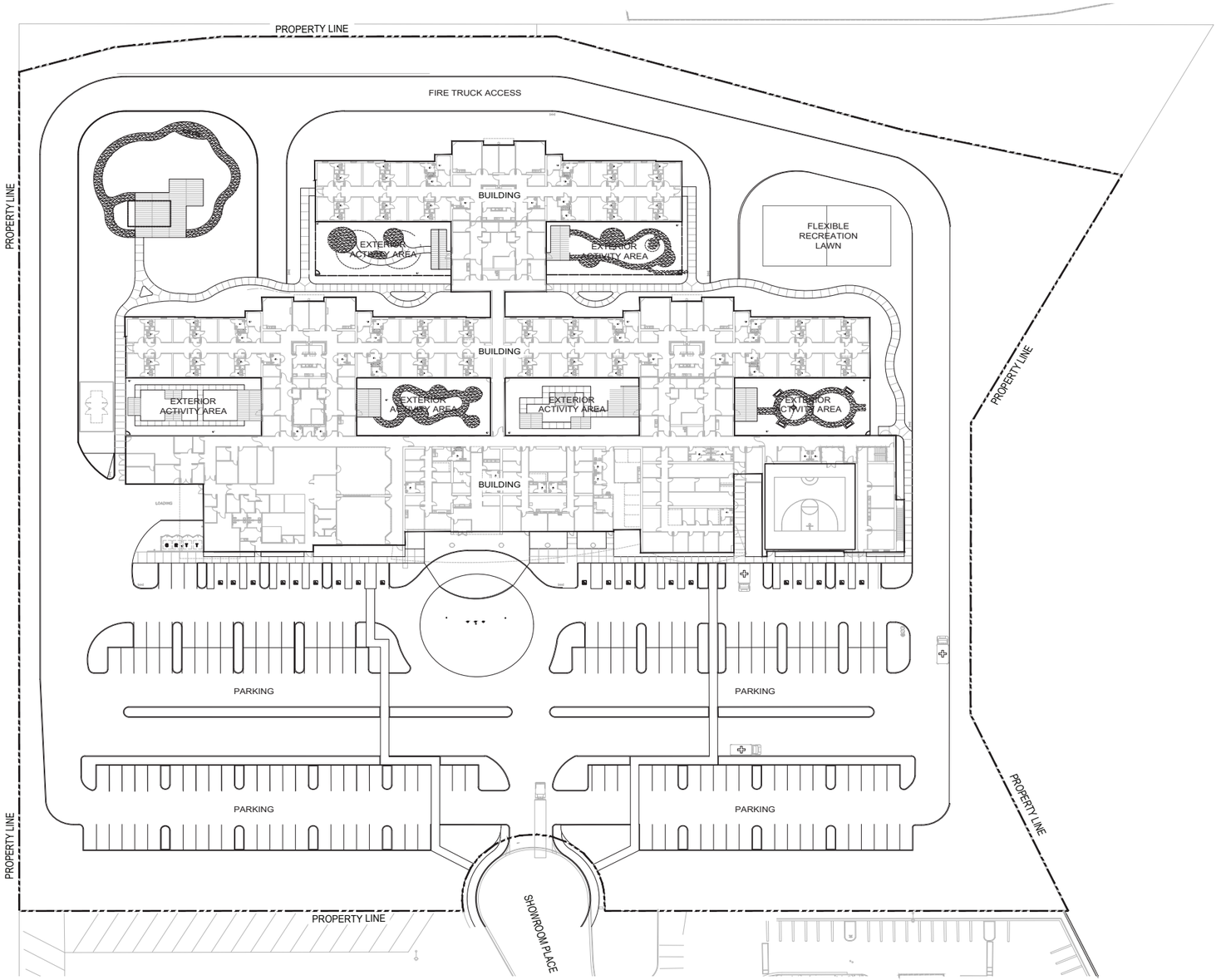

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FIGURE 3
Site Plan

With the Industrial Revolution came an increase in the combustion of carbon-based fuels such as wood, coal, oil, natural gas, and biomass. Industrial processes have also created emissions of substances not found in nature. This in turn has led to a marked increase in the emissions of gases shown to influence the world's climate. These gases, termed "greenhouse" gases, influence the amount of heat trapped in the earth's atmosphere. Because recently observed increased concentrations of GHGs in the atmosphere are related to increased emissions resulting from human activity, the current cycle of "global warming" is generally believed to be largely due to human activity. Of late, the issue of global warming or global climate change has arguably become the most important and widely debated environmental issue in the United States and the world. Because it is the collective of human actions taking place throughout the world that contributes to climate change, it is quintessentially a global or cumulative issue.

1.3.2 Greenhouse Gases of Primary Concern

There are numerous GHGs, both naturally occurring and manmade. Each GHG has variable atmospheric lifetime and global warming potential (GWP). The atmospheric lifetime of the gas is the average time a molecule stays stable in the atmosphere. Most GHGs have long atmospheric lifetimes, staying in the atmosphere hundreds or thousands of years. GWP is a measure of the potential for a gas to trap heat and warm the atmosphere. Although GWP is related to its atmospheric lifetime, many other factors including chemical reactivity of the gas also influence GWP. GWP is reported as a unitless factor representing the potential for the gas to affect global climate relative to the potential of carbon dioxide (CO_2). Because CO_2 is the reference gas for establishing GWP, by definition its GWP is 1. Although methane (CH_4) has a shorter atmospheric lifetime than CO_2, it has a 100-year GWP of 28; this means that CH_4 has 28 times more effect on global warming than CO_2 on a molecule-by-molecule basis.

The GWP is officially defined as "[T]he cumulative radiative forcing—both direct and indirect effects—integrated over a period of time from the emission of a unit mass of gas relative to some reference gas" (United States Environmental Protection Agency [U.S. EPA] 2010). GHG emissions estimates are typically represented in terms of metric tons (MT) of CO_2 equivalent (CO_2E). CO_2E emissions are the product of the amount of each gas by its GWP. The effects of several GHGs may be discussed in terms of MT CO_2E and can be summed to represent the total potential of these gases to warm the global climate. Table 1 summarizes some of the most common GHGs.

All of the gases in Table 1 are produced by both biogenic (natural) and anthropogenic (human) sources. These are the GHGs of primary concern in this analysis. CO_2 would be emitted by the project due to the combustion of fossil fuels in vehicles (including construction), from electricity generation and natural gas consumption, water use, and from solid waste disposal. Smaller amounts of CH_4 and nitrous oxide (N_2O) would be emitted from the same project operations.

Table 1 Global Warming Potentials and Atmospheric Lifetimes			
Gas	Atmospheric Lifetime (years)	100-year GWP	20-year GWP
Carbon dioxide (CO_2)	50–200	1	1
Methane (CH_4)*	12.4	28	84
Nitrous oxide (N_2O)	121	265	264
HFC-23	222	12,400	10,800
HFC-32	5.2	677	2,430
HFC-125	28.2	3,170	6,090
HFC-134a	13.4	1,300	3,710
HFC-143a	47.1	4,800	6,940
HFC-152a	1.5	138	506
HFC-227ea	38.9	3,350	5,360
HFC-236fa	242	8,060	6,940
HFC-43-10mee	16.1	1,650	4,310
CF_4	50,000	6,630	4,880
C_2F_6	10,000	11,100	8,210
C_3F_8	2,600	8,900	6,640
C_4F_{10}	2,600	9,200	6,870
c-C_4F_8	3,200	9,540	7,110
C_5F_{12}	4,100	8,550	6,350
C_6F_{14}	3,100	7,910	5,890
SF_6	3,200	23,500	17,500
SOURCE: Intergovernmental Panel on Climate Change 2014.			

2.0 Existing Conditions

2.1 Existing Greenhouse Gas Emissions

2.1.1 Statewide GHG Inventory

The CARB performs statewide GHG inventories. The inventory is divided into nine broad sectors of economic activity: agriculture, commercial, electricity generation, forestry, high GWP emitters, industrial, recycling and waste, residential, and transportation. Emissions are quantified in million metric tons (MMT) of CO_2E. Table 2 shows the estimated statewide GHG emissions for the years 1990, 2005, and 2017.

Table 2 California GHG Emissions by Sector in 1990, 2005, and 2017			
Sector	1990 Emissions in MMT CO_2E (% total)[1,2]	2005 Emissions in MMT CO_2E (% total)[2,3,4]	2017 Emissions in MMT CO_2E (% total)[2,3,4]
Sources			
Agriculture	23.4 (5%)	33.70 (7%)	32.42 (8%)
Commercial	14.4 (3%)	14.26 (3%)	15.14 (4%)
Electricity Generation	110.6 (26%)	107.85 (22%)	62.39 (15%)
High GWP	--	9.26 (2%)	19.99 (5%)
Industrial	103.0 (24%)	95.93 (20%)	89.40 (21%)
Recycling and Waste	--	7.78 (2%)	8.89 (2%)
Residential	29.7 (7%)	28.81 (6%)	26.00 (6%)
Transportation	150.7 (35%)	189.05 (39%)	169.86 (40%)
Forestry (Net CO_2 flux)[5]	-6.5	--	--
Not Specified	1.3	--	--
TOTAL	**426.6**	**486.65**	**424.10**

SOURCE: CARB 2007 and 2019.
MMT CO_2E = million metric tons of CO_2 equivalent
[1] 1990 data was retrieved from the CARB 2007 source.
[2] Quantities and percentages may not total properly due to rounding.
[3] 2005 and 2017 data were retrieved from the CARB 2019 source.
[4] Reported emissions for key sectors. The inventory totals for 2005 and 2017 did not include Forestry or Not Specified sources.

