Appendix H

Greenhouse Gas Emissions Assessment

ESA

Greenhouse Gas Emissions Assessment

EF International Language Campus Costa Mesa Project

City of Costa Mesa

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LIST OF ABBREVIATED TERMS

AB	Assembly Bill
CARB	California Air Resource Board
CCR	California Code of Regulations
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CALGreen Code	California Green Building Standards Code
CPUC	California Public Utilities Commission
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CFC	Chlorofluorocarbon
CPP	Clean Power Plan
CCSP	Climate Change Scoping Plan
cy	cubic yard
EPA	Environmental Protection Agency
FCAA	Federal Clean Air Act
FR	Federal Register
GHG	greenhouse gas
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
LCFS	Low Carbon Fuel Standard
CH_4	Methane
$MMTCO_2e$	million metric tons of carbon dioxide equivalent
$MTCO_2e$	million tons of carbon dioxide equivalent
NHTSA	National Highway Traffic Safety Administration
NF_3	nitrogen trifluoride
N_2O	nitrous oxide
PFC	Perfluorocarbon
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Government
Sf	square foot
SF_6	sulfur hexafluoride
TAC	toxic air contaminants

1 INTRODUCTION

This report documents the results of a Greenhouse Gas (GHG) Emissions Assessment completed for the EF International Costa Mesa Project. The purpose of this GHG Emissions Assessment is to evaluate the potential construction and operational emissions associated with the proposed Project and determine the level of impact the Project would have on the environment.

1.1 PROJECT LOCATION

The Project Site is located approximately 50 feet south of Interstate 405 (I-405), east of Bear Street, and surrounded by residential neighborhoods to the east and south Project boundaries in the City of Costa Mesa, Orange County, California; refer to Exhibit 1: Regional Vicinity. The Project site encompasses 6 acres at 3150 Bear Street; refer to Exhibit 2: Site Vicinity.

1.2 PROJECT DESCRIPTION

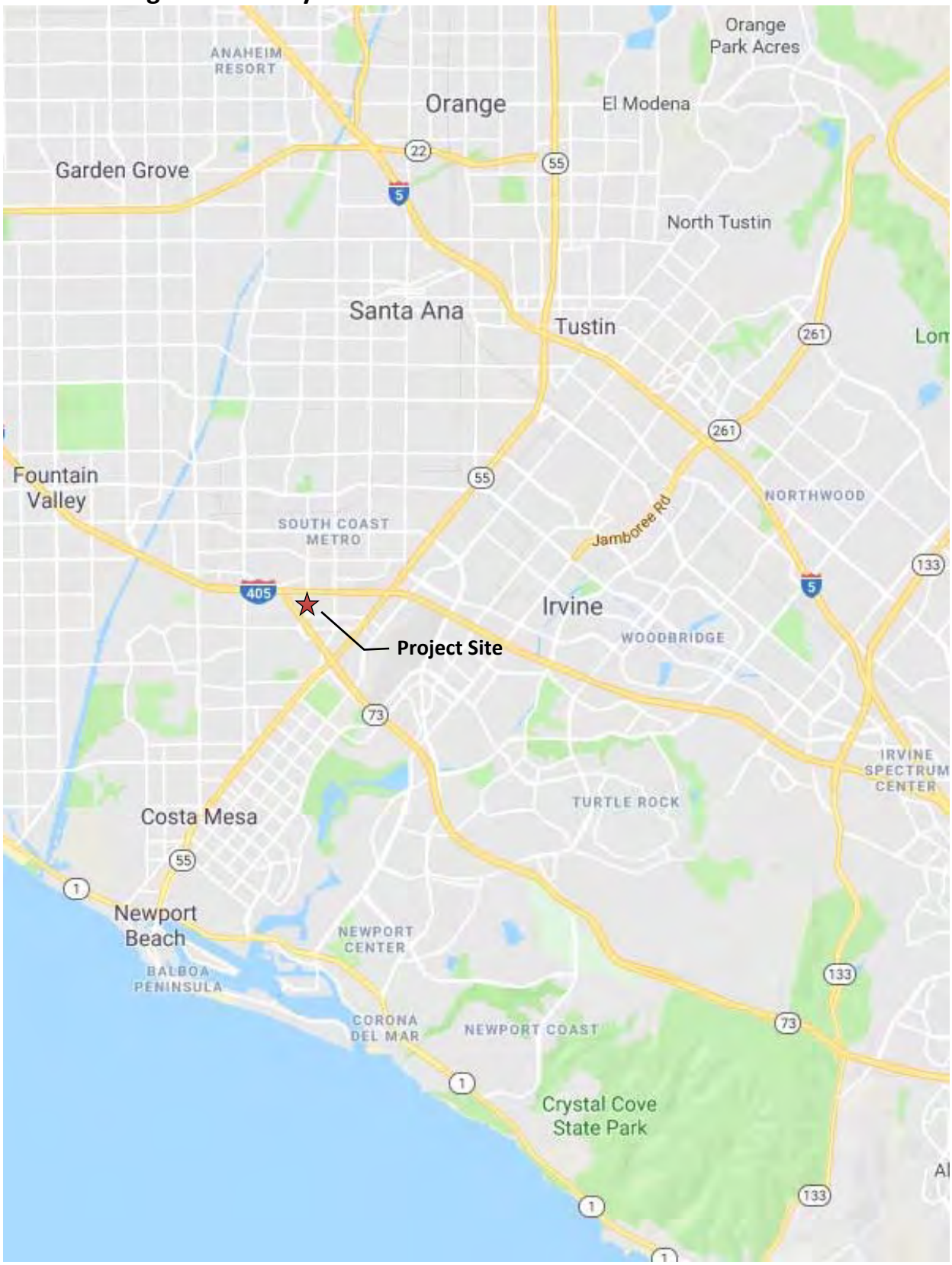
The proposed Project is comprised of three new student residential buildings and associated parking and landscaping, new recreational amenities, and renovation of the existing building; refer to Exhibit 3: Site Plan. The Project would renovate the existing three-story 68,000-square foot (sf) building to create approximately 50 classrooms, a student services areas, cafeteria, and faculty/staff offices. Note that the existing building includes an approximately 10,300 sf rotunda, which would connect to the new residential building along I-405. Due to design changes, the existing rotunda would be considered in the future as a part of the new Student Residential Building and not the existing building. The new residential buildings would total approximately 100,000 sf (including the existing rotunda), to accommodate up to 627 beds. The total existing and proposed building area would be 155,000 sf.

It is anticipated that the school would have up to 1,347 students and 70 faculty and staff members. Students would be divided into resident students (approximately 627) and commuter students (approximately 720). Commuter students would live in the surrounding community with host families. Host families are encouraged to not drive and drop-off or pickup students and are selected (in part) based on their proximity to campus. Criteria for selecting host families include locating the family within 45 minutes of campus using either walk, bike or public transportation.

Along with the residential buildings, a surface lot with 102 total spaces are proposed**.** New recreational amenities include a swimming pool, volleyball court, and basketball court, and/or multipurpose field. The Project site is currently zoned Administrative Professional/Commercial and designated as General Commercial in the General Plan Land Use Map. The proposed Project is permitted within the land use zone with a conditional use permit (CUP) and does not require a zone change or General Plan amendment. Under the Administrative Professional zoning, the maximum allowable height of buildings in this area is two stories or 28 feet. The Project includes a request for a CUP, a height variance to allow height up to three stories or 42.5 feet, and compliance with the California Environmental Quality Act.

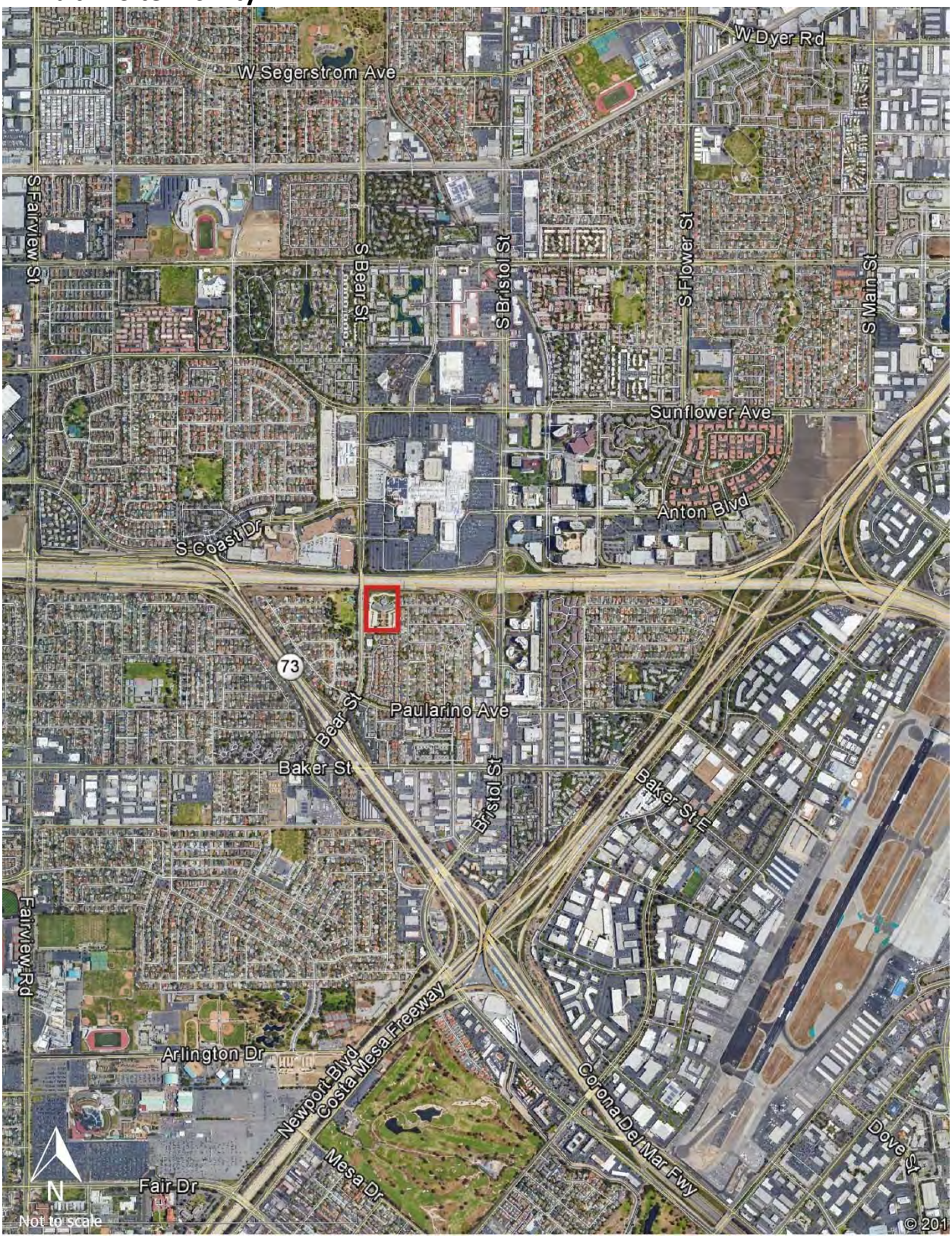
Vehicular access for the Project site would consists of one driveway located at the southwest corner of the Project site on Bear Street. Additionally, the site can be accessed from the eastern Project boundary via Olympic Avenue. Project construction is estimated to start by late 2019 and be complete by 2020.