As shown in Table 2, statewide GHG source emissions totaled about 427 MMT CO_2E in 1990, 487 MMT CO_2E in 2005, and 424 MMT CO_2E in 2017. Many factors affect year-to-year changes in GHG emissions, including economic activity, demographic influences, environmental conditions such as drought, and the impact of regulatory efforts to control GHG emissions. However, transportation-related emissions consistently contribute the most GHG emissions, followed by electricity generation and industrial emissions.

2.1.2 Local GHG Inventory

As part of the City of Chula Vista's (City) Climate Action Program, the Department of Public Works' Conservation Section performs emission inventories to identify GHG sources and help guide policy decisions. The City's community-wide GHG emissions were calculated using the International Council for Local Environmental Initiatives' U.S. Community Protocol. The results of the community inventory for 1990, 2005, 2012, and 2014 are summarized in Table 3.

Table 3 City of Chula Vista Community GHG Emissions (MT CO_2E)					
Source	1990 Emissions	2005 Emissions	2012 Emissions	2014 Emissions	2016 Emissions
Transportation	335,435	717,256	851,386	740,584	681,000
Energy Use	391,606	471,180	505,311	403,038	416,000†
Residential	*197,115*	*247,559*	*266,438*	*221,923*	
Commercial	*71,363*	*182,951*	*204,818*	*181,115*†	
Industrial	*123,128*	*41,670*	*34,055*		
Solid Waste	78,539	60,780	50,717	67,245	41,000
Potable Water (embedded energy)	—	50,062	40,819	30,810	11,000
Waste Water	9,607	15,457	7,962	7,826	3,000
Community Emissions	815,186	1,315,734	1,456,195	1,249,503	1,152,000
Municipal Vehicle Fleet	4,655	9,282	6,802	5,802	3,176
Municipal Energy Use	24,969	8,771	6,590	5,041	3.825
Buildings	*3,728*	*5,856*	*4,321*	*3,646*	*2,734*
External Lights	*20,260*	*2,896*	*2,247*	*1,370*	*1,077*
Sewage	*981*	*19*	*22*	*25*	*14*
Municipal Solid Waste	2,356	1,830	2,296	1,983	2,055
Municipal Water (embedded energy)	—	—	1,133	1,250	684
Municipal Emissions	31,980	19,883	16,821	14,076	9,740
Total Emissions	847,166	1,335,617	1,473,016	1,263,579	1,161,740

MT CO_2E = metric tons of carbon dioxide equivalent
SOURCE: City of Chula Vista 2014, 2018, 2020a, and 2020b.
†Commercial and Industrial energy usage was merged in the 2014 inventory due to privacy concerns. Residential, Commercial, and Industrial energy usage was merged in the 2016 inventory.

2.1.3 On-site GHG Emissions Sources

The site was previously graded and includes two stormwater retention basins. The project site is currently undeveloped, thus it is not a source of anthropogenic GHG emissions. Additionally, the limited vegetation on-site does not provide a measurable amount of carbon sequestration.

3.0 Regulatory Framework

In response to rising concern associated with increasing GHG emissions and global climate change impacts, several plans and regulations have been adopted at the international, national, and state levels with the aim of reducing GHG emissions. The following is a discussion of the state and local plans and regulations most applicable to the project.

3.1 Federal Regulations

3.1.1 Environmental Protection Agency

The U.S. EPA has many federal level programs and projects to reduce GHG emissions. The U.S. EPA provides technical expertise and encourages voluntary reductions from the private sector. One of the voluntary programs applicable to the project is the Energy Star program. Energy Star products such as appliances, building products, heating and cooling equipment, and other energy-efficient equipment may be utilized by the project.

Energy Star is a joint program of U.S. EPA and the U.S. Department of Energy, which promotes energy efficient products and practices. Tools and initiatives include the Energy Star Portfolio Manager, which helps track and assess energy and water consumption across an entire portfolio of buildings, and the Energy Star Most Efficient 2020, which provides information on exceptional products which represent the leading edge in energy efficient products in the year 2020 (U.S. EPA 2020a).

The U.S. EPA also collaborates with the public sector, including states, tribes, localities, and resource managers, to encourage smart growth, sustainability preparation, and renewable energy and climate change preparation. These initiatives include the Clean Energy-Environment State Partnership Program, the Climate Ready Water Utilities Initiative, the Climate Ready Estuaries Program, and the Sustainable Communities Partnership (U.S. EPA 2020b).

3.1.2 Corporate Average Fuel Economy Standards

The federal Corporate Average Fuel Economy standards determine the fuel efficiency of certain vehicle classes in the U.S. The first phase of the program applied to passenger cars, new light-duty trucks, and medium-duty passenger cars with model years 2012 through 2016, and required these vehicles to achieve a standard equivalent to 35.5 miles per gallon. The second phase of the program applies to model years 2017 through 2025 and increased the standards to 54.5 miles per gallon. Separate standards were also established for medium- and heavy-duty vehicles. The first phase applied to model years 2014 through 2018 and the second phase applies to model years 2018 through 2027. With improved gas mileage, fewer gallons of transportation fuel would be combusted to travel the same distance, thereby reducing nationwide GHG emissions associated with vehicle travel.

3.2 State Regulations

3.2.1 Statewide GHG Emission Targets

S-3-05—Statewide GHG Emission Targets

This executive order (EO) establishes the following GHG emissions reduction targets for the state of California:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This EO also directs the Secretary of the California EPA to oversee the efforts made to reach these targets, and to prepare biannual reports on the progress made toward meeting the targets and on the impacts to California related to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. With regard to impacts, the report shall also prepare and report on mitigation and adaptation plans to combat the impacts. The first Climate Action Team Assessment Report was produced in March 2006, and has been updated every two years.

B-30-15—2030 Statewide GHG Emission Goal

This EO, issued on April 29, 2015, establishes an interim GHG emission reduction goal for the state of California to reduce GHG emissions 40 percent below 1990 levels by 2030. This EO also directs all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, this EO directs CARB to update its Climate Change Scoping Plan to address the 2030 goal. CARB is expected to develop statewide inventory projection data for 2030, as well as commence its efforts to identify reduction strategies capable of securing emission reductions that allow for achievement of the EO's new interim goal.

3.2.2 California Global Warming Solutions Act

In response to EO S-3-05, the California Legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, and thereby enacted Sections 38500–38599 of the California Health and Safety Code. The heart of AB 32 is its requirement that CARB establish an emissions cap and adopt rules and regulations that would reduce GHG emissions to 1990 levels by 2020. AB 32 also required CARB to adopt a plan by January 1, 2009, indicating how emission reductions would be achieved from significant GHG sources via regulations, market mechanisms, and other actions.

In 2008, CARB estimated that annual statewide GHG emissions were 427 MMT CO_2E in 1990 and would reach 596 MMT CO_2E by 2020 under a business as usual (BAU) condition (CARB 2008). To achieve the mandate of AB 32, CARB determined that a 169 MMT CO_2E

(or approximate 28.5 percent) reduction in BAU emissions was needed by 2020. In 2010, CARB prepared an updated 2020 forecast to account for the recession and slower forecasted growth. CARB determined that the economic downturn reduced the 2020 BAU by 55 MMT CO_2E; as a result, achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7 (not 28.5) percent from the 2020 BAU. California has been on track to achieve 1990 levels, and based on the GHG inventories shown in Table 2, achieved the goal by 2017.

Approved in September 2016, Senate Bill (SB) 32 updates the California Global Warming Solutions Act of 2006 and enacts EO B-30-15. Under SB 32, the state would reduce its GHG emissions to 40 percent below 1990 levels by 2030. This is equivalent to an emissions level of approximately 260 MMT CO_2E for 2030. In implementing the 40 percent reduction goal, CARB is required to prioritize emissions reductions to consider the social costs of the emissions of GHGs; where "social costs" is defined as "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such as property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emission per year."

3.2.3 Climate Change Scoping Plan

As directed by the California Global Warming Solutions Act of 2006, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework* for Change (2008 Scoping Plan). The 2008 Scoping Plan identifies the main strategies the State of California will implement to achieve the GHG reductions necessary to reduce statewide forecasted BAU GHG emissions in 2020 to the state's historic 1990 emissions level (CARB 2008). In November 2017, CARB released the 2017 Climate Change Scoping Plan Update, the Strategy for Achieving California's 2030 Greenhouse Gas Target (2017 Scoping Plan; CARB 2017). The 2017 Scoping Plan identifies state strategies for achieving the state's 2030 interim GHG emissions reduction target codified by SB 32. Measures under the 2017 Scoping Plan Scenario build on existing programs such as the Low Carbon Fuel Standard, Advanced Clean Cars Program, Renewables Portfolio Standard (RPS), Sustainable Communities Strategy, Short-Lived Climate Pollutant Reduction Strategy, and the Cap-and-Trade Program. Additionally, the 2017 Scoping Plan proposes new policies to address GHG emissions from natural and working lands.

3.2.4 Renewables Portfolio Standard

The RPS promotes diversification of the state's electricity supply and decreased reliance on fossil fuel energy sources. Originally adopted in 2002 with a goal to achieve a 20 percent renewable energy mix by 2020 (referred to as the "Initial RPS"), the goal has been accelerated and increased by EOs S-14-08 and S-21-09 to a goal of 33 percent by 2020. In April 2011, SB 2 (1X) codified California's 33 percent RPS goal. In September 2015, the California Legislature passed SB 350, which increases California's renewable energy mix goal to 50 percent by year 2030. Renewable energy includes (but is not limited to) wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas.

3.2.5 Assembly Bill 341 – Solid Waste Diversion

The Commercial Recycling Requirements mandate that businesses (including public entities) that generate 4 cubic yards or more of commercial solid waste per week and multi-family residential with five units or more arrange for recycling services. Businesses can take one or any combination of the following in order to reuse, recycle, compost, or otherwise divert solid waste from disposal. Additionally, AB 341 mandates that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020.