Exhibit 1: Regional Vicinity



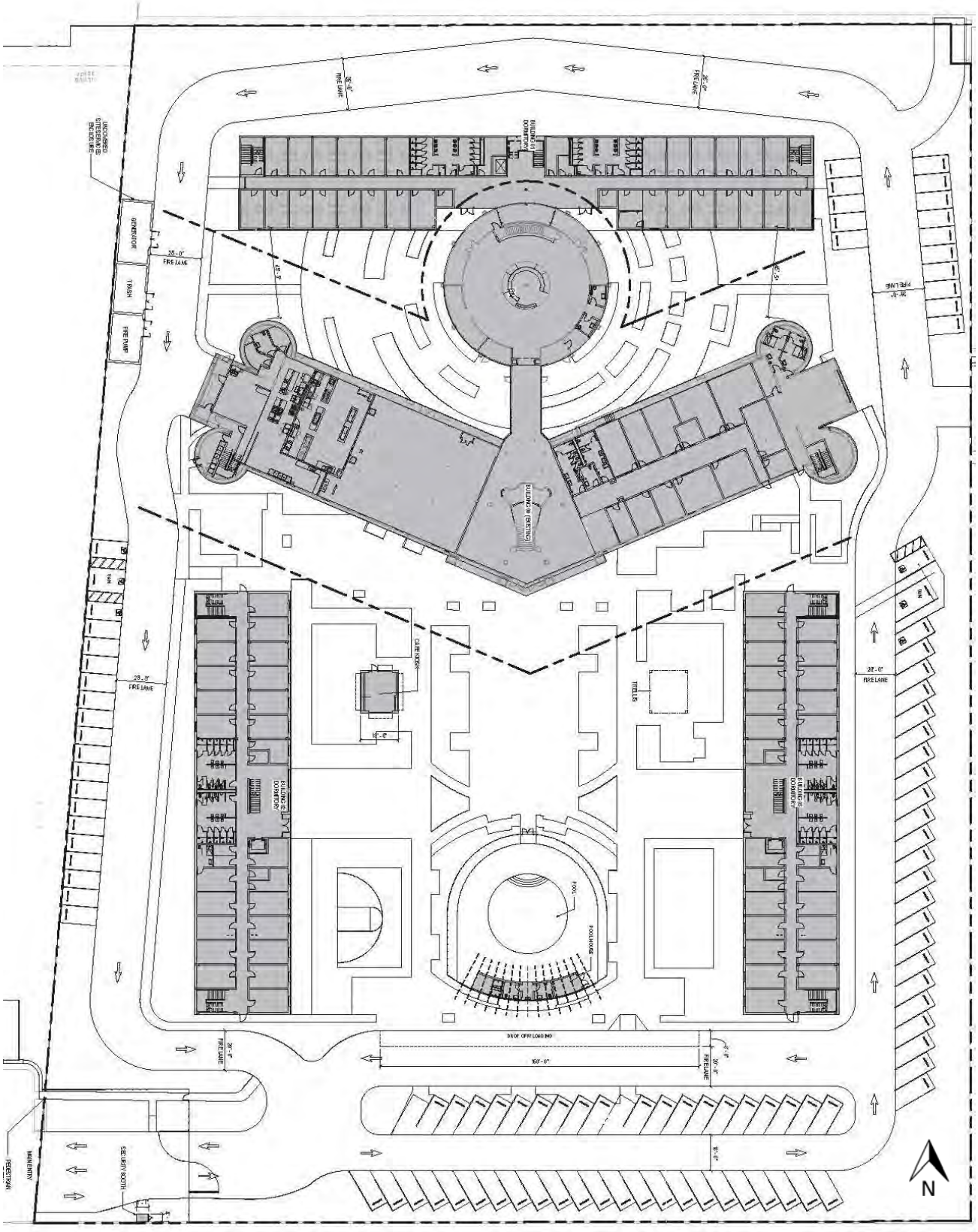
Source: Google Maps, 2018.

Exhibit 2: Site Vicinity



Source: Google Maps, 2018.

Exhibit 3: Site Plan



Source: Gensler, 2019.

2 ENVIRONMENTAL SETTING

2.1 GREENHOUSE GASES AND CLIMATE CHANGE

Certain gases in the earth's atmosphere classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth.

The primary GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Examples of fluorinated gases include chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3); however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of GHGs exceeding natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the Earth's climate, known as global climate change or global warming.

GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants (TACs), which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of a GHG molecule is dependent on multiple variables and cannot be pinpointed, more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms of carbon sequestration. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere[1]. Table 1: Description of Greenhouse Gases describes the primary GHGs attributed to global climate change, including their physical properties.

[1] Intergovernmental Panel on Climate Change, *Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis*, *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.

Table 1: Description of Greenhouse Gases

Greenhouse Gas	Description
Carbon Dioxide (CO_2)	CO_2 is a colorless, odorless gas that is emitted naturally and through human activities. Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, and industrial facilities. The atmospheric lifetime of CO_2 is variable because it is readily exchanged in the atmosphere. CO_2 is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.
Nitrous Oxide (N_2O)	N_2O is largely attributable to agricultural practices and soil management. Primary human-related sources of N_2O include agricultural soil management, sewage treatment, combustion of fossil fuels, and adipic and nitric acid production. N_2O is produced from biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years. The Global Warming Potential of N_2O is 298.
Methane (CH_4)	CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Methane is the major component of natural gas, about 87 percent by volume. Human-related sources include fossil fuel production, animal husbandry, rice cultivation, biomass burning, and waste management. Natural sources of CH_4 include wetlands, gas hydrates, termites, oceans, freshwater bodies, non-wetland soils, and wildfires. The atmospheric lifetime of CH_4 is about 12 years and the Global Warming Potential is 25.
Hydrofluorocarbons (HFCs)	HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is increasing, as the continued phase out of CFCs and HCFCs gains momentum. The 100-year Global Warming Potential of HFCs range from 124 for HFC-152 to 14,800 for HFC-23.
Perfluorocarbons (PFCs)	PFCs have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above Earth's surface. Because of this, they have long lifetimes, between 10,000 and 50,000 years. Two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Global Warming Potentials range from 6,500 to 9,200.
Chlorofluorocarbons (CFCs)	CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. They are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). CFCs were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. The Montreal Protocol on Substances that Deplete the Ozone Layer prohibited their production in 1987. Global Warming Potentials for CFCs range from 3,800 to 14,400.
Sulfur Hexafluoride (SF_6)	SF_6 is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas. The Global Warming Potential of SF_6 is 23,900.
Hydrochlorofluorocarbons (HCFCs)	HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, HCFCs are subject to a consumption cap and gradual phase out. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The 100-year Global Warming Potentials of HCFCs range from 90 for HCFC-123 to 1,800 for HCFC-142b.
Nitrogen Trifluoride (NF_3)	NF_3 was added to Health and Safety Code section 38505(g)(7) as a GHG of concern. This gas is used in electronics manufacture for semiconductors and liquid crystal displays. It has a high global warming potential of 17,200.

Source: Compiled from U.S. EPA, *Overview of Greenhouse Gases*, November 6, 2018 (https://www.epa.gov/ghgemissions/overview-greenhouse-gases); U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016*, 2018; Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis*, 2007; National Research Council, Advancing the Science of Climate Change, 2010; U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, April 2010.

3 REGULATORY SETTING

3.1 FEDERAL

To date, national standards have not been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding. The U.S. Environmental Protection Agency (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Federal Clean Air Act (FCAA) and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing FCAA and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, Executive Order 13432 was issued in 2007 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011, and in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, an Executive Memorandum was issued directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017–2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2

in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017–2021, and NHTSA intends to set standards for model years 2022–2025 in a future rulemaking. On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks. It should be noted that the EPA is currently proposing to freeze the vehicle fuel efficiency standards at their planned 2020 level (37 mpg), canceling any future strengthening (currently 54.5 mpg by 2026).

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014–2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6 to 23 percent over the 2010 baselines.

In August 2016, the EPA and NHTSA announced the adoption of the phase two program related to the fuel economy and GHG standards for medium- and heavy-duty trucks. The phase two program will apply to vehicles with model year 2018 through 2027 for certain trailers, and model years 2021 through 2027 for semi-trucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO_2 emissions by approximately 1.1 billion metric tons and reduce oil consumption by up to 2 billion barrels over the lifetime of the vehicles sold under the program.