3.2.6 Regional Emissions Targets – SB 375

SB 375, the 2008 Sustainable Communities and Climate Protection Act, was signed into law in September 2008 and requires CARB to set regional targets for reducing passenger vehicle GHG emissions in accordance with the Scoping Plan. The purpose of SB 375 is to align regional transportation planning efforts, regional GHG reduction targets, and fair-share housing allocations under state housing law. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a Sustainable Communities Strategy or Alternative Planning Strategy to address GHG reduction targets from cars and light-duty trucks in the context of that MPO's Regional Transportation Plan. San Diego Association of Governments (SANDAG) is the San Diego region's MPO. The CARB targets for the SANDAG region require a 15 percent reduction in GHG emissions per capita from automobiles and light duty trucks compared to 2005 levels by 2020, and a 19 percent reduction by 2035.

3.2.7 California Building Standards Code (Title 24)

The California Code of Regulations (CCR), Title 24, is referred to as the California Building Code (CBC). It consists of a compilation of several distinct standards and codes related to building construction including, plumbing, electrical, interior acoustics, energy efficiency, handicap accessibility and so on. Of particular relevance to GHG emissions reductions are the CBC's energy efficiency and green building standards as outlined below.

Part 6 – Energy Code

The CCR, Title 24, Part 6 is the Energy Efficiency Standards or California Energy Code. This code, originally enacted in 1978, establishes energy-efficiency standards for residential and non-residential buildings in order to reduce California's energy consumption. The Energy Code is updated periodically to incorporate and consider new energy-efficiency technologies and methodologies as they become available. New construction and major renovations must demonstrate their compliance with the current Energy Code through submission and approval of a Title 24 Compliance Report to the local building permit review authority and the California Energy Commission (CEC). By reducing California's energy consumption, emissions of statewide GHGs may also be reduced.

The current version of the Energy Code, known as the 2019 Energy Code, was adopted on May 9, 2018 and will take effect on January 1, 2020. The 2019 Energy Code includes provisions for smart residential photovoltaic (PV) systems, updated thermal envelope

standards (preventing heat transfer from the interior to exterior and vice versa), residential and non-residential ventilation requirements, and non-residential lighting requirements. The Energy Code aims to reduce energy use in new homes by requiring that all new homes include individual or community solar PV systems or community shared battery storage system that achieves equivalent time-dependent value energy use reduction. Accounting for solar PV requirements, the CEC's preliminary estimates indicate that homes built consistent under the 2019 Energy Code will result in 53 percent less energy use than those built under the 2016 standards.

Part 11 – California Green Building Standards Code

The California Green Building Standards Code, referred to as CalGreen, was added to Title 24 as Part 11 first in 2009 as a voluntary code, which then became mandatory effective January 1, 2011 (as part of the 2010 CBC). The 2019 CalGreen institutes mandatory minimum environmental performance standards for all ground-up new construction of non-residential and residential structures. It also includes voluntary tiers (I and II) with stricter environmental performance standards for these same categories of residential and non-residential buildings. Local jurisdictions must enforce the minimum mandatory Green Building Standards and may adopt additional amendments for stricter requirements.

The mandatory standards require:

- Outdoor water use requirements as outlined in local water efficient landscaping ordinances or current model water efficient landscape ordinance standards, whichever is more stringent;
- Requirements for water conserving plumbing fixtures and fittings;
- 65 percent construction/demolition waste diverted from landfills;
- Infrastructure requirements for electric vehicle charging stations;
- Mandatory inspections of energy systems to ensure optimal working efficiency; and
- Requirements for low-pollutant emitting exterior and interior finish materials such as paints, carpets, vinyl flooring and particleboards.

3.3 Local

3.3.1 City Climate Action Plan

In 2000, the City of Chula Vista became the first municipality in San Diego County to adopt a Climate Action Plan (CAP). The plan, *CO_2 Reduction Plan*, inventoried existing CO_2 emissions, projected emissions growth to 2010, and evaluated a wide range of CO_2 reduction measures (City of Chula Vista 2000). Measures included in the original Climate Action Plan focus on Transportation Control Measures; land use patterns; clean transportation fuels; and residential, commercial, and industrial building efficiencies. In 2005 the City re-inventoried GHG emissions inventory to evaluate the City's progress in reaching its emissions goals. Subsequently, the City developed the *Climate Mitigation Plans* (City of Chula Vista 2008) and *Climate Adaptation Plans* (City of Chula Vista 2011).

In September 2017, the City released a new CAP (City of Chula Vista 2017). Whereas previous climate planning documents established a target of 15 percent below 2005 levels by 2020 consistent with the Original Scoping Plan, the updated CAP reflects new guidance from the 2017 Scoping Plan which recommends that local governments pursue reduction goals of 6 MT CO_2E per capita in 2030 and 2 MT CO_2E per capita in 2050. As the City began working on climate action planning earlier than other jurisdictions, previous efforts have already reduced communitywide emission to less than 6 MT CO_2E per capita. To support the longer-term 2050 goal, the new CAP includes measures that promote energy- and water-efficient buildings, smart growth and clean transit, zero waste policies, and increased local energy generation and water resources. These additional reduction measures are anticipated to result in an additional reduction of 194,950 MT CO_2E (or approximately 0.4 MT of per capita reductions).

4.0 Significance Criteria

4.1 State CEQA Guidelines

The California Environmental Quality Act (CEQA) Guidelines, Appendix G Environmental Checklist, includes the following two questions regarding assessment of GHG emissions:

1) Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

2) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs?

As stated in the CEQA Guidelines, these questions are "intended to encourage thoughtful assessment of impacts and do not necessarily represent thresholds of significance" (Title 14, Division 6, Chapter 3 Guidelines for Implementation of the CEQA, Appendix G, Environmental Checklist Form).

The GHG emissions of individual projects do not generate sufficient GHG emissions to have a substantial effect on global climate change (South Coast AQMD 2008; San Joaquin Valley Air Pollution Control District 2009). However, continued development may contribute to the cumulative global accumulation of GHG emissions that could contribute to an adverse effect to the current climate. In the context of CEQA, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective" (California Air Pollution Control Officers Association [CAPCOA] 2008). While, the geographic extent of the cumulative contributions to GHGs and climate change is worldwide, relating the contribution of a single project to cumulative global emissions marginalizes project impacts. This makes it difficult to assess the significance of a single project, particularly one designed to accommodate anticipated population growth.

When determining appropriate GHG significance thresholds for CEQA, the CEQA Guidelines allow lead agencies to develop their own significance threshold and/or to

consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided the thresholds are supported by substantial evidence.

No GHG emission thresholds have been adopted by the City for land development projects. The San Diego Air Pollution Control District (SDAPCD) is considered the most appropriate agency with special knowledge in the subject area as the City is located within the SDAPCD jurisdiction. However, the SDAPCD has not issued guidance for assessing GHG impacts from land use development projects. Thus, in the absence of a threshold of significance for GHG emissions for the SDAPCD, the project is evaluated based on the recommendation from the next closest air district, the South Coast AQMD.

4.2 Greenhouse Gas Significance Thresholds

This analysis follows guidance from the South Coast AQMD's *Interim CEQA GHG Significance Thresholds* (South Coast AQMD 2008). South Coast AQMD's thresholds are a tiered approach; projects may be determined to be less than significant under each tier or require further analysis under subsequent tiers. As identified in the Working Group meeting (Meeting No. 15) in September 2010, the five tiers are:

- Tier 1 – The project is exempt from CEQA.
- Tier 2 – The project is consistent with an applicable regional GHG emissions reduction plan.
- Tier 3 – Project GHG emissions represent an incremental increase below, or mitigated to less than Significance Screening Levels, where:
  - 3,000 MT CO_2E is the Residential/Commercial Screening Level
  - 10,000 MT CO_2E is the Permitted Industrial Screening Level
- Tier 4 – The project achieves performance standards, where performance standards may include[1]:
  - The project would implement substantial early implementation of measures identified the CARB's Scoping Plan
  - The project would achieve sector-based performance standards such as service population efficiency targets where service population includes residential and employment populations provided by a project.
- Tier 5 – Offsets along or in combination with the above target Significance Screening Level. Offsets must be provided for a 30-year project life, unless the project life is limited by permit, lease, or other legally binding condition

Tier 1 and Tier 2 thresholds are based on planning consistency. This approach, which is referred to in the CEQA Guidelines as "tiering,"allows agencies to rely on programmatic analysis of GHG emissions to determine that subsequent development consistent with the

[1] SCAQMD guidance includes an additional performance standard option based on business-as-usual methodology. Business-as-usual methodology is no longer considered best practice.

regional plan would result in incremental GHG emissions contribution that represent a less than significant contribution to cumulative effects.

Tier 3 significance screening levels from South Coast AQMD guidance are based on the concept of establishing a 90 percent GHG emission market capture rate. A 90 percent emission capture rate means that 90 percent of total emissions from new development projects would be subject to CEQA analysis and mitigation. The market capture rate of 90 percent was developed to capture a substantial fraction of GHG emissions from new development projects while excluding small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This market capture rate approach is based on guidance from the CAPCOA report CEQA & Climate Change, dated January 2008 (CAPCOA 2008). Following rationale presented in the CAPCOA Guidance, the aggregate emissions from all projects with individual annual emissions that are equal to or less than the identified screening levels for 90 percent market capture rate would not impede achievement of the statewide GHG emissions reduction targets.

Tier 4 and Tier 5 interim thresholds are intended to demonstrate project consistency with the AB 32 goal of achieving 1990 emission levels by 2020 and the SB 32 goal of reducing GHG emissions to 40 percent below 1990 levels by 2030.