In 2018, the President and the EPA have stated their intent to halt various federal regulatory activities to reduce GHG emission, including the phase two program. California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives. The timing and consequences of these types of federal decisions and potential responses from California and other states are speculative at this time.

Clean Power Plan and New Source Performance Standards for Electric Generating Units. On October 23, 2015, the EPA published a final rule (effective December 22, 2015) establishing the carbon pollution emission guidelines for existing stationary sources: electric utility generating units (80 Federal Register [FR] 64510–64660), also known as the Clean Power Plan (CPP). These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO_2 emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: one fossil-fuel-fired electric utility steam-generating unit and two stationary combustion turbines. Concurrently, the EPA published a final rule (effective October 23, 2015) establishing standards of performance for GHG emissions from new, modified, and reconstructed stationary sources: electric utility generating units (80 FR 64661–65120). The rule prescribes CO_2 emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. The U.S. Supreme Court stayed implementation of the CPP pending resolution of several lawsuits. Additionally, in March 2017, the federal government directed the EPA Administrator to review the CPP to determine whether it is consistent with current executive policies concerning GHG emissions, climate change, and energy.

Presidential Executive Order 13783. Presidential Executive Order 13783, *Promoting Energy Independence and Economic Growth* issued on March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of CO_2, N_2O, and CH_4.

3.2 STATE OF CALIFORNIA

California Air Resources Board

The California Air Resources Board (CARB) is responsible for the coordination and oversight of State and local air pollution control programs in California. Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness about climate change and its potential for severe long-term adverse environmental, social, and economic effects. California is a significant emitter of CO_2 equivalents (CO_2e) in the world and produced 459 million gross metric tons of CO_2e in 2013. In the State, the transportation sector is the largest emitter of GHGs, followed by industrial operations such as manufacturing and oil and gas extraction.

The State of California legislature has enacted a series of bills that constitute the most aggressive program to reduce GHGs of any state in the nation. Some legislation, such as the landmark Assembly Bill (AB) 32, *California Global Warming Solutions Act of 2006*, was specifically enacted to address GHG emissions. Other legislation, such as Title 24 building efficiency standards and Title 20 appliance energy standards, were originally adopted for other purposes such as energy and water conservation, but also provide GHG reductions. This section describes the major provisions of the legislation.

Assembly Bill 32 (California Global Warming Solutions Act of 2006). AB 32 instructs the CARB to develop and enforce regulations for the reporting and verification of statewide GHG emissions. AB 32 also directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. It set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

CARB Scoping Plan. CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that would be adopted to reduce California's GHG emissions. CARB determined that achieving the 1990 emissions level would require a reduction of GHG emissions of approximately 29 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as "business-as-usual")[2]. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates early actions and additional GHG reduction measures by both CARB and the State's Climate Action Team, identifies additional measures to be pursued as regulations, and outlines the adopted role of a cap-and-trade program[3]. Additional development of these measures and adoption of the appropriate regulations occurred through the end of 2013. Key elements of the Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
- Achieving a statewide renewables energy mix of 33 percent by 2020.

[2] CARB defines business-as-usual (BAU) in its Scoping Plan as emissions levels that would occur if California continued to grow and add new GHG emissions but did not adopt any measures to reduce emissions. Projections for each emission-generating sector were compiled and used to estimate emissions for 2020 based on 2002–2004 emissions intensities. Under CARB's definition of BAU, new growth is assumed to have the same carbon intensities as was typical from 2002 through 2004.

[3] The Climate Action Team, led by the secretary of the California Environmental Protection Agency, is a group of State agency secretaries and heads of agencies, boards, and departments. Team members work to coordinate statewide efforts to implement global warming emissions reduction programs and the State's Climate Adaptation Strategy.

- Developing a California cap-and-trade program that links with other programs to create a regional market system and caps sources contributing 85 percent of California's GHG emissions (adopted in 2011).
- Establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets (several sustainable community strategies have been adopted).
- Adopting and implementing measures pursuant to existing State laws and policies, including California's clean car standards, heavy-duty truck measures, the Low Carbon Fuel Standard (amendments to the Pavley Standard adopted 2009; Advanced Clean Car standard adopted 2012), goods movement measures, and the Low Carbon Fuel Standard (adopted 2009).
- Creating targeted fees, including a public goods charge on water use, fees on gasses with high global warming potential, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In 2012, CARB released revised estimates of the expected 2020 emissions reductions. The revised analysis relied on emissions projections updated in light of current economic forecasts that accounted for the economic downturn since 2008, reduction measures already approved and put in place relating to future fuel and energy demand, and other factors. This update reduced the projected 2020 emissions from 596 million metric tons of CO_2e ($MMTCO_2e$) to 545 $MMTCO_2e$. The reduction in forecasted 2020 emissions means that the revised business-as-usual reduction necessary to achieve AB 32's goal of reaching 1990 levels by 2020 is now 21.7 percent, down from 29 percent. CARB also provided a lower 2020 inventory forecast that incorporated State-led GHG emissions reduction measures already in place. When this lower forecast is considered, the necessary reduction from business-as-usual needed to achieve the goals of AB 32 is approximately 16 percent.

CARB adopted the first major update to the Scoping Plan on May 22, 2014. The updated Scoping Plan summarizes the most recent science related to climate change, including anticipated impacts to California and the levels of GHG emissions reductions necessary to likely avoid risking irreparable damage. It identifies the actions California has already taken to reduce GHG emissions and focuses on areas where further reductions could be achieved to help meet the 2020 target established by AB 32.

In 2016, the Legislature passed Senate Bill (SB) 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. On December 14, 2017 CARB adopted a second update to the Scoping Plan[4]. The 2017 Scoping Plan details how the State will reduce GHG emissions to meet the 2030 target set by Executive Order B-30-15 and codified by SB 32. Other objectives listed in the 2017 Scoping plan are to provide direct GHG emissions reductions; support climate investment in disadvantaged communities; and, support the Clean Power Plan and other Federal actions.

Senate Bill 32 (California Global Warming Solutions Act of 2006: Emissions Limit). Signed into law in September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to

[4] California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed May 9, 2018.

be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

SB 375 (The Sustainable Communities and Climate Protection Act of 2008). Signed into law on September 30, 2008, SB 375 provides a process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established by AB 32. SB 375 requires metropolitan planning organizations to include sustainable community strategies in their regional transportation plans for reducing GHG emissions, aligns planning for transportation and housing, and creates specified incentives for the implementation of the strategies.

AB 1493 (Pavley Regulations and Fuel Efficiency Standards). AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Implementation of the regulation was delayed by lawsuits filed by automakers and by the EPA's denial of an implementation waiver. The EPA subsequently granted the requested waiver in 2009, which was upheld by the by the U.S. District Court for the District of Columbia in 2011. The regulations establish one set of emission standards for model years 2009–2016 and a second set of emissions standards for model years 2017 to 2025. By 2025, when all rules will be fully implemented, new automobiles will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.

SB 1368 (Emission Performance Standards). SB 1368 is the companion bill of AB 32, which directs the California Public Utilities Commission (CPUC) to adopt a performance standard for GHG emissions for the future power purchases of California utilities. SB 1368 limits carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than 5 years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. The new law effectively prevents California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. The CPUC adopted the regulations required by SB 1368 on August 29, 2007. The regulations implementing SB 1368 establish a standard for baseload generation owned by, or under long-term contract to publicly owned utilities, for 1,100 pounds of CO_2 per megawatt-hour.

SB 1078 and SBX1-2 (Renewable Electricity Standards). SB 1078 required California to generate 20 percent of its electricity from renewable energy by 2017. This goal was accelerated with SB 107, which changed the due date to 2010 instead of 2017. On November 17, 2008, Executive Order S-14-08, which established a Renewable Portfolio Standard target for California requiring that all retail sellers of electricity serve 33 percent of their load with renewable energy by 2020. Executive Order S-21-09 also directed CARB to adopt a regulation by July 31, 2010, requiring the State's load serving entities to meet a 33 percent renewable energy target by 2020. CARB approved the Renewable Electricity Standard on September 23, 2010 by Resolution 10-23. SBX1-2, which codified the 33 percent by 2020 goal.

SB 350 (Clean Energy and Pollution Reduction Act of 2015). Signed into law on October 7, 2015, SB 350 implements the goals of Executive Order B-30-15. The objectives of SB 350 are to increase the procurement of electricity from renewable sources from 33 percent to 50 percent (with interim targets of 40 percent by 2024, and 25 percent by 2027) and to double the energy efficiency savings in electricity and natural gas end uses of retail customers through energy efficiency and conservation. SB 350 also reorganizes the Independent System Operator to develop more regional electricity transmission markets and improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States.

AB 398 (Market-Based Compliance Mechanisms). Signed on July 25, 2017, AB 398 extended the duration of the Cap-and-Trade program from 2020 to 2030. AB 398 required CARB to update the Scoping Plan and for all GHG rules and regulations adopted by the State. It also designated CARB as the statewide regulatory body responsible for ensuring that California meets its statewide carbon pollution reduction targets, while retaining local air districts' responsibility and authority to curb toxic air contaminants and criteria pollutants from local sources that severely impact public health. AB 398 also decreased free carbon allowances over 40 percent by 2030 and prioritized Cap-and-Trade spending to various programs including reducing diesel emissions in impacted communities.

SB 150 (Regional Transportation Plans). Signed on October 10, 2017, SB 150 aligns local and regional GHG reduction targets with State targets (i.e., 40 percent below their 1990 levels by 2030). SB 150 creates a process to include communities in discussions on how to monitor their regions' progress on meeting these goals. The bill also requires the CARB to regularly report on that progress, as well as on the successes and the challenges regions experience associated with achieving their targets. SB 150 provides for accounting of climate change efforts and GHG reductions and identify effective reduction strategies.

SB 100 (California Renewables Portfolio Standard Program: Emissions of Greenhouse Gases). Signed into Law in September 2018, SB 100 increased California's renewable electricity portfolio from 50 to 60 percent by 2030. SB 100 also established a further goal to have an electric grid that is entirely powered by clean energy by 2045.

Executive Orders Related to GHG Emissions

California's Executive Branch has taken several actions to reduce GHGs using executive orders. Although not regulatory, they set the tone for the State and guide the actions of state agencies.

Executive Order S-3-05. Executive Order S-3-05 was issued on June 1, 2005, which established the following GHG emissions reduction targets:

- By 2010, reduce greenhouse gas emissions to 2000 levels.
- By 2020, reduce greenhouse gas emissions to 1990 levels.
- By 2050, reduce greenhouse gas emissions to 80 percent below 1990 levels.

The 2050 reduction goal represents what some scientists believe is necessary to reach levels that will stabilize the climate. The 2020 goal was established to be a mid-term target. Because this is an executive order, the goals are not legally enforceable for local governments or the private sector.

Executive Order S-01-07. Issued on January 18, 2007, Executive Order S 01-07 mandates that a statewide goal shall be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020. The executive order established a Low Carbon Fuel Standard (LCFS) and directed the Secretary for Environmental Protection to coordinate the actions of the California Energy Commission, CARB, the University of California, and other agencies to develop and propose protocols for measuring the "life-cycle carbon intensity" of transportation fuels. CARB adopted the LCFS on April 23, 2009.

Executive Order S-13-08. Issued on November 14, 2008, Executive Order S-13-08 facilitated the California Natural Resources Agency development of the 2009 California Climate Adaptation Strategy. Objectives include analyzing risks of climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order S-14-08. Issued on November 17, 2008, Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the Renewable Electricity Standard on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-21-09. Issued on July 17, 2009, Executive Order S-21-09 directs CARB to adopt regulations to increase California's RPS to 33 percent by 2020. This builds upon SB 1078 (2002), which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006), which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Executive Order B-30-15. Issued on April 29, 2015, Executive Order B-30-15 established a California GHG reduction target of 40 percent below 1990 levels by 2030 and directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of CO_2e (MMTCO2e). The 2030 target acts as an interim goal on the way to achieving reductions of 80 percent below 1990 levels by 2050, a goal set by Executive Order S-3-05. The executive order also requires the State's climate adaptation plan to be updated every three years and for the State to continue its climate change research program, among other provisions. With the enactment of SB 32 in 2016, the Legislature codified the goal of reducing GHG emissions by 2030 to 40 percent below 1990 levels.

Executive Order B-55-18. Issued on September 10, 2018, Executive Order B-55-18 establishes a goal to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter. This goal is in addition to the existing statewide targets of reducing GHG emissions. The executive order requires CARB to work with relevant state agencies to develop a framework for implementing this goal. It also requires CARB to update the Scoping Plan to identify and recommend measures to achieve carbon neutrality. The executive order also requires state agencies to develop sequestration targets in the Natural and Working Lands Climate Change Implementation Plan.

California Regulations and Building Codes

California has a long history of adopting regulations to improve energy efficiency in new and remodeled buildings. These regulations have kept California's energy consumption relatively flat even with rapid population growth.

Title 20 Appliance Efficiency Regulations. The appliance efficiency regulations (California Code of Regulations [CCR] Title 20, Sections 1601-1608) include standards for new appliances. Twenty-three categories of appliances are included in the scope of these regulations. These standards include minimum levels of operating efficiency, and other cost-effective measures, to promote the use of energy- and water-efficient appliances.

Title 24 Building Energy Efficiency Standards. California's Energy Efficiency Standards for Residential and Nonresidential Buildings (CCR Title 24, Part 6), was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The 2016 Building Energy Efficiency Standards approved on January 19, 2016 went into effect on January 1, 2017. The 2019 Building Energy Efficiency Standards were adopted on May 9, 2018 and take effect on January 1, 2020. Under the 2019 standards, homes will use about 53 percent less energy and nonresidential buildings will use about 30 percent less energy than buildings under the 2016 standards.

Title 24 California Green Building Standards Code. The California Green Building Standards Code (CCR Title 24, Part 11 code) commonly referred to as the CALGreen Code, is a statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2017. Updates to the 2016 CALGreen Code will take effect on January 1, 2020 (2019 CALGreen). The 2019 CALGreen standards will continue to improve upon the existing standards for new construction of, and additions and alterations to, residential and nonresidential buildings.

3.3 REGIONAL

South Coast Air Quality Management District Thresholds

The South Coast Air Quality Management District (SCAQMD) formed a GHG California Environmental Quality Act (CEQA) Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. As of the last Working Group meeting (Meeting 15) held in September 2010, the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where SCAQMD is not the lead agency.

With the tiered approach, the Project is compared with the requirements of each tier sequentially and would not result in a significant impact if it complies with any tier. Tier 1 excludes projects that are specifically exempt from SB 97 from resulting in a significant impact. Tier 2 excludes projects that are consistent with a GHG reduction plan that has a certified final CEQA document and complies with AB 32 GHG reduction goals. Tier 3 excludes projects with annual emissions lower than a screening threshold. The SCAQMD is proposing a screening threshold of 10,000 metric tons of CO_2e ($MTCO_2e$) per year for industrial projects and 3,000 $MTCO_2e$ for non-industrial projects. SCAQMD concluded that projects with emissions less than the screening threshold would not result in a significant cumulative impact.

Tier 4 consists of three decision tree options. Under the Tier 4 first option, SCAQMD initially outlined that a project would be excluded if design features and/or mitigation measures resulted in emissions 30 percent lower than business as usual emissions. However, the Working Group did not provide a recommendation for this approach. The Working Group folded the Tier 4 second option into the third option. Under the Tier 4 third option, the project would be excluded if it was below an efficiency-based

threshold of 4.8 $MTCO_2e$ per service population per year. Tier 5 would exclude projects that implement offsite mitigation (GHG reduction projects) or purchase offsets to reduce GHG emission impacts to less than the proposed screening level.

GHG efficiency metrics are utilized as thresholds to assess the GHG efficiency of a project on a per capita basis or on a service population basis (the sum of the number of jobs and the number of residents provided by a project) such that the project would allow for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020 and 2035). GHG efficiency thresholds can be determined by dividing the GHG emissions inventory goal of the State, by the estimated population and employment. This method allows highly efficient projects with higher mass emissions to meet the overall reduction goals of AB 32, and is appropriate, because the threshold can be applied evenly to all project types (residential or commercial/retail only and mixed use).

As the Project involves the construction of new dormitory buildings and would repurpose an existing structure as an institutional facility, the 3,000 $MTCO_2e$ per year non-industrial threshold has been selected as the significance threshold, as it is most applicable to the proposed Project.

Southern California Association of Governments

On April 7, 2016, the Southern California Association of Governments (SCAG) Regional Council adopted the *2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy* (RTP/SCS). The RTP/SCS charts a course for closely integrating land use and transportation so that the region can grow smartly and sustainably. The strategy was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The RTP/SCS is a long-range vision plan that balances future mobility and housing needs with economic, environmental, and public health goals. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by state law to lower regional GHG emissions.

3.4 LOCAL

City of Costa Mesa General Plan

The City of Costa Mesa General Plan (CMGP) is the City's blueprint for development. Project-relevant policies specific to GHG emissions are mentioned in this section. Where inconsistencies exist, if any, they are addressed in the respective impact analysis below. CMGP policies that address GHG emissions impacts include the following:

Goal CON-2.A: Conserve energy resources in existing and new buildings, utilities, and infrastructure.

Policy CON-2.A.1: Promote efficient use of energy and conservation of available resources in the design, construction, maintenance, and operation of public and private facilities, infrastructure, and equipment.

Policy CON-2.A.2: Consult with regional agencies and utility companies to pursue energy efficiency goals. Expand renewable energy strategies to reach zero net energy for both residential and commercial new construction.

Policy CON-2.A.4: Encourage new development to take advantage of Costa Mesa's optimal climate in the warming and cooling of buildings, including use of heating, ventilation and air conditioning (HVAC) systems.

Policy CON-2.A.5: Promote environmentally sustainable development principles for buildings, master planned communities, neighborhoods, and infrastructure.

Policy CON-2.A.6: Encourage construction and building development practices that reduce resource expenditures throughout the lifecycle of a structure.

Policy CON-2.A.8: Promote efficient use of energy and conservation of available resources in the design, construction, maintenance, and operation of public and private facilities, infrastructure, and equipment.

Policy CON-2.A.11: Continue construction and demolition programs that require recycling and minimize waste in haul trips.

Goal CON-4.A: Pursue the prevention of the significant deterioration of local and regional air quality.

Policy CON-4.A.5: Encourage compact development, infill development, and a mix of uses that are in proximity to transit, pedestrian, and bicycling infrastructures.

Policy CON-4.A.6: Enhance bicycling and walking infrastructure, and support public bus service, pursuant to the Circulation Element's goals, objectives, and policies.

Policy CON-4.A.7: Encourage installation of renewable energy devices for businesses and facilities and strive to reduce community-wide energy consumption.

Policy CON-4.A.8: Develop long-term, community-wide strategies and programs that work at the local level to reduce greenhouse gases and Costa Mesa's "carbon footprint".

4 SIGNIFICANCE CRITERIA AND METHODOLOGY

4.1 THRESHOLDS AND SIGNIFICANCE CRITERIA

Addressing GHG emission generation impacts requires an agency to determine what constitutes a significant impact. The amendments to the CEQA Guidelines specifically allow lead agencies to determine thresholds of significance that illustrate the extent of an impact and are a basis from which to apply mitigation measures. This means that each agency is left to determine whether a project's GHG emissions will have a "significant" impact on the environment. The guidelines direct that agencies are to use "careful judgment" and "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" the project's GHG emissions[5].