5.0 Emissions Modeling

5.1 Methodology and Assumptions

The project's GHG emissions were calculated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 (CAPCOA 2017). The CalEEMod program is a tool used to estimate air emissions resulting from land development projects based on California-specific emission factors. CalEEMod can be used to calculate emissions from mobile (on-road vehicles), area (fireplaces, consumer products [cleansers, aerosols, and solvents], landscape maintenance equipment, architectural coatings), water and wastewater, and solid waste sources. GHG emissions are estimated in terms of MT CO_2E.

The analysis methodology and input data are described in the following sections. Where project-specific data was not available, model inputs were based on information provided in the CalEEMod User's Guide (CAPCOA 2017).

5.1.1 Construction Emissions

Construction activities emit GHGs primarily though combustion of fuels (mostly diesel) in the engines of off-road construction equipment and through combustion of diesel and gasoline in on-road construction vehicles and the commute vehicles of the construction workers. Smaller amounts of GHGs are also emitted through the energy use embodied in water use for fugitive dust control.

Every phase of the construction process, including demolition, grading, paving, and building, emits GHGs in volumes directly related to the quantity and type of construction equipment used. GHG emissions associated with each phase of project construction are calculated by multiplying the total fuel consumed by the construction equipment and worker trips by applicable emission factors. The number and pieces of construction equipment are calculated based on the project-specific design. In the absence of project specific construction information, equipment for all phases of construction is estimated based on the size of the land use.

Construction emissions are calculated for construction activity based on the construction equipment profile and other factors determined as needed to complete all phases of construction. The project was modeled with construction occurring from July 2021 through December 2022 and with an operational year of 2022. Based on guidance from the SCAQMD, total construction GHG emissions resulting from a project should be amortized over 30 years and added to operational GHG emissions to account for their contribution to GHG emissions over the lifetime of a project (South Coast AQMD 2009).

5.1.2 Mobile Emissions

Emissions from vehicles come from the combustion of fossil fuels in vehicle engines. Mobile emissions are estimated in CalEEMod by first calculating trip rate, trip length, trip purpose (e.g., home to work, home to shop, home to other), and trip type percentages for each land use type and quantity.

According to the project traffic report, the project would generate 2,400 average daily vehicle trips with an average one-way trip length of 9.6 miles (Linscott, Law & Greenspan, Engineers 2020). Default vehicle emission factors for the first operational year of 2022 were used.

5.1.3 Energy Use Emissions

Energy use emissions include direct emissions associated with the combustion of on-site fuel sources, such as natural gas, and indirect GHG emissions associated with the generation of electricity from fossil fuels off-site in power plants.

Project energy use was estimated based on the size of the proposed land uses using data compiled from South Coast AQMD surveys and incorporated into CalEEMod. These surveys include the California Energy Commission-sponsored California Commercial End Use Survey and Residential Appliance Saturation Survey studies, which identify energy use by building type and climate zone. By default, energy use factors in CalEEMod reflect the 2016 Title 24 energy code (Part 6 of the Building Code). The current version of the energy code, 2019 Title 24, went into effect on January 1, 2020. For non-residential buildings, it is estimated that the 2019 standards is estimated to decrease energy consumption by 30 percent (CEC 2018). The project would be subject to the 2019 Title 24 energy code standards. Thus, in order to account for compliance with the 2019 Title 24 energy code

standards, a 30 percent reduction in building energy use was included in calculations for the project.

The project would be served by San Diego Gas & Electric (SDG&E). Therefore, SDG&E's specific energy-intensity factors (i.e., the amount of CO_2, CH_4, and N_2O per kilowatt-hour) are used in the calculations of GHG emissions. As discussed in Section 3.2.7, the state mandate for renewable energy is 33 percent by 2020. Based on the most recent annual report, SDG&E has already procured 43 percent (SDG&E 2019). However, the energy-intensity factors included in CalEEMod by default only represent a 10.2 percent procurement of renewable energy (SDG&E 2011). To account for the continuing effects of RPS, the energy-intensity factors included in CalEEMod were adjusted to reflect the current procurement of 43 percent renewable energy. SDG&E energy intensity factors are shown in Table 4.

Table 4
San Diego Gas & Electric Intensity Factors

GHG	2009 (lbs/MWh)	2020 (lbs/MWh)
Carbon Dioxide (CO_2)	720.49	457.3
Methane (CH_4)	0.029	0.018
Nitrous Oxide (N_2O)	0.006	0.004
SOURCE: SDG&E 2011. lbs = pounds; MWh = megawatt hour		

Emissions resulting from natural gas consumption were calculated in CalEEMod by multiplying natural gas consumption by standard emission factors published by the U.S. EPA's AP-42: Compilation of Air Pollutant Emissions Factors.

5.1.4 Area Source Emissions

Area sources include GHG emissions that would occur from the use of landscaping equipment. The use of landscape equipment emits GHGs associated with the equipment's fuel combustion. Landscaping equipment emission values were derived from the 2011 In-Use Off-Road Equipment Inventory Model (CARB 2011).

5.1.5 Water and Wastewater Emissions

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. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both CH_4 and N_2O.

The indoor and outdoor water use consumption data for each land use subtype comes from the Pacific Institute's *Waste Not, Want Not: The Potential for Urban Water Conservation in California* 2003 (as cited in CAPCOA 2017). Based on that report, a percentage of total water consumption was dedicated to landscape irrigation, which is used to determine

outdoor water use. Wastewater generation was similarly based on a reported percentage of total indoor water use (CAPCOA 2017).

The project would be subject to CalGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to demonstrate compliance with CalGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for the project. In addition to water reductions under CalGreen, the GHG emissions from the energy used to transport the water are affected by RPS. As discussed previously, to account for the effects of RPS through 2020, the energy-intensity factors included in CalEEMod were adjusted to reflect 43 percent renewable energy (see Table 4).

5.1.6 Solid Waste Emissions

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. To calculate the GHG emissions generated by disposing of solid waste for the project, the total volume of solid waste was calculated using waste disposal rates identified by California Department of Resources Recycling and Recovery (CalRecycle). The methods for quantifying GHG emissions from solid waste are based on the Intergovernmental Panel on Climate Change method, using the degradable organic content of waste. GHG emissions associated with the project's waste disposal were calculated using these parameters.

These CalRecycle waste generation estimates do not reflect increased waste diversion achieved through compliance with AB 341, Commercial Recycling Requirements. According to a CalRecycle report to the Legislature, as of 2013 California has achieved a statewide 50 percent diversion of solid waste from landfills through "reduce/recycle/compost" programs (CalRecycle 2015). AB 341 mandates that 75 percent of the solid waste generated be reduced, recycled, or composted by 2020. Therefore, compliance with AB 341 requirements would increase solid waste diversion by an additional 25 percent and thereby reduce solid waste disposal by 50 percent.

5.1.7 Emergency Generator Testing

The project would install and operate an 800 kilowatt (kW) Caterpillar C27 Generator Set emergency generator (specifications are included as Attachment 2). As discussed in the operation and maintenance manual, the service life and field reliability of the emergency generator is largely dependent on regular maintenance. Maintenance may include run-tests. Emissions due to testing were calculated using the default emission factors from CalEEMod assuming testing involves operation at full load for up to 50 total hours per year.

6.0 GHG Impact Analysis

6.1 Greenhouse Gas Emissions

Based on the methodology summarized in Section 5.1, the direct and indirect GHG emissions have been calculated. Table 5 summarizes the results. The complete model outputs for the project are included in Attachment 2.

Table 5
Project Greenhouse Gas Emissions Estimate
(MT CO_2E per Year)

Emission Source	Project Emissions
Mobile	2,312
Energy Use	506
Electricity	*284*
Natural Gas	*222*
Area sources	<1
Generator Maintenance	21
Water use	40
Solid waste disposal	88
Construction[1]	36
TOTAL[2]	**2,986**

MT CO_2E = metric tons of carbon dioxide equivalent
[1] Construction emissions were amortized over a 30-year period.
[2] Total may vary due to independent rounding.

Project construction and operation would result in the annual equivalent of 2,986 MT CO_2E. This emission level would not exceed the 3,000 MT CO_2E Residential/Commercial Screening Level. As project emissions would be less than the applicable screening level, GHG emissions impacts would be less than significant.

6.2 Applicable Plans, Policies, and Regulations Intended to Reduce Greenhouse Gas Emissions

6.2.1 State Scoping Plan – Regulatory Programs

As discussed in Section 3.2, State Climate Change Regulations, EO S-3-05 established statewide GHG emission reduction targets for the state, and AB 32 launched the CARB Climate Change Scoping Plan that outlined the reduction measures needed to reach the 2020 target. As discussed above, project emissions would be below the Residential/Commercial Screening Level.

As discussed in Section 4.2, significance screening levels from South Coast AQMD guidance are based on the concept of establishing a 90 percent GHG emission market capture rate. The 3,000 MT CO_2E Residential/Commercial Screening Level would specifically apply to

GHG emissions from new development projects for residential/commercial sectors. Following rationale presented in the CAPCOA Guidance, the aggregate emissions from all projects with individual annual emissions that are equal to or less than the identified screening levels for 90 percent market capture rate would not impede achievement of the statewide GHG emissions reduction targets.

Project construction and operation would not exceed the 3,000 MT CO_2E Residential/Commercial Screening Level. Therefore, the project would not conflict with plans to achieve statewide GHG emissions reduction targets established by AB 32 or SB 32.

6.2.2 City Climate Action Plan

As discussed in Section 3.3.1, the City updated its CAP in 2017. The updated focus of the new CAP promoted energy- and water-efficient buildings, smart growth and clean transit, zero waste policies, and increased local energy generation and water resources.

Table 6 summarizes reduction strategies from the CAP and evaluates project consistency with each strategy. As shown in Table 6, CAP reduction strategies would be implemented directly by the City and therefore are not applicable to individual development projects. The project would be consistent with all applicable CAP reduction strategies; therefore the project would not conflict with the CAP and impacts would be less than significant.