Based upon the criteria derived from Appendix G of the CEQA Guidelines, a project normally would have a significant effect on the environment if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, based on any applicable threshold of significance; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

South Coast Air Quality Management District Thresholds

The SCAQMD has not announced when staff is expecting to present a finalized version of its GHG thresholds to the governing board. On September 28, 2010, the SCAQMD GHG CEQA Significance Threshold Working Group recommended an interim screening level numeric "bright-line" thresholds and efficiency metric thresholds. This working group was formed to assist SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research, CARB, the Attorney General's Office, a variety of city and county planning departments in the Air Basin, various utilities such as sanitation and power companies throughout the Air Basin, industry groups, and environmental and professional organizations. The screening level thresholds consist of 10,000 metric tons per year of CO_2e ($MTCO_2e$) for industrial land uses and 3,000 $MTCO_2e$ for non-industrial land uses. This threshold was developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provides guidance to CEQA practitioners in determining whether GHG emissions from a proposed project are significant. The Working Group's efficiency-based thresholds consist of 4.6 $MTCO_2e$ per service population per year (SP/yr) to meet 2020 reduction targets and 3.0 $MTCO_2e$/SP/yr to meet 2035 reduction targets.

4.2 METHODOLOGY

The Project's construction and operational emissions were calculated using the California Emissions Estimator Model version 2016.3.2 (CalEEMod). Details of the modeling assumptions and emission factors are provided in Appendix A. For construction, CalEEMod calculates emissions from off-road equipment usage and on-road vehicle travel associated with haul, delivery, and construction worker trips. GHG emissions during construction were forecasted based on the proposed construction schedule

[5] 14 California Code of Regulations, Section 15064.4a

and applying the mobile-source and fugitive dust emissions factors derived from CalEEMod. The Project's construction-related GHG emissions would be generated from off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The Project's operations-related GHG emissions would be generated by vehicular traffic, area sources (e.g., landscaping maintenance, consumer products), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste.

5 POTENTIAL IMPACTS AND MITIGATION

5.1 GREENHOUSE GAS EMISSIONS

Threshold 5.1 Would the Project generate greenhouse gas emissions, either directly or indirectly, that could have a significant impact on the environment?

Short-Term Construction Greenhouse Gas Emissions

The proposed Project would result in direct emissions of GHGs from construction. Construction of the proposed Project is estimated to generate GHG emissions. Construction emissions were quantified for demolition, grading, trenching, building construction, paving, and the application of architectural coatings. GHG emissions produced during the construction phase of the Project are primarily from construction vehicle exhaust. The approximate quantity of daily GHG emissions generated by construction equipment utilized to build the proposed Project is depicted in Table 2: Construction-Related Greenhouse Gas Emissions.

Table 2: Construction-Related Greenhouse Gas Emissions

Category	$MTCO_2e$
Total Construction Emissions	603
30- Year Amortized Construction	20
Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.	

As shown in Table 2, Project construction would result in the generation of approximately 603 $MTCO_2e$ over the course of construction. Construction GHG emissions are typically summed and amortized over the lifetime of the Project (assumed to be 30 years), then added to the operational emissions[6]. The amortized Project emissions would be 20 $MTCO_2e$ per year. Once construction is complete, the generation of these GHG emissions would cease.

Long-Term Operational Greenhouse Gas Emissions

Operational or long-term emissions occur over the life of the proposed Project. GHG emissions would result from direct emissions such as Project generated vehicular traffic, on-site combustion of natural gas, operation of any landscaping equipment. Operational GHG emissions would also result from indirect sources, such as off-site generation of electrical power, the energy required to convey water to, and wastewater from the Project site, the emissions associated with solid waste generated from the Project site, and any fugitive refrigerants from air conditioning or refrigerators. Total GHG emissions associated with proposed Project are summarized in Table 3: Project Greenhouse Gas Emissions. As shown in Table 3, the Project would generate approximately 1,055 $MTCO_2e$ annually from both construction and operations and the proposed Project would not exceed the SCAQMD GHG threshold of 3,000 $MTCO_2e$ per year. Additionally, the Project would not exceed the SCAQMD post-2020 efficiency

[6] The project lifetime is based on the standard 30-year assumption of the South Coast Air Quality Management District (South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13,* August 26, 2009).

target of 3.0 $MTCO_2e$/SP/yr. Therefore, Project-related GHG emissions would be less than significant and no mitigation measures are required.

Table 3: Project Greenhouse Gas Emissions

Emissions Source	$MTCO_2e$ per Year
Construction Amortized Over 30 Years	20
Area Source	1.7
Energy	3.84
Mobile	553
Waste	30
Water and Wastewater	66
Total	**1,055**
Bright Line Threshold	*3,000*
Project Population[1]	697
Project GHG Efficiency ($MTCO_2e$/SP/year)	**1.5**
GHG Efficiency Target ($MTCO_2e$/SP/year)	*3.0*
Exceeds SCAQMD Threshold?	**No**

Notes:
1. Conservatively based on a maximum of 627 student residents and 70 staff (697 total residents), resident assistants, faculty, etc. Although the project would include 1,417 total students (commuter and resident) and staff, the analysis conservatively uses the resident population only. This is considered a worst-case approach because a higher service population results in lower per capita (per service population) emissions.

Source: CalEEMod version 2016.3.2. Refer to Appendix A for model outputs.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

5.2 GREENHOUSE GAS REDUCTION PLAN COMPLIANCE

Threshold 5.2 Would the Project conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing greenhouse gas emissions?

There are currently no adopted local or regional GHG reduction plans applicable to the proposed Project.

Also, the proposed Project would result in operational GHG emissions that are below the 3,000 $MTCO_2eq$ per year threshold as well as the 3.0 $MTCO_2e$/SP/yr efficiency threshold; refer to Table 3. The proposed Project also includes primarily students who would be living on campus. Therefore, the proposed Project would generate approximately 455 vehicle trips daily. Additionally, it should be noted that the previous use on the site generated 543 daily vehicle trips, which is 88 trips more than what would occur with the proposed Project. Thus, a less than significant impact would occur in this regard.

The SCAQMD is in the process of preparing recommended significance thresholds for GHGs for local lead agency consideration. The Scoping Plan states, "The 2020 goal was established to be an aggressive, but achievable, mid-term target, and the 2050 GHG emissions reduction goal represents the level scientists believe is necessary to reach levels that would stabilize climate".[7] The year 2020 GHG emission reduction goal of AB 32 corresponds with the mid-term target established by Executive Order S-3-05, which aims to reduce California's fair-share contribution of GHGs in 2050 to levels that would stabilize the climate.

Because the Project is limited to the development of an educational institution, the Scoping Plan's recommended measures are not directly applicable. In other words, there are no specific actions or measures to incorporate into the Project in order to comply with the Scoping Plan. However, Project would be indirectly reduced through the implementation of various Scoping Plan measures, such as the low carbon fuel standard, vehicle emissions standards, building energy efficiency standards, market-based mechanisms (such as the cap-and-trade program) and the Renewable Portfolio Standard. Therefore, the Project would not conflict with the Scoping Plan's recommended measures and, as such, would not impede implementation of the Scoping Plan.

The 2017 Scoping Plan identifies additional GHG reduction measures necessary to achieve the 2030 target. These measures build upon those identified in the first update to the Scoping Plan in 2013. Although a number of these measures are currently established as policies and measures, some measures have not yet been formally proposed or adopted. It is expected that these actions to reduce GHG emissions will be adopted as required to achieve statewide GHG emissions targets. As such, impacts related to consistency with the Scoping Plan would be less than significant.

Regarding goals for 2050 under Executive Order S-3-05, at this time it is not possible to quantify the emissions savings from future regulatory measures, as they have not yet been developed; nevertheless, it can be anticipated that operation of the proposed Project would benefit from the implementation of current and potential future regulations (e.g., improvements in vehicle emissions, SB 100/renewable electricity portfolio improvements, etc.) enacted to meet an 80 percent reduction below 1990 levels by 2050.

The Project would not conflict with any applicable plan, policy, or regulation of an agency adopted for reducing the emissions of GHGs because the Project would generate low levels of GHGs, and would not impede implementation of the Scoping Plan, or conflict with the policies of the Scoping Plan. Therefore, the impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

5.3 CUMULATIVE SETTING, IMPACTS, AND MITIGATION MEASURES

Cumulative Setting

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air

[7] California Air Resources Board, *Climate Change Scoping Plan*, December 2008.

quality effects have relatively short atmospheric lifetimes (about 1 day), GHGs have much longer atmospheric lifetimes of 1 year to several thousand years that allow them to be dispersed around the globe.

Cumulative Impacts and Mitigation Measures

It is generally the case that an individual project of this size and nature is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory. GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective. The additive effect of Project-related GHGs would not result in a reasonably foreseeable cumulatively considerable contribution to global climate change. In addition, the proposed Project as well as other cumulative related projects would also be subject to all applicable regulatory requirements, which would further reduce GHG emissions. As discussed above, the proposed Project would not conflict with any GHG reduction plans including the CARB Scoping Plan. Therefore, the Project's cumulative contribution of GHG emissions would be less than significant and the Project's cumulative GHG impacts would also be less than cumulatively considerable.

Mitigation Measures: No mitigation is required.

Level of Significance: Less than significant impact.