Table 6
Climate Action Plan Consistency Analysis

Category	Reduction Strategy	Project Consistency
Water Conservation & Reuse		
Water Education and Enforcement	Expand education and enforcement targeting landscape water waste.	**Not applicable.** The project would not impede efforts to expand education or enforcement targeting landscaping water waste.
Water Efficiency Upgrades	Update the City's Landscape Water Conservation Ordinance to promote more water-wise landscaping designs.	**Not applicable.** The project would not impede efforts to update the City's Landscape Water Conservation Ordinance.
	Require water-saving retrofits in existing buildings at a specific point in time.	**Not applicable.** The project would not impede efforts to require water-saving retrofits in existing buildings.
Water Reuse Plan & System Installations	Develop a Water Reuse Master Plan to maximize the use of storm water, graywater, and onsite water reclamation.	**Not applicable.** The project would not impede efforts to develop a Water Reuse Master Plan.
	Streamline complex graywater system's permit review.	**Not applicable.** The project would not impede efforts to streamline permit review for graywater systems.
Waste Reduction		
Zero Waste Plan	Develop a Zero Waste Plan to supplement statewide green waste, recycling, and plastic bag ban efforts.	**Not applicable.** The project would not impede efforts to develop a Zero Waste Plan.

Table 6 Climate Action Plan Consistency Analysis		
Category	Reduction Strategy	Project Consistency
Renewable & Energy Efficient		
Energy Education & Enforcement	Expand education targeting key community segments and facilitating energy performance disclosure.	**Not applicable.** The project would not impede efforts to expand energy education and performance disclosure.
	Leverage the building inspection process to distribute energy-related information and to deter unpermitted, low performing energy improvements.	**Not applicable.** The project would not impede efforts to distribute energy-related information.
Clean Energy Sources	Incorporate Solar Photovoltaic into all new residential and commercial buildings.	**Not applicable.** The project would not impede efforts to adopt pre-wiring standards or to develop a solar photovoltaic requirement.
	Provide more grid-delivered clean energy through Community Choice Aggregation or other mechanism.	**Not applicable.** The project would not impede efforts to provide grid-delivered clean energy.
Energy Efficiency Upgrades	Expand the City's "cool roof" standards to include re-roofs and western areas.	**Not applicable.** The project would not impede efforts to revise the City's "cool roof" standards.
	Facilitate more energy upgrades in the community through incentives, permit streamlining and education.	**Not applicable.** The project would not impede efforts to facilitate energy upgrades in the community.
	Require energy-savings retrofits in existing buildings at a specific point in time.	**Not applicable.** The project would not impede efforts to require energy-savings retrofits in existing buildings.
Robust Urban Forests	Plant more shade trees to save energy, address heat island issues, and improve air quality.	**Consistent.** The project Landscape Plan includes 41 patio shade trees throughout the patio areas and along pathways, 90 shade trees surrounding and throughout the parking lot, and 76 perimeter screen trees.
Smart Growth & Transportation		
Complete Streets & Neighborhoods	Incorporate "Complete Streets" principles into municipal capital projects and plans.	**Not applicable.** The project would not impede efforts to improve municipal capital projects and plans.
	Encourage higher density and mixed-use development in Smart Growth areas, especially around trolley stations and other transit nodes.	**Not applicable.** The project would not impede efforts to construct additional high density and mixed-use development in Smart Growth areas.
Transportation Demand Management	Utilize bike facilities, transit access/passes and other Transportation Demand Management and congestion management offerings.	**Not applicable.** The project would not impede efforts to develop Transportation Demand Management and congestion management offerings.
	Expand bike-sharing, car-sharing, and other "last mile" transportation options.	**Not applicable.** The project would not impede efforts to develop Transportation Demand Management and congestion management offerings.

Table 6 Climate Action Plan Consistency Analysis		
Category	Reduction Strategy	Project Consistency
Alternative Fuel Vehicle Readiness	Support the installation of more local alternative fueling stations.	**Not applicable.** The project would not impede efforts to install more local alternative fueling stations.
	Designate preferred parking for alternative fuel vehicles.	**Not applicable.** The project would not impede efforts to designate preferred parking for alternative fuel vehicles.
	Design all new residential and commercial buildings to be "Electric Vehicle Ready."	**Consistent.** The project would comply with 2019 CalGreen requirements for provision of electric vehicle charging equipment.
Source: City Climate Action Plan		

7.0 Conclusions and Recommendations

The project's potential to result in impacts to climate change was assessed using criteria from the *State CEQA Guidelines* and the SCAQMD's *Interim CEQA GHG Significance Thresholds*. For determining the significance of GHG emissions, the project was evaluated against a 3,000 MT CO_2E Residential/Commercial Screening Level. Project GHG emissions would not exceed the 3,000 MT CO_2E Residential/Commercial Screening Level. As project emissions would be less than the applicable screening level, GHG emissions impacts would be less than significant.

As discussed in Section 6.2.1, significance screening levels from South Coast AQMD guidance are based on the concept of establishing a 90 percent GHG emission market capture rate. The aggregate emissions from all projects with individual annual emissions that are equal to or less than screening levels would not impede achievement of the state GHG emissions reduction targets. Therefore, the project would not conflict with plans to achieve statewide GHG emissions reduction targets established by AB 32 or SB 32. Additionally, as summarized in Table 6, the project would be consistent with all applicable reduction strategies from the City CAP. Therefore the project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission and impacts would be less than significant.

8.0 References Cited

California Air Pollution Control Officers Association (CAPCOA)

2008 *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, January.

2017 California Emissions Estimator Model (CalEEMod). User's Guide Version 2016.3.2 September.

California Air Resources Board (CARB)

2007 *Staff Report, California 1990 Greenhouse Gas Emissions Level and 2020 Limit, Appendix A – 1990 Inventory by IPCC Category*. Last updated November 19, 2007. Accessed April, 2014.

2008 *Climate Change Scoping Plan: A Framework for Change*. Accessed at http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf. December.

2011 In-Use Off-Road Equipment (Construction, Industrial, Ground Support, and Oil Drilling) 2011 Inventory Model.

2017 *The 2017 Climate Change Scoping Plan, The Strategy for Achieving California's 2030 Greenhouse Gas Target, Draft*. October 27, 2017.

2019 *California Greenhouse Gas Inventory for 2000–2017 - by Category as Defined in the 2008 Scoping Plan*. Last updated August 12, 2019.

California Department of Resources Recycling and Recovery (CalRecycle)

2015 AB 341 Report to the Legislature. Publication #DRRR-2015-1538. https://www2.calrecycle.ca.gov/Publications/Download/1168.

California Energy Commission (CEC)

2018 *2019 Building Energy Efficiency Standards Frequently Asked Questions*. March. Accessed at https://www.energy.ca.gov/sites/default/files/2020-03 /Title_24 _2019_ Building_Standards_FAQ_ada.pdf

Chula Vista, City of

2000 *Chula Vista CO_2 Reduction Plan*. Adopted November 14, 2000.

2008 *Climate Change Working Group Measures Implementation Plan*. July 2008.

2011 *Climate Adaptation Strategies Implementation Plans*. May 2011.

2014 *2012 Greenhouse Gas Inventory*.

2017 *Chula Vista Climate Action Plan*. Adopted September 2017.

2018 *2014 Community Greenhouse Gas Emissions Inventory*. Adopted September 2018.

2020a *2016 GHG Emissions Community Inventory Report*. Adopted March 2020.

2020b *2016 GHG Emissions Municipal Inventory Report*. Adopted March 2020.

Intergovernmental Panel on Climate Change (IPCC)
2014 *Fifth Assessment Report (AR5), Climate Change 2014: Synthesis Report*.

Linscott, Law & Greenspan, Engineers (LLG)
2020 *Transportation Impact Analysis, Acadia Hospital*. June 16, 2020.

San Diego Gas and Electric (SDG&E)
2011 *March 2011 Semi-Annual Compliance Report Pursuant to the California Renewables Portfolio Standard*. Filed March.

2019 *2018 Power Content Label*. July 2019.

San Joaquin Valley Air Pollution Control District
2009 *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. December 17.

South Coast Air Quality Management District (South Coast AQMD)
2008 *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*. October 2008.

2009 Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group 14. November 19, 2009.

United States Environmental Protection Agency (U.S. EPA)
2010 *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008*. U.S. Greenhouse Gas Inventory Program, Office of Atmospheric Programs. 430-R-10-006. April 15.

2020a Energy Star. http://www.energystar.gov Accessed June 17, 2020.

2020b U.S. EPA State and Local Climate and Energy Program. http://www.epa.gov/statelocalclimate/index.html. Accessed June 17, 2020.

ATTACHMENTS

ATTACHMENT 1

Emergency Generator Specifications

C27 Generator Set

Electric Power

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

Specifications

Generator Set Specifications	
Minimum Rating	680 ekW
Maximum Rating	800 ekW
Voltage	208 to 600
Frequency	60 Hz
Speed	1800 RPM

Generator Set Configurations	
Emissions/Fuel Strategy	Low Fuel Consumption, U.S. EPA Certified for Stationary Emergency Use Only (Tier 2 Nonroad Equivalent Emission Standards)

Engine Specifications		
Engine Model	C27 ATAAC, V-12, 4-Stroke, Water-Cooled Diesel	
Bore	137.2 mm	5.4 in
Displacement	27.03 L	1649.47 in³
Stroke	152.4 mm	6 in
Compression Ratio	16.5:1	
Aspiration	TA	
Governor Type	Adem™A4	
Fuel System	MEUI	

Benefits and Features

Cat Diesel Engine

Reliable, rugged, durable design
Field-proven in thousands of applications worldwide
Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight

Generator

Matched to the performance and output characteristics of Cat engines
Industry leading mechanical and electrical design
Industry leading motor starting capabilities
High Efficiency

Cat EMCP Control Panel

The EMCP controller features the reliability and durability you have come to expect from your Cat equipment. EMCP4 is a scalable control platform designed to ensure reliable generator set operation, providing extensive information about power output and engine operation. EMCP4 systems can be further customized to meet your needs through programming and expansion modules.