6 REFERENCES

1. California Air Resources Board, *California's 2017 Climate Change Scoping Plan,* 2017.
2. California Air Resources Board, *Climate Change Scoping Plan*, December 2008.
3. Gensler, *EF International Language Campus Costa Mesa Overall Site Plan*, 2019.
4. Intergovernmental Panel on Climate Change, *Climate Change 2007: The Physical Science Basis*, 2007.
5. Intergovernmental Panel on Climate Change, *Climate Change 2013: The Physical Science Basis, Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2013.
6. Linscott, Law, and Greenspan, *Trip Generation Estimates for Proposed EF (Buildout),* August 2019.
7. National Research Council, *Advancing the Science of Climate Change*, 2010.
8. City of Costa Mesa, *General Plan*, 2015.
9. State of California, *Code of Regulations Section 15065.5a*, 2018.
10. Southern California Association of Governments, *Regional Transportation Plan/Sustainable Communities Strategy*, 2016.
11. South Coast Air Quality Management District, *Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #13*, 2009.
12. U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2016*, 2018.
13. U.S. EPA, *Methane and Nitrous Oxide Emission from Natural Sources*, 2010.
14. U.S. EPA, *Overview of Greenhouse Gases*, 2018.

Appendix A

Greenhouse Gas Emissions Data

EF International Costa Mesa - Orange County, Annual

EF International Costa Mesa

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Junior College (2Yr)	57.70	1000sqft	1.32	57,700.00	0
Parking Lot	102.00	Space	0.92	40,800.00	0
Apartments Mid Rise	97.30	Dwelling Unit	2.56	97,300.00	697

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	546.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted per the SCE 2017 Corporate Responsibility and Sustainability Report. The report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 549-25*0.029-298*0.00617=546.4363 to avoid double counting.

Land Use - The total existing and proposed building area would be 155,000 sf. The existing 68 KSF building includes a 10,300 sf rotunda that would connect to the new residential building along I-405. The existing rotunda would be considered in the future as a part of the new student residential building and not the existing building.

Construction Phase - anticipated construction scuedule

Off-road Equipment - anticipated equipment

Trips and VMT -

Demolition -

Grading - conservative import estimate

Vehicle Trips - per traffic study

Woodstoves - Project is educational and dorm buildings, no fireplaces

Energy Use -

Construction Off-road Equipment Mitigation - per rule 403

Water Mitigation -

Waste Mitigation - per AB939

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	6
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	18.00	66.00
tblConstructionPhase	NumDays	230.00	159.00
tblConstructionPhase	NumDays	8.00	60.00
tblConstructionPhase	PhaseEndDate	1/21/2021	12/1/2020
tblConstructionPhase	PhaseEndDate	12/2/2020	12/1/2020
tblConstructionPhase	PhaseEndDate	1/15/2020	3/27/2020
tblConstructionPhase	PhaseEndDate	12/28/2020	4/22/2020
tblConstructionPhase	PhaseStartDate	12/29/2020	9/1/2020
tblConstructionPhase	PhaseStartDate	1/16/2020	4/23/2020
tblConstructionPhase	PhaseStartDate	12/3/2020	3/28/2020
tblFireplaces	NumberGas	82.70	0.00
tblFireplaces	NumberWood	4.87	0.00
tblGrading	MaterialImported	0.00	20,000.00

tblLandUse	Population	278.00	697.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	546.44
tblTripsAndVMT	WorkerTripNumber	15.00	18.00
tblVehicleTrips	ST_TR	6.39	0.00
tblVehicleTrips	ST_TR	11.23	7.89
tblVehicleTrips	SU_TR	5.86	0.00
tblVehicleTrips	SU_TR	1.21	7.89
tblVehicleTrips	WD_TR	6.65	0.00
tblVehicleTrips	WD_TR	27.49	7.89
tblWoodstoves	NumberCatalytic	4.87	0.00
tblWoodstoves	NumberNoncatalytic	4.87	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0419	0.4978	0.2693	7.0000e-004	0.0947	0.0202	0.1149	0.0201	0.0188	0.0388	0.0000	65.8318	65.8318	0.0134	0.0000	66.1660
2020	0.8996	3.1355	2.4853	5.8900e-003	0.3628	0.1420	0.5048	0.1507	0.1329	0.2835	0.0000	534.7162	534.7162	0.0935	0.0000	537.0525
Maximum	**0.8996**	**3.1355**	**2.4853**	**5.8900e-003**	**0.3628**	**0.1420**	**0.5048**	**0.1507**	**0.1329**	**0.2835**	**0.0000**	**534.7162**	**534.7162**	**0.0935**	**0.0000**	**537.0525**

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					
2019	0.0419	0.4978	0.2693	7.0000e-004	0.0396	0.0202	0.0598	8.6800e-003	0.0188	0.0274	0.0000	65.8317	65.8317	0.0134	0.0000	66.1660
2020	0.8996	3.1355	2.4853	5.8900e-003	0.2196	0.1420	0.3616	0.0789	0.1329	0.2118	0.0000	534.7159	534.7159	0.0935	0.0000	537.0522
Maximum	**0.8996**	**3.1355**	**2.4853**	**5.8900e-003**	**0.2196**	**0.1420**	**0.3616**	**0.0789**	**0.1329**	**0.2118**	**0.0000**	**534.7159**	**534.7159**	**0.0935**	**0.0000**	**537.0522**

	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**	**43.35**	**0.00**	**32.00**	**48.71**	**0.00**	**25.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**12-1-2019**	**2-29-2020**	1.4038	1.4038
2	**3-1-2020**	**5-31-2020**	0.8637	0.8637
3	**6-1-2020**	**8-31-2020**	0.8182	0.8182
4	**9-1-2020**	**9-30-2020**	0.4764	0.4764
		Highest	1.4038	1.4038

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	0.6513	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833
Energy	0.0108	0.0946	0.0582	5.9000e-004		7.4400e-003	7.4400e-003		7.4400e-003	7.4400e-003	0.0000	382.5731	382.5731	0.0167	4.9800e-003	384.4756

Mobile	0.1290	0.5640	1.6972	6.0100e-003	0.5215	6.0900e-003	0.5276	0.1397	5.7200e-003	0.1454	0.0000	552.7721	552.7721	0.0240	0.0000	553.3713
Waste						0.0000	0.0000		0.0000	0.0000	24.3122	0.0000	24.3122	1.4368	0.0000	60.2325
Water						0.0000	0.0000		0.0000	0.0000	2.9091	52.7894	55.6985	0.3016	7.6300e-003	65.5135
Total	**0.7911**	**0.6703**	**2.7643**	**6.6500e-003**	**0.5215**	**0.0191**	**0.5405**	**0.1397**	**0.0187**	**0.1583**	**27.2213**	**989.7775**	**1,016.9989**	**1.7807**	**0.0126**	**1,065.2761**

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	0.6513	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833
Energy	0.0108	0.0946	0.0582	5.9000e-004		7.4400e-003	7.4400e-003		7.4400e-003	7.4400e-003	0.0000	382.5731	382.5731	0.0167	4.9800e-003	384.4756
Mobile	0.1290	0.5640	1.6972	6.0100e-003	0.5215	6.0900e-003	0.5276	0.1397	5.7200e-003	0.1454	0.0000	552.7721	552.7721	0.0240	0.0000	553.3713
Waste						0.0000	0.0000		0.0000	0.0000	12.1561	0.0000	12.1561	0.7184	0.0000	30.1163
Water						0.0000	0.0000		0.0000	0.0000	2.9091	52.7894	55.6985	0.3016	7.6300e-003	65.5135
Total	**0.7911**	**0.6703**	**2.7643**	**6.6500e-003**	**0.5215**	**0.0191**	**0.5405**	**0.1397**	**0.0187**	**0.1583**	**15.0652**	**989.7775**	**1,004.8428**	**1.0623**	**0.0126**	**1,035.1599**

	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**	**44.66**	**0.00**	**1.20**	**40.34**	**0.00**	**2.83**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description

1	Demolition	Demolition	12/1/2019	12/27/2019	5	20	
2	Site Preparation	Site Preparation	12/28/2019	1/3/2020	5	5	
3	Grading	Grading	1/4/2020	3/27/2020	5	60	
4	Building Construction	Building Construction	4/23/2020	12/1/2020	5	159	
5	Paving	Paving	3/28/2020	4/22/2020	5	18	
6	Architectural Coating	Architectural Coating	9/1/2020	12/1/2020	5	66	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 30

Acres of Paving: 0.92

Residential Indoor: 197,033; Residential Outdoor: 65,678; Non-Residential Indoor: 86,550; Non-Residential Outdoor: 28,850; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	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
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
Demolition	6	15.00	0.00	692.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	6	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	111.00	27.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2019

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					0.0749	0.0000	0.0749	0.0113	0.0000	0.0113	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**0.0749**	**0.0180**	**0.0929**	**0.0113**	**0.0167**	**0.0280**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8672**

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	2.9100e-003	0.1059	0.0252	2.7000e-004	5.9300e-003	4.0000e-004	6.3300e-003	1.6300e-003	3.8000e-004	2.0100e-003	0.0000	26.9064	26.9064	2.8600e-003	0.0000	26.9779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.6000e-004	5.0700e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4724	1.4724	4.0000e-005	0.0000	1.4733
Total	**3.5400e-003**	**0.1064**	**0.0303**	**2.9000e-004**	**7.5800e-003**	**4.1000e-004**	**7.9900e-003**	**2.0700e-003**	**3.9000e-004**	**2.4600e-003**	**0.0000**	**28.3789**	**28.3789**	**2.9000e-003**	**0.0000**	**28.4512**

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					0.0278	0.0000	0.0278	4.2000e-003	0.0000	4.2000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0351	0.3578	0.2206	3.9000e-004		0.0180	0.0180		0.0167	0.0167	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	**0.0351**	**0.3578**	**0.2206**	**3.9000e-004**	**0.0278**	**0.0180**	**0.0457**	**4.2000e-003**	**0.0167**	**0.0209**	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8671**

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	2.9100e-003	0.1059	0.0252	2.7000e-004	5.6600e-003	4.0000e-004	6.0600e-003	1.5600e-003	3.8000e-004	1.9400e-003	0.0000	26.9064	26.9064	2.8600e-003	0.0000	26.9779
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.6000e-004	5.0700e-003	2.0000e-005	1.5600e-003	1.0000e-005	1.5700e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.4724	1.4724	4.0000e-005	0.0000	1.4733
Total	**3.5400e-003**	**0.1064**	**0.0303**	**2.9000e-004**	**7.2200e-003**	**4.1000e-004**	**7.6300e-003**	**1.9800e-003**	**3.9000e-004**	**2.3700e-003**	**0.0000**	**28.3789**	**28.3789**	**2.9000e-003**	**0.0000**	**28.4512**

3.3 Site Preparation - 2019

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					0.0120	0.0000	0.0120	6.6200e-003	0.0000	6.6200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0335	0.0178	3.0000e-005		1.8000e-003	1.8000e-003		1.6600e-003	1.6600e-003	0.0000	2.6499	2.6499	8.4000e-004	0.0000	2.6709
Total	**3.2000e-003**	**0.0335**	**0.0178**	**3.0000e-005**	**0.0120**	**1.8000e-003**	**0.0138**	**6.6200e-003**	**1.6600e-003**	**8.2800e-003**	**0.0000**	**2.6499**	**2.6499**	**8.4000e-004**	**0.0000**	**2.6709**

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	8.0000e-005	5.0000e-005	6.1000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1767	0.1767	0.0000	0.0000	0.1768
Total	**8.0000e-005**	**5.0000e-005**	**6.1000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1767**	**0.1767**	**0.0000**	**0.0000**	**0.1768**

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					4.4600e-003	0.0000	4.4600e-003	2.4500e-003	0.0000	2.4500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0335	0.0178	3.0000e-005		1.8000e-003	1.8000e-003		1.6600e-003	1.6600e-003	0.0000	2.6499	2.6499	8.4000e-004	0.0000	2.6709
Total	**3.2000e-003**	**0.0335**	**0.0178**	**3.0000e-005**	**4.4600e-003**	**1.8000e-003**	**6.2600e-003**	**2.4500e-003**	**1.6600e-003**	**4.1100e-003**	**0.0000**	**2.6499**	**2.6499**	**8.4000e-004**	**0.0000**	**2.6709**

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	8.0000e-005	5.0000e-005	6.1000e-004	0.0000	1.9000e-004	0.0000	1.9000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1767	0.1767	0.0000	0.0000	0.1768
Total	**8.0000e-005**	**5.0000e-005**	**6.1000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1767**	**0.1767**	**0.0000**	**0.0000**	**0.1768**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.9300e-003	0.0000	9.9300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-003	0.0466	0.0261	4.0000e-005		2.4600e-003	2.4600e-003		2.2700e-003	2.2700e-003	0.0000	3.8888	3.8888	1.2600e-003	0.0000	3.9202
Total	**4.5000e-003**	**0.0466**	**0.0261**	**4.0000e-005**	**0.0181**	**2.4600e-003**	**0.0205**	**9.9300e-003**	**2.2700e-003**	**0.0122**	**0.0000**	**3.8888**	**3.8888**	**1.2600e-003**	**0.0000**	**3.9202**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	7.0000e-005	8.4000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2565	0.2565	1.0000e-005	0.0000	0.2567
Total	**1.1000e-004**	**7.0000e-005**	**8.4000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2565**	**0.2565**	**1.0000e-005**	**0.0000**	**0.2567**

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					6.6900e-003	0.0000	6.6900e-003	3.6800e-003	0.0000	3.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-003	0.0466	0.0261	4.0000e-005		2.4600e-003	2.4600e-003		2.2700e-003	2.2700e-003	0.0000	3.8888	3.8888	1.2600e-003	0.0000	3.9202
Total	**4.5000e-003**	**0.0466**	**0.0261**	**4.0000e-005**	**6.6900e-003**	**2.4600e-003**	**9.1500e-003**	**3.6800e-003**	**2.2700e-003**	**5.9500e-003**	**0.0000**	**3.8888**	**3.8888**	**1.2600e-003**	**0.0000**	**3.9202**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1000e-004	7.0000e-005	8.4000e-004	0.0000	2.8000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2565	0.2565	1.0000e-005	0.0000	0.2567
Total	**1.1000e-004**	**7.0000e-005**	**8.4000e-004**	**0.0000**	**2.8000e-004**	**0.0000**	**2.8000e-004**	**7.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.2565**	**0.2565**	**1.0000e-005**	**0.0000**	**0.2567**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1977	0.0000	0.1977	0.1012	0.0000	0.1012	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0729	0.7916	0.4816	8.9000e-004		0.0382	0.0382		0.0352	0.0352	0.0000	78.1762	78.1762	0.0253	0.0000	78.8083
Total	**0.0729**	**0.7916**	**0.4816**	**8.9000e-004**	**0.1977**	**0.0382**	**0.2359**	**0.1012**	**0.0352**	**0.1364**	**0.0000**	**78.1762**	**78.1762**	**0.0253**	**0.0000**	**78.8083**

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	9.5400e-003	0.3547	0.0889	9.5000e-004	0.0214	1.1200e-003	0.0226	5.8700e-003	1.0700e-003	6.9500e-003	0.0000	96.1218	96.1218	0.0101	0.0000	96.3751
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7500e-003	1.2300e-003	0.0140	5.0000e-005	4.9400e-003	3.0000e-005	4.9700e-003	1.3100e-003	3.0000e-005	1.3400e-003	0.0000	4.2757	4.2757	1.0000e-004	0.0000	4.2782
Total	**0.0113**	**0.3560**	**0.1028**	**1.0000e-003**	**0.0264**	**1.1500e-003**	**0.0275**	**7.1800e-003**	**1.1000e-003**	**8.2900e-003**	**0.0000**	**100.3975**	**100.3975**	**0.0102**	**0.0000**	**100.6532**

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					0.0733	0.0000	0.0733	0.0375	0.0000	0.0375	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0729	0.7916	0.4816	8.9000e-004		0.0382	0.0382		0.0352	0.0352	0.0000	78.1762	78.1762	0.0253	0.0000	78.8082
Total	**0.0729**	**0.7916**	**0.4816**	**8.9000e-004**	**0.0733**	**0.0382**	**0.1115**	**0.0375**	**0.0352**	**0.0726**	**0.0000**	**78.1762**	**78.1762**	**0.0253**	**0.0000**	**78.8082**

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	9.5400e-003	0.3547	0.0889	9.5000e-004	0.0205	1.1200e-003	0.0216	5.6400e-003	1.0700e-003	6.7100e-003	0.0000	96.1218	96.1218	0.0101	0.0000	96.3751
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7500e-003	1.2300e-003	0.0140	5.0000e-005	4.6800e-003	3.0000e-005	4.7200e-003	1.2500e-003	3.0000e-005	1.2800e-003	0.0000	4.2757	4.2757	1.0000e-004	0.0000	4.2782
Total	**0.0113**	**0.3560**	**0.1028**	**1.0000e-003**	**0.0251**	**1.1500e-003**	**0.0263**	**6.8900e-003**	**1.1000e-003**	**7.9900e-003**	**0.0000**	**100.3975**	**100.3975**	**0.0102**	**0.0000**	**100.6532**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1685	1.5253	1.3395	2.1400e-003		0.0888	0.0888		0.0835	0.0835	0.0000	184.1299	184.1299	0.0449	0.0000	185.2530
Total	**0.1685**	**1.5253**	**1.3395**	**2.1400e-003**		**0.0888**	**0.0888**		**0.0835**	**0.0835**	**0.0000**	**184.1299**	**184.1299**	**0.0449**	**0.0000**	**185.2530**

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	6.9900e-003	0.2277	0.0619	5.3000e-004	0.0135	1.1800e-003	0.0147	3.9000e-003	1.1200e-003	5.0200e-003	0.0000	52.2513	52.2513	4.3700e-003	0.0000	52.3604
Worker	0.0344	0.0241	0.2736	9.3000e-004	0.0969	6.5000e-004	0.0975	0.0257	6.0000e-004	0.0263	0.0000	83.8469	83.8469	1.9100e-003	0.0000	83.8947
Total	**0.0414**	**0.2517**	**0.3355**	**1.4600e-003**	**0.1104**	**1.8300e-003**	**0.1122**	**0.0296**	**1.7200e-003**	**0.0314**	**0.0000**	**136.0982**	**136.0982**	**6.2800e-003**	**0.0000**	**136.2551**

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	0.1685	1.5253	1.3395	2.1400e-003		0.0888	0.0888		0.0835	0.0835	0.0000	184.1297	184.1297	0.0449	0.0000	185.2528
Total	**0.1685**	**1.5253**	**1.3395**	**2.1400e-003**		**0.0888**	**0.0888**		**0.0835**	**0.0835**	**0.0000**	**184.1297**	**184.1297**	**0.0449**	**0.0000**	**185.2528**

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	6.9900e-003	0.2277	0.0619	5.3000e-004	0.0129	1.1800e-003	0.0141	3.7600e-003	1.1200e-003	4.8800e-003	0.0000	52.2513	52.2513	4.3700e-003	0.0000	52.3604
Worker	0.0344	0.0241	0.2736	9.3000e-004	0.0918	6.5000e-004	0.0925	0.0245	6.0000e-004	0.0251	0.0000	83.8469	83.8469	1.9100e-003	0.0000	83.8947
Total	**0.0414**	**0.2517**	**0.3355**	**1.4600e-003**	**0.1048**	**1.8300e-003**	**0.1066**	**0.0283**	**1.7200e-003**	**0.0300**	**0.0000**	**136.0982**	**136.0982**	**6.2800e-003**	**0.0000**	**136.2551**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0107	0.1062	0.1105	1.7000e-004		5.8600e-003	5.8600e-003		5.4000e-003	5.4000e-003	0.0000	14.7348	14.7348	4.6300e-003	0.0000	14.8506
Paving	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1062**	**0.1105**	**1.7000e-004**		**5.8600e-003**	**5.8600e-003**		**5.4000e-003**	**5.4000e-003**	**0.0000**	**14.7348**	**14.7348**	**4.6300e-003**	**0.0000**	**14.8506**