Seismic Certification

Seismic Certification available.
Anchoring details are site specific, and are dependent on many factors such as generator set size, weight, and concrete strength.
IBC Certification requires that the anchoring system used is reviewed and approved by a Professional Engineer
Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007, CBC 2010
Pre-approved by OSHPD and carries an OSP-0321-10 for use in healthcare projects in California

Design Criteria

The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200 / CSA - Optional

UL 2200 listed packages
CSA Certified
Certain restrictions may apply.
Consult with your Cat® Dealer.

Single-Source Supplier

Fully prototype tested with certified torsional vibration analysis available

World Wide Product Support

Cat dealers provide extensive post-sale support including maintenance and repair agreements. Cat dealers have over 1,800 dealer branch stores operating in 200 countries. The Caterpillar S•O•S℠ program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

Standard Equipment

Air Inlet

- Air Cleaner

Cooling

- Package mounted radiator

Exhaust

- Exhaust flange outlet

Fuel

- Primary fuel filter with integral water separator
- Secondary fuel filter

- Fuel priming pump

Generator

- Matched to the performance and output characteristics of Cat engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- IP23 Protection

Power Termination

- Bus Bar

Control Panel

- EMCP 4 Genset Controller

General

- Paint - Caterpillar Yellow except rails and radiators gloss black

Optional Equipment

Exhaust

- Exhaust mufflers

Generator

- Anti-condensation heater
- Excitation: [ ] Permanent Magnet Excited (PM) [ ] Internally Excited (IE)
- Oversize and premium generators

Power Termination

- Circuit breakers, UL listed
- Circuit breakers, IEC compliant

Control Panels

- EMCP (4.2) (4.3) (4.4)
- Generator temperature monitoring & protection
- Load share module
- Digital I/O module
- Remote monitoring software

Mounting

- Rubber anti-vibration mounts
- Spring-type vibration isolator
- IBC isolators

Starting/Charging

- Battery chargers
- Oversize batteries
- Jacket water heater
- Heavy-duty starting system

- Charging alternator
- Air starting motor with control and silencer

General

- The following options are based on regional and product configuration:
- Seismic Certification per applicable building codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007
- UL 2200 package
- EU Certificate of Conformance (CE)
- CSA Certification
- EEC Declaration of Conformity
- Enclosures: sound attenuated, weather protective
- Automatic transfer switches (ATS)
- Integral & sub-base fuel tanks
- Integral & sub-base UL listed dual wall fuel tanks

Rating Type: STANDBY

Fuel Strategy: LOW FUEL CONSUMPTION

Image shown may not reflect actual configuration

C27 ACERT
800 ekW/ 1000 kVA
60 Hz/ 1800 rpm/ 480 V

	Metric	English
Package Performance		
Genset Power Rating with Fan @ 0.8 Power Factor	800 ekW	
Genset Power Rating	1000 kVA	
Aftercooler (Separate Circuit)	N/A	N/A
Fuel Consumption		
100% Load with Fan	213.3 L/hr	56.3 gal/hr
75% Load with Fan	164.6 L/hr	43.5 gal/hr
50% Load with Fan	117.3 L/hr	31.0 gal/hr
25% Load with Fan	72.0 L/hr	19.0 gal/hr
Cooling System[1]		
Engine Coolant Capacity	55.0 L	14.5 gal
Inlet Air		
Combustion Air Inlet Flow Rate	58.2 m³/min	2055.3 cfm
Max. Allowable Combustion Air Inlet Temp	48 ° C	119 ° F
Exhaust System		
Exhaust Stack Gas Temperature	523.6 ° C	974.4 ° F
Exhaust Gas Flow Rate	160.3 m³/min	5661.7 cfm
Exhaust System Backpressure (Maximum Allowable)	6.7 kPa	27.0 in. water

Rating Type: STANDBY

Fuel Strategy: LOW FUEL CONSUMPTION

Heat Rejection		
Heat Rejection to Jacket Water	350 kW	19909 Btu/min
Heat Rejection to Exhaust (Total)	765 kW	43510 Btu/min
Heat Rejection to Aftercooler	140 kW	7966 Btu/min
Heat Rejection to Atmosphere from Engine	105 kW	5950 Btu/min
Heat Rejection to Atmosphere from Generator	57 kW	3213 Btu/min

Alternator[2]	
Motor Starting Capability @ 30% Voltage Dip	2117 skVA
Current	1203 amps
Frame Size	1296
Excitation	PM
Temperature Rise	150 ° C

Emissions (Nominal)[3]		
NOx	3371.2 mg/Nm³	6.2 g/hp-hr
CO	137.1 mg/Nm³	0.3 g/hp-hr
HC	7.7 mg/Nm³	0.0 g/hp-hr
PM	5.0 mg/Nm³	0.0 g/hp-hr

DEFINITIONS AND CONDITIONS

1. For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

2. UL 2200 Listed packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40° C ambient per NEMA MG1-32.

3. Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77° F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

Rating Type: STANDBY

Fuel Strategy: LOW FUEL CONSUMPTION

Applicable Codes and Standards:
AS1359, CSA C22.2 No100-04, UL142,UL489, UL869, UL2200,
NFPA37, NFPA70, NFPA99, NFPA110, IBC, IEC60034-1, ISO3046, ISO8528,
NEMA MG1-22,NEMA MG1-33, 2006/95/EC, 2006/42/EC, 2004/108/EC.

Note: Codes may not be available in all model configurations. Please consult your local Cat Dealer representative for availability.

STANDBY: Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions

Fuel Rates are based on fuel oil of 35º API [16º C (60º F)] gravity having an LHV of 42 780 kJ/kg (18,390 Btu/lb) when used at 29º C (85º F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

www.Cat-ElectricPower.com

Performance No.: DM9068-01

Feature Code: C27DR67

Generator Arrangement: 3850654

Date: 09/03/2016

Source Country: U.S.

ATTACHMENT 2

CalEEMod Output Files

9434 Acadia Eastlake Behavioral Health Hospital

San Diego County APCD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Hospital	120.00	Bed	6.82	97,050.00	0
Parking Lot	3.60	Acre	3.60	156,816.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2022
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	457.3	**CH4 Intensity (lb/MWhr)**	0.018	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Energy intensity factors updated based on SDG&E renewable procurement
(457.3, 0.018, 0.004)

Land Use - 10.42 acres

Construction Phase - Architectural coatings simultaneous with last half of building construction

Trips and VMT -

Grading -

Architectural Coating - SDAPCD Rule 67.0.1

Vehicle Trips - 20 trips/bed
9.6 mile trip length

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Area Coating - SDAPCD Rule 67.0.1

Energy Use - Reduced by 30 percent for account for 2019 Energy Code. (6.37 > 4.46; 4.52 > 3.16; 51.05 > 35.74)

Water And Wastewater - CalGreen requires 20% decrease in indoor water use that is not included in model (8,622,109.95 gallons)

Solid Waste - Default Rate (350.4 tons/yr/bed) reduced 50%.

Energy Mitigation -

Waste Mitigation -

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	100.00
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	100
tblAreaCoating	Area_EF_Parking	250	100
tblConstructionPhase	NumDays	20.00	150.00

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tblConstructionPhase	NumDays	30.00	60.00
tblEnergyUse	LightingElect	4.52	3.16
tblEnergyUse	T24E	6.37	4.46
tblEnergyUse	T24NG	51.05	35.74
tblGrading	AcresOfGrading	150.00	75.00
tblGrading	MaterialExported	0.00	51,000.00
tblLandUse	LandUseSquareFeet	85,890.91	97,050.00
tblLandUse	LotAcreage	1.97	6.82
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.018
tblProjectCharacteristics	CO2IntensityFactor	720.49	457.3
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblSolidWaste	SolidWasteGenerationRate	350.40	175.20
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,073.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	CC_TL	7.30	9.60
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CNW_TL	7.30	9.60
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	9.60
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	ST_TR	8.14	12.58
tblVehicleTrips	SU_TR	7.19	11.11
tblVehicleTrips	WD_TR	12.94	20.00
tblWater	IndoorWaterUseRate	10,777,637.44	8,622,109.95

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2627	3.2399	2.0296	6.2000e-003	0.4084	0.1093	0.5177	0.1795	0.1013	0.2807	0.0000	575.7892	575.7892	0.1073	0.0000	578.4714
2022	0.8033	2.4783	2.5137	5.7200e-003	0.1372	0.1041	0.2412	0.0372	0.0983	0.1355	0.0000	511.8464	511.8464	0.0791	0.0000	513.8236
Maximum	**0.8033**	**3.2399**	**2.5137**	**6.2000e-003**	**0.4084**	**0.1093**	**0.5177**	**0.1795**	**0.1013**	**0.2807**	**0.0000**	**575.7892**	**575.7892**	**0.1073**	**0.0000**	**578.4714**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2627	3.2399	2.0296	6.2000e-003	0.4084	0.1093	0.5177	0.1795	0.1013	0.2807	0.0000	575.7889	575.7889	0.1073	0.0000	578.4711
2022	0.8033	2.4783	2.5137	5.7200e-003	0.1372	0.1041	0.2412	0.0372	0.0983	0.1355	0.0000	511.8460	511.8460	0.0791	0.0000	513.8233
Maximum	**0.8033**	**3.2399**	**2.5137**	**6.2000e-003**	**0.4084**	**0.1093**	**0.5177**	**0.1795**	**0.1013**	**0.2807**	**0.0000**	**575.7889**	**575.7889**	**0.1073**	**0.0000**	**578.4711**

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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	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)
2	**4-4-2021**	**7-3-2021**	0.0477	0.0477
3	**7-4-2021**	**10-3-2021**	2.4526	2.4526
4	**10-4-2021**	**1-3-2022**	1.0038	1.0038
5	**1-4-2022**	**4-3-2022**	0.7089	0.7089
6	**4-4-2022**	**7-3-2022**	0.9025	0.9025
7	**7-4-2022**	**9-30-2022**	0.9774	0.9774
		Highest	2.4526	2.4526

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	0.4421	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003
Energy	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	503.8845	503.8845	0.0154	6.5300e-003	506.2134
Mobile	0.5968	2.6582	7.1356	0.0250	2.2135	0.0210	2.2344	0.5927	0.0196	0.6123	0.0000	2,309.1452	2,309.1452	0.1204	0.0000	2,312.1539
Stationary	0.0440	0.1969	0.1123	2.1000e-004		6.4800e-003	6.4800e-003		6.4800e-003	6.4800e-003	0.0000	20.4298	20.4298	2.8600e-003	0.0000	20.5014
Waste						0.0000	0.0000		0.0000	0.0000	35.5640	0.0000	35.5640	2.1018	0.0000	88.1084
Water						0.0000	0.0000		0.0000	0.0000	2.7354	28.0185	30.7539	0.2821	6.8800e-003	39.8552
Total	**1.1052**	**3.0580**	**7.4194**	**0.0265**	**2.2135**	**0.0429**	**2.2563**	**0.5927**	**0.0415**	**0.6342**	**38.2994**	**2,861.4802**	**2,899.7796**	**2.5224**	**0.0134**	**2,966.8346**

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	0.4421	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003
Energy	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	503.8845	503.8845	0.0154	6.5300e-003	506.2134
Mobile	0.5968	2.6582	7.1356	0.0250	2.2135	0.0210	2.2344	0.5927	0.0196	0.6123	0.0000	2,309.1452	2,309.1452	0.1204	0.0000	2,312.1539
Stationary	0.0440	0.1969	0.1123	2.1000e-004		6.4800e-003	6.4800e-003		6.4800e-003	6.4800e-003	0.0000	20.4298	20.4298	2.8600e-003	0.0000	20.5014
Waste						0.0000	0.0000		0.0000	0.0000	35.5640	0.0000	35.5640	2.1018	0.0000	88.1084
Water						0.0000	0.0000		0.0000	0.0000	2.7354	28.0185	30.7539	0.2821	6.8800e-003	39.8552
Total	**1.1052**	**3.0580**	**7.4194**	**0.0265**	**2.2135**	**0.0429**	**2.2563**	**0.5927**	**0.0415**	**0.6342**	**38.2994**	**2,861.4802**	**2,899.7796**	**2.5224**	**0.0134**	**2,966.8346**

	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	7/1/2021	7/14/2021	5	10	
2	Grading	Grading	7/15/2021	10/6/2021	5	60	
3	Building Construction	Building Construction	10/7/2021	11/30/2022	5	300	
4	Paving	Paving	12/1/2021	12/28/2021	5	20	
5	Architectural Coating	Architectural Coating	5/5/2022	11/30/2022	5	150	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 3.6

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 145,575; Non-Residential Outdoor: 48,525; Striped Parking Area: 9,409 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	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
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	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	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	6,375.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	97.00	42.00	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
Architectural Coating	1	19.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7179	16.7179	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7179**	**16.7179**	**5.4100e-003**	**0.0000**	**16.8530**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.2000e-004	2.2500e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6305	0.6305	2.0000e-005	0.0000	0.6309
Total	**3.1000e-004**	**2.2000e-004**	**2.2500e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6305**	**0.6305**	**2.0000e-005**	**0.0000**	**0.6309**

3.2 Site Preparation - 2021

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0194	0.2025	0.1058	1.9000e-004		0.0102	0.0102		9.4000e-003	9.4000e-003	0.0000	16.7178	16.7178	5.4100e-003	0.0000	16.8530
Total	**0.0194**	**0.2025**	**0.1058**	**1.9000e-004**	**0.0903**	**0.0102**	**0.1006**	**0.0497**	**9.4000e-003**	**0.0591**	**0.0000**	**16.7178**	**16.7178**	**5.4100e-003**	**0.0000**	**16.8530**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	2.2000e-004	2.2500e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	0.0000	2.0000e-004	0.0000	0.6305	0.6305	2.0000e-005	0.0000	0.6309
Total	**3.1000e-004**	**2.2000e-004**	**2.2500e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.6305**	**0.6305**	**2.0000e-005**	**0.0000**	**0.6309**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2240	0.0000	0.2240	0.1041	0.0000	0.1041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4849	163.4849	0.0529	0.0000	164.8068
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.2240**	**0.0596**	**0.2836**	**0.1041**	**0.0548**	**0.1589**	**0.0000**	**163.4849**	**163.4849**	**0.0529**	**0.0000**	**164.8068**

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	0.0239	0.8325	0.2053	2.4400e-003	0.0545	2.5200e-003	0.0571	0.0150	2.4100e-003	0.0174	0.0000	242.7668	242.7668	0.0219	0.0000	243.3145
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	2.0900e-003	1.4900e-003	0.0150	5.0000e-005	4.8100e-003	3.0000e-005	4.8500e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.2031	4.2031	1.2000e-004	0.0000	4.2062
Total	**0.0260**	**0.8340**	**0.2203**	**2.4900e-003**	**0.0594**	**2.5500e-003**	**0.0619**	**0.0163**	**2.4400e-003**	**0.0187**	**0.0000**	**246.9699**	**246.9699**	**0.0220**	**0.0000**	**247.5207**

3.3 Grading - 2021

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					0.2240	0.0000	0.2240	0.1041	0.0000	0.1041	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1257	1.3920	0.9264	1.8600e-003		0.0596	0.0596		0.0548	0.0548	0.0000	163.4848	163.4848	0.0529	0.0000	164.8066
Total	**0.1257**	**1.3920**	**0.9264**	**1.8600e-003**	**0.2240**	**0.0596**	**0.2836**	**0.1041**	**0.0548**	**0.1589**	**0.0000**	**163.4848**	**163.4848**	**0.0529**	**0.0000**	**164.8066**

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	0.0239	0.8325	0.2053	2.4400e-003	0.0545	2.5200e-003	0.0571	0.0150	2.4100e-003	0.0174	0.0000	242.7668	242.7668	0.0219	0.0000	243.3145
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	2.0900e-003	1.4900e-003	0.0150	5.0000e-005	4.8100e-003	3.0000e-005	4.8500e-003	1.2800e-003	3.0000e-005	1.3100e-003	0.0000	4.2031	4.2031	1.2000e-004	0.0000	4.2062
Total	**0.0260**	**0.8340**	**0.2203**	**2.4900e-003**	**0.0594**	**2.5500e-003**	**0.0619**	**0.0163**	**2.4400e-003**	**0.0187**	**0.0000**	**246.9699**	**246.9699**	**0.0220**	**0.0000**	**247.5207**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0589	0.5404	0.5138	8.3000e-004		0.0297	0.0297		0.0279	0.0279	0.0000	71.8076	71.8076	0.0173	0.0000	72.2407
Total	**0.0589**	**0.5404**	**0.5138**	**8.3000e-004**		**0.0297**	**0.0297**		**0.0279**	**0.0279**	**0.0000**	**71.8076**	**71.8076**	**0.0173**	**0.0000**	**72.2407**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0300e-003	0.1338	0.0357	3.5000e-004	8.6400e-003	2.8000e-004	8.9300e-003	2.5000e-003	2.7000e-004	2.7700e-003	0.0000	34.0395	34.0395	2.5300e-003	0.0000	34.1027
Worker	0.0105	7.4600e-003	0.0751	2.3000e-004	0.0241	1.7000e-004	0.0243	6.4100e-003	1.6000e-004	6.5600e-003	0.0000	21.0647	21.0647	6.0000e-004	0.0000	21.0798
Total	**0.0145**	**0.1413**	**0.1108**	**5.8000e-004**	**0.0328**	**4.5000e-004**	**0.0332**	**8.9100e-003**	**4.3000e-004**	**9.3300e-003**	**0.0000**	**55.1042**	**55.1042**	**3.1300e-003**	**0.0000**	**55.1825**

3.4 Building Construction - 2021

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	0.0589	0.5404	0.5138	8.3000e-004		0.0297	0.0297		0.0279	0.0279	0.0000	71.8075	71.8075	0.0173	0.0000	72.2406
Total	**0.0589**	**0.5404**	**0.5138**	**8.3000e-004**		**0.0297**	**0.0297**		**0.0279**	**0.0279**	**0.0000**	**71.8075**	**71.8075**	**0.0173**	**0.0000**	**72.2406**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0300e-003	0.1338	0.0357	3.5000e-004	8.6400e-003	2.8000e-004	8.9300e-003	2.5000e-003	2.7000e-004	2.7700e-003	0.0000	34.0395	34.0395	2.5300e-003	0.0000	34.1027
Worker	0.0105	7.4600e-003	0.0751	2.3000e-004	0.0241	1.7000e-004	0.0243	6.4100e-003	1.6000e-004	6.5600e-003	0.0000	21.0647	21.0647	6.0000e-004	0.0000	21.0798
Total	**0.0145**	**0.1413**	**0.1108**	**5.8000e-004**	**0.0328**	**4.5000e-004**	**0.0332**	**8.9100e-003**	**4.3000e-004**	**9.3300e-003**	**0.0000**	**55.1042**	**55.1042**	**3.1300e-003**	**0.0000**	**55.1825**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2030	1.8583	1.9472	3.2100e-003		0.0963	0.0963		0.0906	0.0906	0.0000	275.7530	275.7530	0.0661	0.0000	277.4046
Total	**0.2030**	**1.8583**	**1.9472**	**3.2100e-003**		**0.0963**	**0.0963**		**0.0906**	**0.0906**	**0.0000**	**275.7530**	**275.7530**	**0.0661**	**0.0000**	**277.4046**

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	0.0144	0.4850	0.1297	1.3200e-003	0.0332	9.4000e-004	0.0341	9.5800e-003	8.9000e-004	0.0105	0.0000	129.4303	129.4303	9.3900e-003	0.0000	129.6652
Worker	0.0380	0.0261	0.2677	8.6000e-004	0.0926	6.4000e-004	0.0932	0.0246	5.9000e-004	0.0252	0.0000	77.8971	77.8971	2.1200e-003	0.0000	77.9502
Total	**0.0523**	**0.5111**	**0.3974**	**2.1800e-003**	**0.1257**	**1.5800e-003**	**0.1273**	**0.0342**	**1.4800e-003**	**0.0357**	**0.0000**	**207.3274**	**207.3274**	**0.0115**	**0.0000**	**207.6154**

3.4 Building Construction - 2022

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	0.2030	1.8583	1.9472	3.2100e-003		0.0963	0.0963		0.0906	0.0906	0.0000	275.7527	275.7527	0.0661	0.0000	277.4043
Total	**0.2030**	**1.8583**	**1.9472**	**3.2100e-003**		**0.0963**	**0.0963**		**0.0906**	**0.0906**	**0.0000**	**275.7527**	**275.7527**	**0.0661**	**0.0000**	**277.4043**

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	0.0144	0.4850	0.1297	1.3200e-003	0.0332	9.4000e-004	0.0341	9.5800e-003	8.9000e-004	0.0105	0.0000	129.4303	129.4303	9.3900e-003	0.0000	129.6652
Worker	0.0380	0.0261	0.2677	8.6000e-004	0.0926	6.4000e-004	0.0932	0.0246	5.9000e-004	0.0252	0.0000	77.8971	77.8971	2.1200e-003	0.0000	77.9502
Total	**0.0523**	**0.5111**	**0.3974**	**2.1800e-003**	**0.1257**	**1.5800e-003**	**0.1273**	**0.0342**	**1.4800e-003**	**0.0357**	**0.0000**	**207.3274**	**207.3274**	**0.0115**	**0.0000**	**207.6154**

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.7200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

3.5 Paving - 2021

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	4.7200e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

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	5.2000e-004	3.7000e-004	3.7500e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0508	1.0508	3.0000e-005	0.0000	1.0515
Total	**5.2000e-004**	**3.7000e-004**	**3.7500e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0508**	**1.0508**	**3.0000e-005**	**0.0000**	**1.0515**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5279					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1056	0.1360	2.2000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	19.1494	19.1494	1.2500e-003	0.0000	19.1806
Total	**0.5432**	**0.1056**	**0.1360**	**2.2000e-004**		**6.1300e-003**	**6.1300e-003**		**6.1300e-003**	**6.1300e-003**	**0.0000**	**19.1494**	**19.1494**	**1.2500e-003**	**0.0000**	**19.1806**

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	4.6900e-003	3.2200e-003	0.0331	1.1000e-004	0.0114	8.0000e-005	0.0115	3.0400e-003	7.0000e-005	3.1100e-003	0.0000	9.6165	9.6165	2.6000e-004	0.0000	9.6231
Total	**4.6900e-003**	**3.2200e-003**	**0.0331**	**1.1000e-004**	**0.0114**	**8.0000e-005**	**0.0115**	**3.0400e-003**	**7.0000e-005**	**3.1100e-003**	**0.0000**	**9.6165**	**9.6165**	**2.6000e-004**	**0.0000**	**9.6231**

3.6 Architectural Coating - 2022

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	0.5279					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0153	0.1056	0.1360	2.2000e-004		6.1300e-003	6.1300e-003		6.1300e-003	6.1300e-003	0.0000	19.1494	19.1494	1.2500e-003	0.0000	19.1806
Total	**0.5432**	**0.1056**	**0.1360**	**2.2000e-004**		**6.1300e-003**	**6.1300e-003**		**6.1300e-003**	**6.1300e-003**	**0.0000**	**19.1494**	**19.1494**	**1.2500e-003**	**0.0000**	**19.1806**

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	4.6900e-003	3.2200e-003	0.0331	1.1000e-004	0.0114	8.0000e-005	0.0115	3.0400e-003	7.0000e-005	3.1100e-003	0.0000	9.6165	9.6165	2.6000e-004	0.0000	9.6231
Total	**4.6900e-003**	**3.2200e-003**	**0.0331**	**1.1000e-004**	**0.0114**	**8.0000e-005**	**0.0115**	**3.0400e-003**	**7.0000e-005**	**3.1100e-003**	**0.0000**	**9.6165**	**9.6165**	**2.6000e-004**	**0.0000**	**9.6231**

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	0.5968	2.6582	7.1356	0.0250	2.2135	0.0210	2.2344	0.5927	0.0196	0.6123	0.0000	2,309.1452	2,309.1452	0.1204	0.0000	2,312.1539
Unmitigated	0.5968	2.6582	7.1356	0.0250	2.2135	0.0210	2.2344	0.5927	0.0196	0.6123	0.0000	2,309.1452	2,309.1452	0.1204	0.0000	2,312.1539

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Hospital	2,400.00	1,509.60	1333.20	5,873,593	5,873,593
Parking Lot	0.00	0.00	0.00		
Total	2,400.00	1,509.60	1,333.20	5,873,593	5,873,593

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
Hospital	9.60	9.60	9.60	64.90	16.10	19.00	73	25	2
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Hospital	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122
Parking Lot	0.598645	0.040929	0.181073	0.106149	0.015683	0.005479	0.016317	0.023976	0.001926	0.001932	0.006016	0.000753	0.001122

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	282.9502	282.9502	0.0111	2.4700e-003	283.9662
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	282.9502	282.9502	0.0111	2.4700e-003	283.9662
NaturalGas Mitigated	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.9343	220.9343	4.2300e-003	4.0500e-003	222.2472
NaturalGas Unmitigated	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.9343	220.9343	4.2300e-003	4.0500e-003	222.2472

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					
Hospital	4.14015e+006	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.9343	220.9343	4.2300e-003	4.0500e-003	222.2472
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0223**	**0.2030**	**0.1705**	**1.2200e-003**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**220.9343**	**220.9343**	**4.2300e-003**	**4.0500e-003**	**222.2472**

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					
Hospital	4.14015e+006	0.0223	0.2030	0.1705	1.2200e-003		0.0154	0.0154		0.0154	0.0154	0.0000	220.9343	220.9343	4.2300e-003	4.0500e-003	222.2472
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0223**	**0.2030**	**0.1705**	**1.2200e-003**		**0.0154**	**0.0154**		**0.0154**	**0.0154**	**0.0000**	**220.9343**	**220.9343**	**4.2300e-003**	**4.0500e-003**	**222.2472**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	1.3092e+006	271.5654	0.0107	2.3800e-003	272.5405
Parking Lot	54885.6	11.3848	4.5000e-004	1.0000e-004	11.4257
Total		**282.9502**	**0.0111**	**2.4800e-003**	**283.9662**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hospital	1.3092e+006	271.5654	0.0107	2.3800e-003	272.5405
Parking Lot	54885.6	11.3848	4.5000e-004	1.0000e-004	11.4257
Total		**282.9502**	**0.0111**	**2.4800e-003**	**283.9662**

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	0.4421	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003
Unmitigated	0.4421	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0528					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3892					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003
Total	**0.4421**	**1.0000e-005**	**1.1400e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2100e-003**	**2.2100e-003**	**1.0000e-005**	**0.0000**	**2.3500e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0528					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3892					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1400e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2100e-003	2.2100e-003	1.0000e-005	0.0000	2.3500e-003
Total	**0.4421**	**1.0000e-005**	**1.1400e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2100e-003**	**2.2100e-003**	**1.0000e-005**	**0.0000**	**2.3500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.7539	0.2821	6.8800e-003	39.8552
Unmitigated	30.7539	0.2821	6.8800e-003	39.8552

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	8.62211 / 2.05288	30.7539	0.2821	6.8800e-003	39.8552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**30.7539**	**0.2821**	**6.8800e-003**	**39.8552**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hospital	8.62211 / 2.05288	30.7539	0.2821	6.8800e-003	39.8552
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**30.7539**	**0.2821**	**6.8800e-003**	**39.8552**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	35.5640	2.1018	0.0000	88.1084
Unmitigated	35.5640	2.1018	0.0000	88.1084

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	175.2	35.5640	2.1018	0.0000	88.1084
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**35.5640**	**2.1018**	**0.0000**	**88.1084**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hospital	175.2	35.5640	2.1018	0.0000	88.1084
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**35.5640**	**2.1018**	**0.0000**	**88.1084**

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
Emergency Generator	1	0.5	50	1073	0.73	Diesel

Boilers

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

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/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
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0440	0.1969	0.1123	2.1000e-004		6.4800e-003	6.4800e-003		6.4800e-003	6.4800e-003	0.0000	20.4298	20.4298	2.8600e-003	0.0000	20.5014
Total	**0.0440**	**0.1969**	**0.1123**	**2.1000e-004**		**6.4800e-003**	**6.4800e-003**		**6.4800e-003**	**6.4800e-003**	**0.0000**	**20.4298**	**20.4298**	**2.8600e-003**	**0.0000**	**20.5014**

11.0 Vegetation