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	7.0000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.9800e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7103	1.7103	4.0000e-005	0.0000	1.7113
Total	**7.0000e-004**	**4.9000e-004**	**5.5800e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**1.9900e-003**	**5.2000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7103**	**1.7103**	**4.0000e-005**	**0.0000**	**1.7113**

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	0.0107	0.1062	0.1105	1.7000e-004		5.8600e-003	5.8600e-003		5.4000e-003	5.4000e-003	0.0000	14.7348	14.7348	4.6300e-003	0.0000	14.8506
Paving	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0119**	**0.1062**	**0.1105**	**1.7000e-004**		**5.8600e-003**	**5.8600e-003**		**5.4000e-003**	**5.4000e-003**	**0.0000**	**14.7348**	**14.7348**	**4.6300e-003**	**0.0000**	**14.8506**

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	7.0000e-004	4.9000e-004	5.5800e-003	2.0000e-005	1.8700e-003	1.0000e-005	1.8900e-003	5.0000e-004	1.0000e-005	5.1000e-004	0.0000	1.7103	1.7103	4.0000e-005	0.0000	1.7113
Total	**7.0000e-004**	**4.9000e-004**	**5.5800e-003**	**2.0000e-005**	**1.8700e-003**	**1.0000e-005**	**1.8900e-003**	**5.0000e-004**	**1.0000e-005**	**5.1000e-004**	**0.0000**	**1.7103**	**1.7103**	**4.0000e-005**	**0.0000**	**1.7113**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5775					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9900e-003	0.0556	0.0604	1.0000e-004		3.6600e-003	3.6600e-003		3.6600e-003	3.6600e-003	0.0000	8.4257	8.4257	6.5000e-004	0.0000	8.4421
Total	**0.5855**	**0.0556**	**0.0604**	**1.0000e-004**		**3.6600e-003**	**3.6600e-003**		**3.6600e-003**	**3.6600e-003**	**0.0000**	**8.4257**	**8.4257**	**6.5000e-004**	**0.0000**	**8.4421**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8300e-003	1.9800e-003	0.0225	8.0000e-005	7.9700e-003	5.0000e-005	8.0200e-003	2.1200e-003	5.0000e-005	2.1700e-003	0.0000	6.8982	6.8982	1.6000e-004	0.0000	6.9021
Total	**2.8300e-003**	**1.9800e-003**	**0.0225**	**8.0000e-005**	**7.9700e-003**	**5.0000e-005**	**8.0200e-003**	**2.1200e-003**	**5.0000e-005**	**2.1700e-003**	**0.0000**	**6.8982**	**6.8982**	**1.6000e-004**	**0.0000**	**6.9021**

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	0.5775					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9900e-003	0.0556	0.0604	1.0000e-004		3.6600e-003	3.6600e-003		3.6600e-003	3.6600e-003	0.0000	8.4257	8.4257	6.5000e-004	0.0000	8.4420
Total	**0.5855**	**0.0556**	**0.0604**	**1.0000e-004**		**3.6600e-003**	**3.6600e-003**		**3.6600e-003**	**3.6600e-003**	**0.0000**	**8.4257**	**8.4257**	**6.5000e-004**	**0.0000**	**8.4420**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8300e-003	1.9800e-003	0.0225	8.0000e-005	7.5600e-003	5.0000e-005	7.6100e-003	2.0100e-003	5.0000e-005	2.0600e-003	0.0000	6.8982	6.8982	1.6000e-004	0.0000	6.9021
Total	**2.8300e-003**	**1.9800e-003**	**0.0225**	**8.0000e-005**	**7.5600e-003**	**5.0000e-005**	**7.6100e-003**	**2.0100e-003**	**5.0000e-005**	**2.0600e-003**	**0.0000**	**6.8982**	**6.8982**	**1.6000e-004**	**0.0000**	**6.9021**

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	0.1290	0.5640	1.6972	6.0100e-003	0.5215	6.0900e-003	0.5276	0.1397	5.7200e-003	0.1454	0.0000	552.7721	552.7721	0.0240	0.0000	553.3713
Unmitigated	0.1290	0.5640	1.6972	6.0100e-003	0.5215	6.0900e-003	0.5276	0.1397	5.7200e-003	0.1454	0.0000	552.7721	552.7721	0.0240	0.0000	553.3713

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	0.00	0.00	0.00		
Junior College (2Yr)	455.25	455.25	455.25	1,375,027	1,375,027
Parking Lot	0.00	0.00	0.00		
Total	455.25	455.25	455.25	1,375,027	1,375,027

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Junior College (2Yr)	16.60	8.40	6.90	6.40	88.60	5.00	92	7	1
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
Junior College (2Yr)	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002
Parking Lot	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

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	276.0358	276.0358	0.0147	3.0300e-003	277.3052
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	276.0358	276.0358	0.0147	3.0300e-003	277.3052
NaturalGas Mitigated	0.0108	0.0946	0.0582	5.9000e-004		7.4400e-003	7.4400e-003		7.4400e-003	7.4400e-003	0.0000	106.5373	106.5373	2.0400e-003	1.9500e-003	107.1704
NaturalGas Unmitigated	0.0108	0.0946	0.0582	5.9000e-004		7.4400e-003	7.4400e-003		7.4400e-003	7.4400e-003	0.0000	106.5373	106.5373	2.0400e-003	1.9500e-003	107.1704

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.11189e+006	6.0000e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.3348	59.3348	1.1400e-003	1.0900e-003	59.6874
Junior College (2Yr)	884541	4.7700e-003	0.0434	0.0364	2.6000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0.0000	47.2025	47.2025	9.0000e-004	8.7000e-004	47.4830
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		**0.0108**	**0.0946**	**0.0582**	**5.9000e-004**		**7.4400e-003**	**7.4400e-003**		**7.4400e-003**	**7.4400e-003**	**0.0000**	**106.5373**	**106.5373**	**2.0400e-003**	**1.9600e-003**	**107.1704**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.11189e+006	6.0000e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.3348	59.3348	1.1400e-003	1.0900e-003	59.6874
Junior College (2Yr)	884541	4.7700e-003	0.0434	0.0364	2.6000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0.0000	47.2025	47.2025	9.0000e-004	8.7000e-004	47.4830
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		**0.0108**	**0.0946**	**0.0582**	**5.9000e-004**		**7.4400e-003**	**7.4400e-003**		**7.4400e-003**	**7.4400e-003**	**0.0000**	**106.5373**	**106.5373**	**2.0400e-003**	**1.9600e-003**	**107.1704**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	386797	95.8718	5.0900e-003	1.0500e-003	96.3127
Junior College (2Yr)	712595	176.6245	9.3700e-003	1.9400e-003	177.4368
Parking Lot	14280	3.5395	1.9000e-004	4.0000e-005	3.5557
Total		**276.0358**	**0.0147**	**3.0300e-003**	**277.3052**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

Apartments Mid Rise	386797	95.8718	5.0900e-003	1.0500e-003	96.3127
Junior College (2Yr)	712595	176.6245	9.3700e-003	1.9400e-003	177.4368
Parking Lot	14280	3.5395	1.9000e-004	4.0000e-005	3.5557
Total		**276.0358**	**0.0147**	**3.0300e-003**	**277.3052**

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	0.6513	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833
Unmitigated	0.6513	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833

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	0.0578					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	0.5627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0309	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833
Total	**0.6513**	**0.0117**	**1.0088**	**5.0000e-005**		**5.5400e-003**	**5.5400e-003**		**5.5400e-003**	**5.5400e-003**	**0.0000**	**1.6430**	**1.6430**	**1.6100e-003**	**0.0000**	**1.6833**

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	0.0578					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.5627					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0309	0.0117	1.0088	5.0000e-005		5.5400e-003	5.5400e-003		5.5400e-003	5.5400e-003	0.0000	1.6430	1.6430	1.6100e-003	0.0000	1.6833
Total	**0.6513**	**0.0117**	**1.0088**	**5.0000e-005**		**5.5400e-003**	**5.5400e-003**		**5.5400e-003**	**5.5400e-003**	**0.0000**	**1.6430**	**1.6430**	**1.6100e-003**	**0.0000**	**1.6833**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			

Mitigated	55.6985	0.3016	7.6300e-003	65.5135
Unmitigated	55.6985	0.3016	7.6300e-003	65.5135

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	6.33949 / 3.99663	33.4770	0.2082	5.2200e-003	40.2395
Junior College (2Yr)	2.83013 / 4.42661	22.2215	0.0934	2.4100e-003	25.2740
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**55.6985**	**0.3016**	**7.6300e-003**	**65.5135**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	6.33949 / 3.99663	33.4770	0.2082	5.2200e-003	40.2395
Junior College (2Yr)	2.83013 / 4.42661	22.2215	0.0934	2.4100e-003	25.2740
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**55.6985**	**0.3016**	**7.6300e-003**	**65.5135**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.1561	0.7184	0.0000	30.1163
Unmitigated	24.3122	1.4368	0.0000	60.2325

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	44.76	9.0859	0.5370	0.0000	22.5099
Junior College (2Yr)	75.01	15.2264	0.8999	0.0000	37.7226
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**24.3122**	**1.4368**	**0.0000**	**60.2325**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	22.38	4.5429	0.2685	0.0000	11.2549
Junior College (2Yr)	37.505	7.6132	0.4499	0.0000	18.8613
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**12.1561**	**0.7184**	**0.0000**	**30.1163**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation