Appendix E

Greenhouse Gas Emissions Calculations

ESA

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GREENHOUSE GAS TECHNICAL REPORT

3RD AND PACIFIC AVENUE PROJECT
LONG BEACH, CALIFORNIA

RAMBOLL

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AB	Assembly Bill
CalEEMod®	California Emission Estimator Model®
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CEUS	Commercial End-Use Survey
CH_4	Methane
CO_2	carbon dioxide
CO_2e	CO_2 equivalents
DOT	Department of Transportation
EISA	Energy Independence and Security Act of 2007
EMFAC	EMission FACtor model
EPA	Environmental Protection Agency
ES	Executive Summary
GHG	greenhouse gas
GWP	global warming potential
IPCC	Intergovernmental Panel on Climate Change
ITE	Institute of Transportation Engineers
lb	pound
LCFS	Low Carbon Fuel Standard
Mgal/yr	thousand gallons/year
MSW	Municipal solid waste
MT	metric tons
$MTCO_2e$	metric tonnes of CO_2 equivalent
MWh	megawatt-hour
N_2O	nitrous oxide
NA	not applicable
NHTSA	National Highway Traffic Safety Administration
PUP	Power/Utility Protocol

ACRONYMS AND ABBREVIATIONS *(CONTINUED)*

Acronym	Definition
RASS	Residential Appliance Saturation Survey
RPS	Renewable Portfolio Standards
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
USEPA	United States Environmental Protection Agency
VMT	vehicle miles travelled

EXECUTIVE SUMMARY

The 3rd and Pacific Avenue Project ("Project") is a 1.22 acre proposed development in the City of Long Beach that involves the construction of two new mixed-use buildings: a 23-story high-rise building at the south portion of the Project site and an 8-story building at the north end of the Project site. Both buildings would include ground floor retail uses with apartments above. The Project would include 6,802 square feet (sf) of retail space in the northern building and 7,635 sf in the southern building, as well as 114,137 sf of residential space in the northern building and 220,189 sf in the southern building. The proposed residential space would incorporate a total of 345 dwelling units and 95,349 sf of residential amenities (such as lobby/waiting area, activity room, lounge, etc.).

Parking for the site would be provided via above- and below-grade enclosed parking areas. Each building will have two levels of underground parking. The north building would also provide two levels of parking above grade, while the south building would include additional parking above the ground floor, extending from the second through fifth floors. The enclosed parking area is expected to have a total of 565 parking spaces.

The Project will result in one-time and annual direct and indirect emissions of greenhouse gases (GHGs). The term, "direct emissions of GHGs" refers to GHGs that are emitted directly as a result of the project and include land use change and construction emissions. Indirect emissions are those emissions that the project entitlement will enable but are not controlled by the project proponent. This report provides an inventory surveying the emissions that would result from the Project.

Residents, employees, and patrons of the proposed development will utilize electricity and heating for indoor comfort, and use motor vehicles for commute/traveling. These activities directly or indirectly emit GHGs. The most significant GHG emissions resulting from developments such as the Project are emissions of carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). GHG emissions are typically measured in terms of tonnes of CO_2 equivalents (CO_2e), calculated as the product of the mass emitted of a given GHG and its specific global warming potential (GWP).

The GHG emissions inventory for this analysis includes the following sources of emissions: energy use associated with residential and non-residential buildings, mobile sources (e.g., passenger vehicles), area sources, solid waste, water and wastewater, construction, and vegetation changes. The ongoing operational emissions consist of the first five categories, while the one-time emissions are associated with the construction and vegetation changes. This report includes the direct emissions associated with the development as well as the indirect emissions that may result from the development. These indirect emissions are associated with electricity generation, the embodied energy used in supplying potable water, and emissions associated with solid waste disposal. The electrical power for the Project will be supplied by Southern California Edison (SCE). Accordingly, indirect GHG emissions from electricity usage associated with the Project is calculated using the SCE carbon-intensity factors adjusted for mandated renewable energy requirements.

This analysis primarily utilized the California Emission Estimator Model version 2016.3.2 (CalEEMod®)[1] to assist in quantifying the GHG emissions in the inventories presented in this report for the Project. CalEEMod® is a statewide program designed to calculate both criteria

[1] SCAQMD. 2016. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: December 2018.

pollutant and GHG emissions from development projects in California. Third-party studies were also relied upon to support analyses and assumptions made outside of CalEEMod®.

At this time, there are no adopted numeric thresholds that govern the determination of the significance of the Project's GHG emissions. The South Coast Air Quality Management District (SCAQMD or District) has not adopted a quantification methodology or a significance threshold for GHG emissions from land use development projects.[2] However, the District did release a tiered approach in September 2008 as discussed by the SCAQMD GHG working group for discussion purposes. This Greenhouse Gas Technical Report assesses the significance of GHG impacts using three different methodologies consistent with the tiered approach discussed by the District. Each of the three methodologies is a separate and independent ground for the significance determination, which are: 1) consistency and compliance with applicable statewide and local regulatory programs designed to reduce GHG emissions consistent with AB 32; 2) consistency with the Southern California Association of Governments (SCAG) RTP/SCS as it relates to SB 375 reduction targets, and 3) consistency with the City of Long Beach Sustainable City Action Plan. Additionally, this Greenhouse Gas Technical Report includes a comparison of the Project's GHG emissions to a SCAQMD service population efficiency for informational purposes. The conclusions of these evaluations are summarized below:

1. As outlined in Section 4, the Project is consistent with a number of statewide and local regulatory programs. These programs will help the state reach the GHG reduction goals as included in the Climate Change Scoping Plan (**Table 8**).
2. The Project was evaluated for consistency with the SCAG RTP/SCS and SB 375 reduction targets (**Table 9**).
3. The Project is also consistent with the City of Long Beach Sustainable City Action Plan (**Table 10**).

A summary of GHG emissions for the service population efficiency analysis is presented in **Table 11**. As shown in this table, dividing the total Project 2020 scenario mitigated GHG emissions by the estimated service population yields an efficiency metric of 4.3 MT CO_2e per service population per year. This comparison is provided for informational purposes.

[2] SCAQMD has adopted interim significance thresholds for industrial sources of 10,000 metric tons of carbon dioxide equivalents per year. The Board adopted these December 5, 2008. These thresholds are not applicable to the Project because it is not an industrial source of CO_2e emissions. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2. Accessed: December 2018.

1. INTRODUCTION

The purpose of this technical report is to present the analyses that were used to evaluate the Project's greenhouse gas (GHG) emissions. Emissions during both construction and operations of the Project were quantified. Legislation and rules regarding climate change, as well as scientific understanding of the extent to which different activities emit GHGs, continue to evolve; as such, the inventory in this report is a reflection of the guidance and knowledge currently available.

1.1 Project Description

The 3rd and Pacific Avenue Project (the "Project") is a proposed development in the City of Long Beach. The Project area is located on the northwest corner of the intersection of Pacific Avenue and West 3rd Street. The site is currently a parking lot. The Project is an infill development, which would include the construction of two new mixed-use buildings: a 23-story high-rise building at the south portion of the Project site and an 8-story building at the north end of the Project site. Both buildings would include ground floor retail uses with apartments above. The Project would include 6,802 square feet (sf) of retail space in the northern building and 7,635 sf in the southern building, as well as 114,137 sf of residential space in the northern building and 220,189 sf in the southern building. The proposed residential space would incorporate a total of 345 dwelling units and 95,349 sf of residential amenities (such as lobby/waiting area, activity room, lounge, etc.).

Parking for the site would be provided via above- and below-grade enclosed parking areas. Each building will have two levels of underground parking. The north building would also provide two levels of parking above grade, while the south building would include additional parking above the ground floor, extending from the second through fifth floors. The enclosed parking area is expected to have a total of 565 parking spaces.

Table 1 summarizes the land uses for the proposed Project.

1.1.1 Regulatory Measures

Analysis of the Project's GHG emissions incorporates the following regulatory measures:

- The CO_2e intensity assumes that the 33% Renewable Portfolio Standard (RPS) is achieved;
- The Pavley regulation mandating higher fuel efficiency standards for cars and light-duty vehicles, the Low Carbon Fuel Standard (LCFS), and the Advanced Clean Car Program are included in vehicle emissions estimate for the Project;
- Compliance with SCAQMD Rule 445 regarding Wood-Burning Devices. This rule limits the installation of wood-burning device into any new development. Therefore, all cooking stoves and fireplaces are assumed to be natural gas burning; and
- New residential and non-residential spaces will meet the 2019 Building Energy Efficiency Standards (Title 24, Part 6), and 2016 California Green Building Standards Code ("CALGreen"; Title 24, Part 11).

1.1.2 Project Design Features

The following project design features are identified in the Project Description:

- Design the Project to ensure a bicycle, transit, and pedestrian friendly environment.

- Provide a minimum of one accessible EV parking space in each building and design for increasing EV charging.
- Provide a ride share staging area.
- Provide a bicycle storage and service center.
- Provide an enhanced pedestrian experience with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking.
- Provide outdoor amenity spaces and the Paseo, which would promote active use zones.
- Provide appropriate landscaping on the Project Site including native trees, eco/green walls, trees over structured elements, irrigation, and plantings at the building bases. These improvements would also be applied to the Solana and Roble Way/Paseo alleys.
- Incorporate energy savings measures such as solar water heaters and living roofs and target LEED accreditation.
- Provide a recycling and composting program and would be serviced by the CR&R Incorporated.
- Incorporate storm water planting areas.

As a conservative approach, these design features are not quantified as a part of the emissions inventory except where the design features are accounted for by the traffic analysis (i.e., with the trip generation).

1.1.3 Existing Condition

The existing land use within the Project site is a 1.22 acres of parking lot. Emissions from the parking lot were not calculated and conservatively not incorporated into the analysis.

2. SCIENTIFIC BACKGROUND, REGULATORY BACKGROUND, AND SIGNIFICANCE THRESHOLDS

This section presents the scientific and regulatory frameworks associated with global climate change and GHG emissions and discusses the significance thresholds used to evaluate the Project's GHG emissions.

2.1 Scientific Background

2.1.1 Science of Global Climate Change

There is a general scientific consensus that global climate change is occurring, caused in whole or in part by increased emissions of GHGs that keep the Earth's surface warm by trapping heat in the Earth's atmosphere, in much the same way as glass traps heat in a greenhouse. As a result, global temperatures are predicted to increase over the century. In particular, if climate change remains unabated, surface temperatures in California are expected to increase anywhere from 4.1 to 8.6 degrees Fahrenheit by the end of the century. Not only would higher temperatures directly affect the health of individuals through greater risk of dehydration, heat stroke, and respiratory distress, the higher temperatures may increase ozone formation, thereby worsening air quality. Rising temperatures could also reduce snowpack, which would increase the risk of water shortages. Higher temperatures along with reduced water supplies could reduce the quantity and quality of agricultural products. In addition, there could be an increase in wildfires and a shift in distribution of natural vegetation throughout the State. Global warming could also increase sea levels and the frequency and severity of coastal storms resulting in greater risk of flooding.

Carbon dioxide (CO_2) emissions are the leading cause of global warming, with other pollutants such as methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride also contributing. The magnitude of the impact on global warming differs among the GHGs. For example, HFCs, perfluorocarbons, and sulfur hexafluoride have a greater "global warming potential" than CO_2. In other words, these other GHGs have a greater contribution to global warming than CO_2 on a per mass basis. The effect each GHG has on climate change is measured as a combination of the volume of its emissions and its global warming potential (GWP) and is expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of metric tons (MT) of CO_2 equivalence (CO_2e).

Globally, CO_2 concentrations, which ranged from 265 parts per million (ppm) to 280 ppm over the last 10,000 years, only began rising in the last 200 years to current levels of 405 ppm,[3] a 45 percent increase.

In 2016, the United States emitted about 6.5 billion MT of CO_2e[4] or about 20.1 MT/person/year, calculated by dividing the emissions total by the U.S. Census Bureau

[3] Global annual mean CO_2 concentration for 2017 obtained from: ftp://aftp.cmdl.noaa.gov/products/trends/co2/co2_annmean_gl.txt. Accessed: December 2018.

[4] USEPA. 2017. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2015. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks. Accessed: December 2018.

2016 population estimate.[5] This represents an approximate 7 percent reduction below 2005 total emission levels. Of the four major sectors nationwide -- residential, commercial, industrial and transportation -- transportation accounts for the highest fraction of GHG emissions (approximately 56 percent of emissions from these four sectors). These emissions are entirely generated from direct fossil fuel combustion. Sixty percent of these transportation emissions resulted from passenger car and light-duty truck use. The remaining emissions came from other transportation activities, including the combustion of diesel fuel in medium- and heavy-duty vehicles, and jet fuel in aircraft. According to Inventory of U.S. Greenhouse Gas Emissions and Sinks,[6] from 2005 to 2014 transportation emissions dropped by 8 percent due, in part, to increased fuel efficiency across the U.S. vehicle fleet, as well as higher fuel prices, and an associated decrease in the demand for passenger transportation. However, from 1990 to 2014 as a whole, transportation emissions from fossil fuel combustion rose by 14 percent, "due in large part, to increased demand for travel with limited gains in fuel efficiency for much of this time period".[7]

In 2015, California emitted approximately 440 million tonnes of CO_2e, or about 7 percent of the U.S. emissions.[8] California's percentage contribution is due primarily to the sheer size of California, as compared to other states. For example, in 2012, California had the eighth lowest per capita GHG emission rates in the country (including Washington DC),[9] due to the success of its energy-efficiency and renewable energy programs and commitments that have lowered the State's GHG emissions rate of growth.[10] Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The California Energy Commission (CEC) found that transportation is the source of approximately 37 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 20 percent, and industrial sources at 20 percent. Residential and commercial activities comprised approximately 9 percent of the inventory. Agriculture and forestry is the source of approximately 8 percent of the State's GHG emissions.

The construction and operation of land use developments cause GHG emissions. Operational phase GHG emissions result from energy use associated with heating, lighting and powering buildings (typically through natural gas and electricity consumption), pumping and processing water, fuel used for transportation, and decomposition of waste associated with

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[5] U.S. Census Bureau. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2016 (NST-EST2016-01). Available at: https://www.census.gov/data/tables/2016/demo/popest/nation-total.html. Accessed: December 2018.

[6] USEPA. 2016. Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2014. Available at: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2014. Accessed: December 2018.

[7] Ibid.

[8] CARB. 2017. California Greenhouse Gas Emission Inventory - 2017 Edition. Available at: http://www.arb.ca.gov/cc/inventory/data/data.htm. Accessed: December 2018.

[9] World Resources Institute, CAIT 2.0, 2014. Climate Analysis Indicators Tool: WRI's Climate Data Explorer. Washington, DC. Available at: http://cait2.wri.org/. Accessed: December 2018.

[10] The Center for Resource Efficient Communities. 2013. Residential Energy Use and GHG Emissions Impact of compact Land Use Types. Report to CARB, Contract No. 10-323. Available at: http://www.arb.ca.gov/research/apr/past/10-323h.pdf. Accessed: December 2018.

building occupants. New development can also create GHG emissions in its construction and demolition phases, including the use of fuels in construction equipment, creation and decomposition of building materials, vegetation clearing, natural gas usage, electrical usage, and transportation.

However, it is important to acknowledge that new land use development does not necessarily create entirely new GHG emissions, since most of the persons who will visit or occupy new development will come from other locations where they were already causing such GHG emissions. Further, because climate change is occurring on a global scale, it is not meaningfully possible to quantify the scientific effect of new GHG emissions caused by a single project. It has not been demonstrated that new GHG emissions caused by a local development project can affect global climate change, or that a project's net increase in GHG emissions, if any, when coupled with other activities in the region, would be cumulatively considerable.[11]

2.1.2 Effects of Human Activity on Global Climate Change

Globally, climate change has the potential to impact numerous environmental resources through anticipated, though uncertain, impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. At the end of the 21st century, global surface temperature change is likely to exceed 1.5 degrees Celsius (°C) (relative to 1850-1900 levels) in all of the four assessed climate model projections but one.[12]

The understanding of GHG emissions, particulate matter, and aerosols on global climate trends is complex and involves varying uncertainties and a balance of different effects. In addition to uncertainties about the extent to which human activity rather than solar or volcanic activity is responsible for increasing warming, there is also evidence that some human activity has cooling, rather than warming, effects, as discussed in detail in numerous publications by the Intergovernmental Panel on Climate Change (IPCC), such as the Fifth Assessment Report (AR5) Synthesis Report.[13, 14] Nonetheless, when all effects and uncertainties are considered together, there is a strong scientific consensus that human activity has contributed significantly to global warming. As stated in the AR5 discussion of attribution of climate changes and impacts, "The evidence for human influence on the climate system has grown since IPCC'S Fourth Assessment Report (AR4) ….it is extremely

[11] CAPCOA, 2008. CEQA & Climate Change. p. 35. January. Available at: http://www.capcoa.org/wp-content/uploads/downloads/2010/05/CAPCOA-White-Paper.pdf. Accessed: December 2018.

[12] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. SPM.2.2. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf. Accessed: December 2018.

[13] The IPCC was established in 1988 by the World Meteorological Organization and the United Nations Environment Programme to assess scientific, technical, and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC has produced a series of Assessment Reports comprised of full scientific and technical assessments of climate change. The first assessment report (FAR) was developed in 1990. The Fifth Assessment Report was completed in November 2014 with the Synthesis Report.

[14] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. Figure SPM.3. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf. Accessed: December 2018.

likely to have been the dominant cause of the observed warming since the mid-20th century."[15]

2.2 Regulatory Setting

2.2.1 Federal

2.2.1.1 Supreme Court Ruling in Massachusetts et al. v. Environmental Protection Agency

In April 2007, in Massachusetts v. EPA, the U.S. Supreme Court directed the Administrator of the U.S. Environmental Protection Agency (USEPA) to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the USEPA Administrator was directed to follow the language of Section 202(a) of the Clean Air Act (CAA). In December 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA. By regulating the emissions of GHGs from new motor vehicles, energy conservation benefits typically result through increased engine efficiency and the reduced consumption of petroleum-based fuels (e.g., gasoline).

2.2.1.2 Federal Vehicle Standards

In response to the *Massachusetts v. EPA* decision discussed above, in 2007, President Bush directed the USEPA, the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the National Highway Traffic Safety Administration (NHTSA) issued a final rule regulating fuel efficiency for and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the USEPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012–2016.

In 2010, President Obama issued a memorandum directing the same federal agencies to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the USEPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model year 2017–2025 light-duty vehicles. The proposed standards are projected to achieve 163 grams/mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon (mpg) 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.

[15] Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report. Climate Change 2014: Synthesis Report. 2014. Section 1.3. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf. Accessed: December 2018.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the USEPA 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.

In August 2016, the USEPA 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 of sizes of buses and work trucks. The final standards are expected to lower carbon dioxide emissions by approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program.[16]

In August 2018, The USEPA and NHTSA released a notice of proposed rulemaking called Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks (SAFE Vehicles Rule). This rule would modify the existing Corporate Average Fuel Economy (CAFE) standards and tailpipe carbon dioxide emissions standards for passenger cars and light trucks and establish new standards covering model years 2021 through 2026. SAFE standards are expected to uphold model year 2020 standards through 2026.[17]

2.2.1.3 Energy Independence and Security Act

The Energy Independence and Security Act of 2007 (EISA) facilitates the reduction of national GHG emissions by requiring the following:

- Increasing the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard that requires fuel producers to use at least 36 billion gallons of biofuel in 2022;
- Prescribing or revising standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances;
- Requiring approximately 25 percent greater efficiency for light bulbs by phasing out incandescent light bulbs between 2012 and 2014; requiring approximately 200 percent greater efficiency for light bulbs, or similar energy savings, by 2020; and
- While superseded by the USEPA and NHTSA actions described above, (i) establishing miles per gallon targets for cars and light trucks and (ii) directing the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for trucks.

Additional provisions of EISA address energy savings in government and public institutions, promote research for alternative energy, additional research in carbon capture, international energy programs, and the creation of "green jobs."

[16] EPA and NHTSA, 2016. Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium and Heavy-Duty Engines and Vehicles – Phase 2. Available at: https://www.gpo.gov/fdsys/pkg/FR-2016-10-25/pdf/2016-21203.pdf.

[17] NHTSA, 2018. The Safer Affordable Fuel-Efficient 'SAFE' Vehicles Rule. Available at: https://www.nhtsa.gov/corporate-average-fuel-economy/safe. Accessed: October 2018.

2.2.1.4 Clean Power Plan and New Source Performance Standards for Electric Generating Units

On October 23, 2015, the USEPA published a final rule establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electricity Utility Generating Units (80 FR 64510-64660), also known as the Clean Power Plan. 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: (1) fossil-fuel fired electric utility steam-generating units, and (2) stationary combustion turbines. Concurrently, the USEPA published a final rule establishing Standards of Performance for Greenhouse Gas 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. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits. Additionally, in March 2017, President Donald Trump signed an executive order that calls for the USEPA's review of the Clean Power Plan.

2.2.2 State

2.2.2.1 Executive Order S-3-05

In 2005, former Governor Schwarzenegger signed Executive Order (EO) S-3-05, which established the following statewide GHG emission reduction goals for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels.

2.2.2.2 Assembly Bill 32

Assembly Bill (AB) 32 (Nunez, 2006), the California Global Warming Solutions Act of 2006, was enacted after considerable study and expert testimony before the Legislature. The heart of AB 32 is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. In order to achieve this reduction mandate, AB 32 requires CARB to adopt rules and regulations in an open public process that achieve the maximum technologically feasible and cost-effective GHG reductions.

In November, 2017, CARB published California's 2017 Climate Change Scoping Plan (Second Update).[18] This update identifies CARB's strategy for achieving the state's 2030 GHG target as established in SB 32 (discussed below).The strategy includes continuation of the Cap-and-Trade Program through 2030, and incorporates a Mobile Source Strategy that includes strategies targeted to increase zero emission vehicle fleet penetration and a more stringent target for the Low Carbon Fuel Standard by 2030. The Second Update also incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017) and acknowledges the need for reducing emissions in agriculture and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a

[18] CARB. 2017. California's 2017 Climate Change Scoping Plan. November. Available at: https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf. Accessed: December 2018.

number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update.[19]

When discussing project-level GHG emissions reduction actions and thresholds, the Second Update states "[a]chieving net zero increases in GHG emissions, resulting in no contribution to GHG impacts, may not be feasible or appropriate for every project, however, and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." On December 14, 2017, CARB adopted the 2017 Climate Change Scoping Plan.

2.2.2.3 2015 State of the State Address

In his January 2015 inaugural address, Governor Brown identified key climate change strategy pillars, including: (1) reducing today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5) managing farm and rangelands, forests and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy. As discussed below, the second and third pillars have been codified via recently enacted legislation (SB 350).

2.2.2.4 Executive Order B-30-15

In April 2015, Governor Brown signed EO B-30-15, which established the following GHG emission reduction goal for California: by 2030, reduce GHG emissions to 40 percent below 1990 levels. This EO also directed all state agencies with jurisdiction over GHG-emitting sources to implement measures designed to achieve the new interim 2030 goal, as well as the pre-existing, long-term 2050 goal identified in EO S-3-05. Additionally, the EO directed CARB to update its Scoping Plan (see discussion above) to address the 2030 goal.

2.2.2.5 2016 State of the State Address

In his January 2016 inaugural address, Governor Brown identified a statewide goal to bring per capita GHGs down to two metric tons per person. This goal reflects the Global Climate Leadership Memorandum of Understanding (Under2 MOU), which established limiting global warming to less than two degrees Celsius as a guiding principle for the reduction of GHG emissions by 2050. The parties to the Under2 MOU agreed to pursue emissions reductions consistent with a trajectory of 80 to 95 percent below 1990 levels by 2050 and/or to achieve a per capita annual emissions goal of less than two metric tons by 2050. The Under2 MOU

[19] CARB. 2016. Timeline of AB 32 Scoping Plan Activities. Available at: https://www.arb.ca.gov/cc/scopingplan/timeline.htm. Accessed: December 2018.

has been signed or endorsed by 177 jurisdictions, including California, representing 37 countries and six continents.

2.2.2.6 2017 State of the State Address

In his January 2017 inaugural address, Governor Brown reaffirmed the statewide goal to bring per capita GHGs down to two metric tons per person by 2050, noting that the Under2 MOU signatories now represent a billion people.

2.2.2.7 Senate Bill 32 and Assembly Bill 197

Enacted in 2016, SB 32 (Pavley, 2016) codifies the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030.

SB 32 was coupled with a companion bill: AB 197 (Garcia, 2016). Designed to improve the transparency of CARB's regulatory and policy-oriented processes, AB 197 created the Joint Legislative Committee on Climate Change Policies, a committee with the responsibility to ascertain facts and make recommendations to the Legislature concerning statewide programs, policies, and investments related to climate change. AB 197 also requires CARB to make certain GHG emissions inventory data publicly available on its website; consider the social costs of GHG emissions when adopting rules and regulations designed to achieve GHG emission reductions; and, include specified information in all Scoping Plan updates for the emission reduction measures contained therein.

2.2.2.8 Energy Sources

a) Renewable Portfolio Standard

As most recently amended by SB 350 (De León, 2015), California's Renewable Portfolio Standard requires retail sellers of electric services and local publicly-owned electric utilities to increase procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020, 40 percent of total retail sales by 2024, 45 percent of total retail sales by 2027, and 50 percent of total retail sales by 2030.

b) Building Energy Efficiency Standards

Title 24, Part 6 of the California Code of Regulations regulates the design of building shells and building components. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. The California Energy Commission's (CEC) 2019 Building Energy Efficiency Standards (2019 Building Standards), which become effective on January 1, 2020, are the most current version of these standards. The previous version of the building standards were the 2016 Building Energy Efficiency Standards.

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CalGreen Building Standard (CalGreen) and establishes voluntary and mandatory standards pertaining to the planning and design of sustainable site development, energy efficiency, water conservation, material conservation, and interior air quality.

In general, single-family homes built to the 2016 standards are anticipated to use about 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built

to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards.[20]

The Title 24 standards are updated on an approximately three-year cycle. The 2019 standards will continue to improve upon the 2016 Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 Standards will go into effect on January 1, 2020.[21] The 2019 standards require solar photovoltaic systems for newly constructed single-family homes. The standards have also introduced requirements for new healthcare facilities.

c) Appliance Standards

The CEC periodically amends and enforces Appliance Efficiency Regulations contained in Title 20 of the California Code of Regulations. The regulations establish water and energy efficiency standards for both federally-regulated appliances and non-federally regulated appliances. The most current Appliance Efficiency Regulations, dated January 2017, cover 23 categories of appliances (e.g., refrigerators; plumbing fixtures; dishwashers; clothes washer and dryers; televisions) and apply to appliances offered for sale in California.[22]

2.2.2.9 Mobile Sources

a) Sustainable Communities Strategy Plans

SB 375 (Steinberg, 2008), the Sustainable Communities and Climate Protection Act, coordinates land use planning, regional transportation plans, and funding priorities to reduce GHG emissions from passenger vehicles through better-integrated regional transportation, land use, and housing planning that provides easier access to jobs, services, public transit, and active transportation options. SB 375 specifically requires the Metropolitan Planning Organization (MPO) relevant to the Project area (here, Southern California Association of Governments [SCAG]) to include a Sustainable Communities Strategy in its Regional Transportation Plan (RTP) that will achieve GHG emission reduction targets set by CARB by reducing vehicle miles traveled from light-duty vehicles through the development of more compact, complete, and efficient communities.

For the area under SCAG's jurisdiction, including the Project Site, CARB adopted regional targets for reduction of mobile source-related GHG emissions by 8 percent for 2020 and by 13 percent for 2035.

b) Pavley Regulations

AB 1493 (Pavley, 2002) required CARB to adopt regulations to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks for model years 2009–2016. CARB obtained a waiver from the USEPA that allows for implementation of these regulations notwithstanding possible federal preemption concerns.

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[20] CEC. 2015. 2016 Building Energy Efficiency Standards – Frequently Asked Questions. Available at: http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf. Accessed: December 2018.

[21] CEC. 2019 Building Energy Efficiency Standards. Available at: https://www.energy.ca.gov/title24/2019standards/index.html. Accessed: August 2018.

[22] CEC. 2017. 2016 Appliance Efficiency Regulations. Available at: http://www.energy.ca.gov/2017publications/CEC-400-2017-002/CEC-400-2017-002.pdf. Accessed: December 2018.

c) Low Carbon Fuel Standard

EO S-1-07, as issued by former Governor Schwarzenegger, called for a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB by 2020.[23] In response, CARB approved the Low Carbon Fuel Standard (LCFS) regulations in 2009, which became fully effective in April 2010. Thereafter, a lawsuit was filed challenging CARB's adoption of the regulations; and, in 2013, a court order was issued compelling CARB to remedy substantive and procedural defects of the LCFS adoption process under CEQA.[24] However, the court allowed implementation of the LCFS to continue pending correction of the identified defects. In September 2015, CARB re-adopted the LCFS regulations.

d) Advanced Clean Cars Program

In 2012, CARB approved the Advanced Clean Cars (ACC) program, a new emissions-control program for non-commercial passenger vehicles and light-duty truck for model years 2017–2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero emission vehicles. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions.

e) Zero Emission Vehicles

Zero emission vehicles (ZEVs) include hydrogen fuel cell electric vehicles and plug-in electric vehicles, such as battery electric vehicles and plug-in hybrid electric vehicles.

In 2012, Governor Brown issued EO B-16-2012, which calls for the increased penetration of ZEVs into California's vehicle fleet in order to help California achieve a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of that statewide target for the transportation sector, the EO also calls upon CARB, the CEC and the California Public Utilities Commission to establish benchmarks that will: (1) allow over 1.5 million ZEVs to be on California roadways by 2025, and (2) provide the State's residents with easy access to ZEV infrastructure.

EO B-16-2012 specifically directed California to "encourage the development and success of zero-emission vehicles to protect the environment, stimulate economic growth, and improve the quality of life in the state."[25]

2.2.2.10 Solid Waste Diversion

The California Integrated Waste Management Act of 1989, as modified by AB 341 (Chesbro, 2011), requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows: (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities; (2) diversion of 50 percent of all solid waste on and after January 1, 2000; and (3) source reduction, recycling and composting of 75 percent of all solid waste on or after 2020, and annually thereafter. The California Department of Resources Recycling and Recovery

[23] Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel.

[24] *POET, LLC v. CARB* (2013) 217 Cal.App.4th 1214.

[25] Executive Order B-16-2012. Available at: https://www.gov.ca.gov/news.php?id=17472. Accessed: December 2018.

(CalRecycle) is required to develop strategies, including source reduction, recycling, and composting activities, to achieve the 2020 goal.

CalRecycle published a discussion document, entitled *California's New Goal: 75 Percent Recycling,* which identified concepts that would assist the State in reaching the 75 percent goal by 2020. Subsequently, in August 2015, CalRecycle released the *AB 341 Report to the Legislature*, which identifies five priority strategies for achievement of the 75 percent goal: (1) moving organics out of landfills; (2) expanding recycling/ manufacturing infrastructure; (3) exploring new approaches for State and local funding of sustainable waste management programs; (4) promoting State procurement of post-consumer recycled content products; and, (5) promoting extended producer responsibility.

In addition, the City of Long Beach has the following local goals and ordinances around solid waste:

- In the City of Long Beach Sustainable City Action Plan there is a Waste Reduction initiative 1, which is a goal for the city to increase diversion by reducing waste and increasing recycling and reuse.
- As part of the Long Beach Building Standards Code's Chapter 18.67 Construction and Demolition Recycling Program[26], the city enacted an ordinance in 2017 that requires that certain construction and demolition projects recycle at least 65% of the waste generated, as follows:

The following threshold will apply to projects for which a demolition or building permit is issued on or after January 1, 2017: (i) all newly constructed buildings or structures; (ii) residential building or structure additions or alterations where the project increases the building's or structure's conditioned area, volume or size; (iii) nonresidential building or structure additions and alterations whenever a permit is required for work; and (iv) all demolition projects of any valuation (all hereinafter referred to as "covered projects") shall be required to divert at least sixty-five percent (65%) of all project-related construction and demolition material in compliance with this Chapter.

2.2.2.11 California Environmental Quality Act Guidelines on Greenhouse Gas Emissions

In 2007, SB 97 was enacted and directed OPR and the California Natural Resources Agency to prepare amendments to the CEQA Guidelines addressing the analysis of GHG emissions under CEQA. Following formal rulemaking, a series of amendments to the CEQA Guidelines were adopted to provide the general framework for the analysis of GHG emissions and became effective in 2010. The amendments do not provide a mandatory, quantitative rubric for GHG emissions analysis, but instead provide general guidance and recognize long-standing CEQA principles regarding the discretion afforded to lead agencies where supported by substantial evidence. More specifically, CEQA Guidelines Section 15064.4(a) recognizes that the "determination of the significance" of GHG emissions "calls for careful judgment by the lead agency" in accordance with the more general provisions of CEQA Guidelines Section 15064; each agency "shall have discretion to determine" whether to conduct quantitative or qualitative analysis, provided its determination is supported by substantial evidence.

[26] City Council of the City of Long Beach. Long Beach, California – Municipal Code. Title 18 – Long Beach Building Standards Code. Chapter 18.67- Construction and Demolition Recycling Program. Available at: https://library.municode.com/ca/long_beach/codes/municipal_code?nodeId=TIT18LOBEBUSTCO_CH18.67CODEREPR

2.2.3 Regional

2.2.3.1 Southern California Association of Governments' Regional Transportation Plan/Sustainable Communities Strategy

As previously discussed, SB 375 requires SCAG to incorporate a Sustainable Communities Strategy into its RTP that achieves the GHG emission reduction targets set by CARB. As required by SB 375, CARB adopted year 2020 and 2035 GHG reduction targets for each metropolitan region. The SB 375 targets for the Southern California region under SCAG's jurisdiction in 2020 and 2035 are reductions in per capita GHG emissions of 8 percent and 13 percent, respectively.[27]

Pursuant to Government Code Section 65080(b)(2)(K), a Sustainable Communities Strategy does not: (i) regulate the use of land; (ii) supersede the land use Sarah Manzanoity of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it.

a) 2012 Sustainable Communities Strategy

SCAG's first-ever Sustainable Communities Strategy is included in the *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (2012 RTP/SCS), which was adopted by SCAG in April 2012. The goals and policies of the Sustainable Communities Strategy that reduce vehicle miles traveled (and result in corresponding GHG emission reductions) focus on transportation and land use planning that include building infill projects, locating residents closer to where they work and play, and designing communities so there is access to high quality transit service. SCAG's 2012 Sustainable Communities Strategy is expected to reduce per capita transportation emissions by 9 percent in 2020 and by 16 percent in 2035. In 2012, CARB accepted SCAG's determination that the 2012 Sustainable Communities Strategy would meet the region's GHG reduction targets.[28]

b) 2016 Sustainable Communities Strategy

In April 2016, SCAG adopted the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy: A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life (2016 RTP/SCS). SCAG's 2016 Sustainable Communities Strategy is expected to reduce per capita transportation emissions by 8 percent in 2020, 18 percent in 2035, and 22 percent in 2040. In June 2016, CARB accepted SCAG's determination that the 2016 Sustainable Communities Strategy would meet the regions' GHG reduction targets for 2020 and 2035.[29]

2.2.3.2 South Coast Air Quality Management District

The South Coast Air Quality Management District (SCAQMD) is principally responsible for comprehensive air pollution control in the South Coast Air Basin, which includes Los Angeles, Orange, and the urbanized portions of Riverside and San Bernardino counties. SCAQMD works directly with SCAG, County transportation commissions, and local governments and cooperates actively with all federal and state government agencies to regulate air quality.

In 2008, SCAQMD's Governing Board adopted an interim CEQA GHG significance threshold of 10,000 MT CO_2e per year for industrial stationary source projects for which SCAQMD is the CEQA lead agency. When adopting its threshold, the Governing Board Sarah Manzanoized

[27] CARB, Executive Order G-11-024 (February 2011).

[28] CARB, Executive Order G-12-039 (June 2012).

[29] CARB, Executive Order G-16-066 (June 2016).

the utilization of offsets as mitigation, provided the offsets reduce emissions over the course of the life of a project, defined as 30 years.

In April 2008, SCAQMD convened a Working Group to develop GHG significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency.

The Working Group has not convened since the fall of 2010. As of April 2017, the proposal has not been considered or approved for use by the SCAQMD Board. In the meantime, no GHG significance thresholds are approved for use in the Basin.

2.2.4 Local

2.2.4.1 Green Building Standard

In 2013, in response to mandates set forth in CalGreen (discussed above), the County adopted the Los Angeles County Green Building Standards Code (Municipal Code Title 31), which adopts and incorporates by reference specified provisions of the 2013 CalGreen Code. The purpose of Title 31 is to facilitate sustainability via planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality.

Title 31 was updated in 2016 to adopt and incorporate by reference the provisions of the 2016 CalGreen Building Code.[30]

2.2.4.2 City of Long Beach General Plan

The General Plan establishes the goals, policies and directions the City will take in managing its future, and contains at least seven elements: land use, transportation, housing, conservation, noise, open space and safety. The most recent 2040 General Plan Land Use and Urban Design Elements[31] provide strategies to:

- Address demand for housing, employment, and lifestyle choices for today and tomorrow.
- Guide where new development is located and what it should look like.
- Protect the character of existing single family neighborhoods.
- Preserve and protect our environment for future generations.
- Improve pedestrian experience and increase walkability.
- Aim to reduce the number of residents (76%) who commute out of Long Beach for work.
- Encourage larger open spaces by allowing a moderate increase in height limits in transit-oriented and mixed-use areas.

2.2.4.3 Long Beach Building Standards Code

Per the California Building Standards Code a city, country, or city and county may establish more restrictive building standards reasonably necessary because of local climatic,

[30] County of Los Angeles, 2016. Title 31 - Green Building Standards Code. Available at: https://library.municode.com/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT31GRBUSTCO. Accessed: March 2019.

[31] City of Long Beach. Long Beach 2040 General Plan. Available at: http://www.longbeach.gov/pages/city-news/long-beach-general-plan-update-is-here/. Accessed: March 2019.

geological, or topographical conditions. The Long Beach Building Standards Code[32] includes local amendments that consist of structural, green building standards, fire and life safety, plumbing, and administrative provisions. These amendments are consistent with those adopted by other jurisdictions in the Southern California area as part of the Los Angeles Regional Uniform Code Program. These amendments are adopted to protect the community from the hazards of future earthquakes, to prevent fire related hazards, and to require sustainable construction practices that support the Sustainable City Action Plan. The 2017 edition of the Long Beach Building Standards Code was adopted at the November 15, 2016 and November 22, 2016 City Council hearings by the City Council.

Under the Long Beach Building Standards Code, the Chapter 18.47 Green Buildings Standards Code amends CalGreen to include new requirements for electric vehicle charging spaces (EV spaces), hotels, construction, waste, meters, and mixed-use occupancy. The following amendments are relevant to The Project:

- Amends the CALGreen Section 4.106.4.2—New multifamily dwelling to include the following:
- At least one EV spaces capable of supporting future EVSE shall be provide for each dwelling unit in building containing three or more dwelling units
- At least twenty-five percent of the total number of guest parking spaces, shall be EV spaces capable of supporting future EVSE and five percent of the total number of guest parking spaces shall have EV chargers installed.
- If determined to be not feasible, One hundred percent of the total number of guest parking spaces shall be EV spaces capable of supporting future EVSE and ten percent of the total number of guest parking spaces shall have EV charges installed.
- Amends CALGreen Sections 4.408 and 5.408— Construction waste reduction, disposal and recycling to comply with the Long Beach Building code Chapter 18.67 Construction and Demolition Recycling Program.
- Amends the CALGreen Section 5.303.1—Meters to include separate submeters or metering devices for new buildings
- Adds CALGreen Section 5.303.1.3—Mixed use occupancy to include separate metering devices dedicated solely to each residential and nonresidential uses for new buildings with mixed use occupancies. The plumbing system downstream of the meters for the residential and nonresidential uses shall be independent of the other and not cross-connected.

2.2.4.4 Long Beach Sustainable City Action Plan

The Long Beach Mayor and City Council requested that the Sustainable City Action Plan be created through a collaboration of City staff and members of the Sustainable City Commission with comments from the citizens of Long Beach. The Sustainable City Action Plan is the culmination of a year of research, development, planning and public meetings to provide a comprehensive foundation upon which to build a Sustainable City. Feedback was solicited at 18 community meetings throughout the City during the Summer of 2009. The Sustainable City Action Plan includes measurable goals and actions for topics such as

[32] City of Long Beach. 2016. Long Beach Building Standards Code. Available: http://www.lbds.info/building/engineering_n_development_services/building_standards_code_2014/overview_of_the_lb_building_standards_code.asp.

Buildings & Neighborhoods, Energy, Green Economy & Lifestyle, Transportation, Urban Nature, Waste Reduction, and Water. The City Council adopted the Long Beach Sustainable City Action Plan on February 2, 2010.

2.3 Significance Threshold

This Greenhouse Gas Technical Report assesses significance of GHG impacts using three different methodologies. Each of the three methodologies is a separate and independent ground for the significance determination.

First, this report assesses consistency with AB 32 through evaluating the Project's consistency and compliance with applicable statewide and local regulatory programs designed to reduce GHG emissions consistent with AB 32.

Second, this report assesses the Project's consistency with SB 375. Consistency with SB 375 was evaluated based on the growth assumptions of Southern California Association of Governments' (SCAG) 2016-2040 Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS).

Third, this report assesses if the Project is consistent with the local strategies within the City of Long Beach Sustainable City Action Plan to reduce GHG emissions.

In addition to the methodologies listed above, this report quantitatively reports the Project's GHG emissions and compares these emissions to a service population threshold for informational purposes. This methodology utilizes an efficiency metric expressed in relation to a project's service population, which is defined to include the total number of the residents and workers associated with a project. For informational purposes, this evaluation includes a comparison to the SCAQMD proposed 4.8 MT/year CO_2e per service population for project level threshold for 2020.

3. GREENHOUSE GAS EMISSIONS INVENTORY

This section describes the methodology that Ramboll US Corporation (Ramboll) used to develop the GHG emissions inventories associated with the Project, which include construction emissions and operational emissions. Sub-categories of GHG operational emissions include: area sources, energy use, water and wastewater, solid waste, and mobile sources. Legislation and rules regarding climate change, as well as the scientific understanding of the extent to which different activities emit GHGs, continue to evolve; as such, the inventories in this report are a reflection of the guidance and knowledge currently available.

3.1 Units of Measurement: Tonnes of Carbon Dioxide and Carbon Dioxide Equivalents

In this report, the term "GHGs" includes gases that contribute to the natural greenhouse effect, such as CO_2, CH_4, N_2O, and water, as well as gases that are only man-made and that are emitted through the use of modern industrial products, such as HFCs and chlorofluorocarbons (CFCs). GHG emissions are typically measured in terms of mass of CO_2e. CO_2e are calculated as the product of the mass of a given GHG and its specific GWP. GWPs of 25 and 298 were used for CH_4 and N_2O respectively for this analysis. In many sections of this report, including the final summary sections, emissions are presented in units of CO_2e either because the GWPs of CH_4 and N_2O were accounted for explicitly, or the CH_4 and N_2O are assumed to contribute a negligible amount of GWP when compared to the CO_2 emissions from that particular emissions category.

In this report, a tonne refers to MT (1,000 kilograms). Additionally, exact totals presented in all tables and report sections may not equal the sum of components due to independent rounding of numbers.

3.2 Methodology and Resources

CalEEMod®

Ramboll primarily utilized the CalEEMod® version 2016.3.2 to assist in quantifying the GHG emissions in the inventories presented for the Project. CalEEMod® provides a platform to calculate both construction emissions and operational emissions from a land use development project. It calculates both the daily maximum and annual average for criteria pollutants as well as total or annual GHG emissions. The model also provides default values for water and energy use. Specifically, the model aids the user in the following calculations:

- One-time short-term construction emissions associated with site preparation, demolition, grading, utility installation, building, coating, and paving from off-road construction equipment, and on-road mobile equipment associated with workers, vendors, and hauling.
- One-time vegetation sequestration changes, such as permanent vegetation land use changes and new tree plantings.
- Operational emissions associated with the fully built out land use development, such as on-road mobile vehicle traffic generated by the land uses, off-road emissions from landscaping equipment, natural gas usage in the buildings, electricity usage in the buildings, water usage by the land uses, and solid waste disposal by the land uses.

CalEEMod® is a statewide program designed to calculate both criteria pollutant and GHG emissions from development projects in California. This model was developed under the

auspices of the SCAQMD and received input from other California air districts and is currently supported by numerous lead agencies for use in quantifying the emissions associated with development projects undergoing environmental review. CalEEMod® utilizes widely accepted models for emission estimates combined with appropriate default data that can be used if site-specific information is not available. These models and default estimates use sources such as the USEPA AP-42 emission factors,[33] CARB's on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the CEC and CalRecycle.

As mentioned above, CalEEMod® is based upon the CARB-approved OFFROAD and EMFAC models. OFFROAD[34] is an emission factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). The off-road diesel emission factors used by CalEEMod® are based on the CARB OFFROAD2011 program. EMFAC is an emission factor model used to calculate emissions rates from on-road vehicles (e.g., passenger vehicles). The emission factors used by CalEEMod® are based on the CARB EMFAC2014 program.

In addition, CalEEMod® contains default values and existing regulation methodologies to use in each specific local air district region. Appropriate statewide default values can be utilized if regional default values are not defined. Ramboll used default factors for the Los Angeles County area (within the SCAQMD jurisdiction) for the GHG emission inventory, unless otherwise noted in the methodology descriptions below.

Project-specific land use information was inputted into CalEEMod® along with an approximate construction schedule developed in collaboration with the Project Sponsors. Residential land use information incorporated into CalEEMod® conservatively included residential amenity space in the building square footage. From the land uses and construction schedule, CalEEMod® generated a set of default assumptions. Where more specific Project information was known, the default assumptions were overwritten by specific Project information.

Several project specific information on construction were incorporated. The material removed was estimated by using methodology and conversion factors consistent with CalEEMod® for estimating the weight of debris equivalent to a one-foot thick slab covering the area of the parking lot. Grading information was also updated from the CalEEMod® default assumptions based on communication with the Project Sponsor.

For operational emissions, default traffic assumptions were updated based on a Project-specific trip generation memo. The daily average trip generation from the traffic study was used as the daily average trip generation for weekdays; daily average trip generation for Saturday and Sunday were estimated by scaling against the CalEEMod® default trip generation for Saturdays and Sundays with the CalEEMod® default trip generation for weekdays. Finally, default assumptions about woodstoves and hearths were adjusted to reflect South Coast regulation that prohibits wood burning devices in homes.

[33] The USEPA maintains a compilation of Air Pollutant Emission Factors and process information for several air pollution source categories. The data is based on source test data, material balance studies, and engineering estimates. Available at: http://epa.gov/ttnchie1/ap42/. Accessed: December 2018.

[34] CARB. 2011. Off Road Mobile Source Emission factors. Available at: http://www.arb.ca.gov/msei/msei.htm. Accessed: December 2018.

CalEEMod® uses GWPs from the IPCC Fourth Assessment Report, which is 298 for N_2O and 25 for CH_4, consistent with the GWPs in the 2014 First Update and 2017 Second Update to the Scoping Plan.

Ramboll directly or indirectly relied on emissions estimation guidance from government-sponsored organizations, government-commissioned studies of energy use patterns, Project specific resource management studies (e.g., Transportation Impact Study), and emission estimation software as described above.

3.3 Indirect Greenhouse Gas Emissions from Electricity Use

Project-related electricity use results in indirect emissions, due to electricity generation activities occurring at off-site power plant locations. For this Project, electrical power will be supplied to the Project site by Southern California Edison (SCE). The indirect GHG emissions created as a result of Project-related electricity use are estimated through application of the following methodology.

Using CalEEMod®, the electricity intensities are multiplied by the emission intensity factors for the GHGs and are classified as indirect emissions. Emission intensity factors are GHG emission rates from a given source relative to the intensity of a specific activity in term of the amount of GHG released per megawatt of energy produced. The default electricity intensity for SCE in CalEEMod® for CO_2, CH_4, and N_2O are 702.44, 0.029, and 0.006 pounds (lbs) per megawatt-hour, respectively. The CO_2 default factor is based on a 2007 emission factor listed in CARB's Local Government Operations Protocol. The CH_4 and N_2O default factors are based on CARB's and eGRID values.

For this Project, the CalEEMod® CO_2 intensity factor was modified based on the average of the 2016 and 2017 SCE factors to account for RPS. The intensity factors for total energy delivered were estimated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated. Total energy delivery and total CO_2 emissions are provided in SCE's SCE 2017 Preliminary Annual 33% RPS Compliance Report and the 2016 SCE Corporate Responsibility Report, respectively. The CO_2 intensity factor presented in this analysis is consistent with the 33% RPS for 2020. The estimate provided here and the reports issued by SCE assume that renewable energy sources do not result in any CO_2 emissions. CalEEMod® emission intensity factors for CH_4 and N_2O were used for this Project as a conservative estimate for these emissions.

Details regarding the specific methodologies used by CalEEMod® can be found in the CalEEMod® User's Guide and associated appendices.[35] The CalEEMod® output files are provided for reference in **Appendix A** to this report.

3.4 One-Time Emissions

One-time emissions are those emissions that are not reoccurring over the life of the Project. This includes emissions associated with construction and emissions associated with land use changes. The emission estimation methodology for both construction and vegetation changes are described in this section. The maximum daily emissions are not expected to be higher than that estimated given the conservative assumptions included in this analysis.

[35] SCAQMD. 2016. California Emissions Estimator Model®. Available at: http://www.CalEEMod.com/. Accessed: December 2018.

3.4.1 Construction Emissions

This section describes the estimation of GHG emissions from construction activities at the Project site. Construction of the Project is anticipated to occur from 2020 to 2021.

The major construction phases included in this analysis are:

- Demolition involves removing the existing parking lot.
- Site Preparation involves clearing vegetation (grubbing and tree/stump removal) and demolition debris prior to grading.
- Grading involves the cut and fill of land to ensure the proper base and slope for the construction foundation.
- Building Construction involves the construction of the North and South Buildings.
- Architectural Coating involves the application of coatings to both the interior and exterior of both the North and South Buildings.
- Paving: involves the laying of concrete or asphalt surfaces around the North and South Buildings.

GHG emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting. Ramboll used CalEEMod® version 2016.3.2 to assist in quantification of the construction emissions. The construction schedule, off-road equipment lists and equipment specifications, and daily trip counts for workers, vendors, and haul trucks as estimated for the Project are included in the analysis. CalEEMod® default values were used for equipment and vehicle emission factors, equipment load factors, and vehicle trip lengths.

The construction schedule (i.e., construction start and end dates), and the numbers and types of equipment that will be used is based on CalEEMod® defaults and representative of the anticipated construction of the Project. The GHG calculations are intended to estimate long-term emissions. The construction land use in acreage, schedule and equipment lists, and demolition and grading information, are shown in **Tables 2 through 4**, respectively. Construction emissions are estimated assuming one shift working 8 hours per day, for five days a week. The CalEEMod® output files are included in **Appendix A**.

3.4.1.1 Emissions from Construction Equipment

The emission calculations associated with construction equipment are from off-road equipment engine use based on the assumptions summarized above. The fugitive emissions from off-road equipment performing work are also included in this analysis.

Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod® assumes all of the equipment operates on diesel fuel. The calculations associated with construction equipment include the running exhaust emissions from off-road equipment. Since the equipment is assumed to be diesel, there are no starting or evaporative emissions associated with the equipment as these are de minimis for diesel-fueled equipment. CalEEMod® calculates the exhaust emissions based on CARB's OFFROAD2011 methodology using the equation presented below.

$$Emissions_{Diesel} = \sum_i (EF_i \times Pop_i \times AvgHP_i \times Load_i \times Activity_i)$$

Where:

EF = Emission factor in grams per horsepower-hour (g/bhp-hr) as processed from OFFROAD2011
Pop = Population, or the number of pieces of equipment
AvgHp = Maximum rated average horsepower
Load = Load factor
Activity = Hours of operation
i = equipment type

The GHG emissions associated with off-road construction equipment are shown in **Table 5**.

3.4.1.2 Greenhouse Gas Emissions from On-Road Trips

Construction generates on-road vehicle GHG emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling. These emissions are based on the number of trips and vehicle miles traveled (VMT) along with emission factors from EMFAC2014.

The emissions from mobile sources were calculated in CalEEMod® with the trip rates, trip lengths, and emission factors for running from EMFAC2014 as follows:

$$\text{Emissions}_{\text{pollutant}} = \text{VMT} * \text{EF}_{\text{running, pollutant}}$$

Where:

$\text{Emissions}_{\text{pollutant}}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

$\text{EF}_{\text{running, pollutant}}$ = emission factor for running emissions

Starting and idling emissions were also calculated in CalEEMod® by multiplying the number of trips by the respective emission factor for each pollutant. The GHG emission from on-road vehicles associated with construction is shown in **Table 5**.

3.4.1.3 Total Construction Emissions

The total emissions from construction are summarized in **Table 5**. Total GHG emissions from all construction phases for off-road and on-road emissions are 467 and 1,250 MT CO_2e, respectively. When amortized over 30-year project lifetime, the construction GHG emissions are 57 MT CO_2e/year.[36] Detailed emission inventory from the CalEEMod® output files are included in **Appendix A**.

3.4.2 Vegetation Changes

Planting trees will sequester CO_2 and is considered to result in a one-time carbon-stock change. Trees sequester CO_2 while they are actively growing. The amount of CO_2 sequestered depends on the type of tree. In this case, new trees will be planted at the Project site. This will result in carbon sequestration. Therefore, planting of new trees results in decrease in overall GHG emissions.

[36] This approach to one-time construction and vegetation change GHG emissions is based on the GHG Threshold Working Group Meeting #13 Minutes from August 26, 2009. Available at: http://www.aqmd.gov/ceqa/handbook/GHG/2009/aug26mtg/wkgp13minutes.pdf. Accessed: December 2018.

The proposed Project is expected to plant twenty-eight (28) palm trees around the Project boundary. GHG emissions sequestered from planting these trees are expected to be minimal and is conservatively excluded from the emissions inventory.

3.5 Annual Operational Emissions

Emissions from mobile and area sources and indirect emissions from energy and water use, wastewater, as well as waste management, would occur every year after build out. This section outlines the operational GHG emissions.

3.5.1 Area Sources

Area sources in CalEEMod® are direct sources of GHG emissions. The area source GHG emissions included in this analysis result from hearths and landscaping-related fuel combustion sources. The Project will include natural gas fireplaces in 90% dwelling units based on CalEEMod® defaults. GHG emissions due to natural gas combustion in buildings other than from fireplaces are excluded from this section since they are included in the emissions associated with building energy use.

GHG emissions due to natural gas combustion in buildings other than from fireplaces are excluded from this section since they are included in the emissions associated with building energy use.

3.5.2 Energy Use

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO_2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. **Table 6** lists the emission factor for electricity used in this analysis and how it was calculated. Climate Zone 11 was selected based on the CEC forecast climate zone map shown in the CalEEMod™ User's Guide. Project emissions have been calculated using an SCE emission factor that accounts for the 33% RPS required by 2020, as discussed in Section 3.3. The adjusted SCE emission factor is based on the Power/Utility Reporting Protocol, which reports the mix renewable and non-renewable sources in SCE's energy supply. With this data, the SCE emission factor is adjusted to represent what the emissions from SCE would be in 2020 (see **Table 6**).

In California, Title 24 governs energy consumed by the building envelope, including its mechanical systems, and some types of fixed lighting.[37] These so-called "regulated loads" are not the only source of building-related energy consumption. Instead, "unregulated loads," which are also sometimes referred to as "plug-in loads" (e.g., electronics, such as computers and televisions), also contribute to the total energy demand/consumption of the built environment. Because the Project will begin construction after January 2019, it is expected that it will adhere to 2019 Title 24 standards. As a conservative measure the estimated emissions are based on CalEEMod® defaults, which reflect the 2016 Title 24 building energy standards.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in

[37] Title 24, Part 6, of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Nonresidential Buildings. Available at: http://www.energy.ca.gov/title24/. Accessed: December 2018.

appliances. In California, Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting.[38] Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, office equipment, etc.). To calculate the building energy input for the Project (e.g., electricity, and natural gas), Ramboll utilized default values provided in CalEEMod®, which are based on the California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS).[39]

CalEEMod® converts the resulting energy use quantities to GHG emissions by multiplying by the appropriate emission factors obtained by incorporating information on local electricity production. Unless otherwise noted, CalEEMod® default parameters were used. The CalEEMod® results stated do not include emissions from signage since CalEEMod® does not specifically estimate such emissions.

3.5.3 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat, and distribute water and wastewater. The amount of electricity required to convey, treat, and distribute water depends on the volume of water as well as the sources of the water. Additional emissions from wastewater treatment include CH_4 and N_2O, which are emitted directly from the wastewater.

GHG emissions related to the water and wastewater conveyance were based on the utility emission factors consistent with the Project analysis.

3.5.4 Solid Waste

Municipal solid waste (MSW) is the amount of material that is disposed of by land filling, recycling, or composting. CalEEMod® calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the California Department of Resources Recycling and Recovery (CalRecyle) data for individual land uses. The emission estimates in this Project were based on CalEEMod® default factors. CalEEMod® uses the overall California Waste Stream composition to generate the necessary types of different waste disposed into landfills. The program quantifies the GHG emissions associated with the decomposition of the waste, which generates methane based on the total amount of degradable organic carbon. The program quantifies the CO_2 emissions associated with the combustion of methane, if applicable. Default landfill gas concentrations were used as reported in Section 2.4 of the USEPA's AP-42. The IPCC has a similar method to calculate GHG emissions from MSW in its 2006 Guidelines for National Greenhouse Gas Inventories.

The analysis assumes the CalEEMod® default waste diversion assumptions. This is a conservative estimate, as additional waste will likely be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting to meet the statewide goal of 75% waste diversion.[40] The CalEEMod® solid waste module

[38] Title 24, Part 6, of the California Code of Regulations: California's Energy Efficiency Standards for Residential and Non-residential Buildings. http://www.energy.ca.gov/title24/. Accessed: December 2018.

[39] A detailed explanation how the RASS and CEUS data was processed for use in CalEEMod is available in CalEEMod User's Guide, Appendix E.

[40] CalRecycle, 2013. California's 75 Percent Initiative. Available at: http://www.calrecycle.ca.gov/75percent/. Accessed: December 2018.

determines the GHG emissions associated with the disposal of solid waste into landfills, in quantities that are based upon land use type according to waste disposal studies conducted by CalRecycle. For this module, CalEEMod® default waste generation and disposal rates were used since site specific information was not available. GHG emissions associated with non-landfill diverted waste streams are not considered, because it is generally assumed that these diversions do not result in any appreciable amounts of GHG emissions when operated effectively.[41] These waste diversion alternatives may result in differences in life-cycle emissions of GHGs, but it is not appropriate to combine life-cycle emissions for only one category of emissions.[42] As mentioned previously, biogenic CO_2 emissions were not included when CARB analyzed the GHG emissions inventory under AB 32. Therefore, they are not included in the Project emissions inventory.

3.5.5 Mobile Sources

The GHG emissions associated with on-road mobile sources are generated from residents, workers, customers, and delivery vehicles visiting the land use types in the Project. The emissions associated with on-road mobile sources includes running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Starting and evaporative emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. All of the other emissions are dependent on VMT. Ramboll estimated traffic emissions using the TDM-adjusted trip rates specified in the Transportation Impact Study[43] (**Table 7**). Default trip lengths from CalEEMod® were used for this analysis. As noted in Section 3.1, CalEEMod® relies upon EMFAC to estimate mobile source emission factors.

The analysis accounted for the following reductions from some adopted regulatory programs:

- AB 1493 required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and later. CalEEMod® and EMFAC2014 include emission reductions for non-commercial passenger vehicles and light-duty trucks of model year 2017 – 2025.
- The ACC program, introduced in 2012, combines the control of smog, soot causing pollutants, and GHG emissions into a single coordinated package of requirements for model years 2015 through 2025. CalEEMod® includes reductions associated with this regulation.
- The USEPA/NHTSA advanced fuel economy and GHG standards (Phase 1) were adopted in 2011 for medium and heavy-duty trucks for model years 2014-2018.[44] This Heavy-Duty National Program is intended to reduce fuel use and GHG emissions from medium- and heavy-duty vehicles, semi-trucks, pickup trucks and vans, and all types

[41] CARB. 2010. Local Government Operations Protocol. Chapter 9.4.

[42] This inventory represents scope 1 and 2 emission categories. A life-cycle analysis of waste diversion would be a scope 3 inventory. CARB's Local Government Operations Protocol Version 1.1 (May 2010) clearly states that scope 3 emissions should not be combined with scope 1 and 2 emissions.

[43] Transportation Impact Study for the W. 3rd and Pacific Apartments. Prepared by Linscott Law & Greenspan Engineers. December 2018.

[44] USEPA, Office of Transportation and Air Quality. 2011. Available at: https://www3.epa.gov/otaq/climate/documents/420f11031.pdf. Accessed: December 2018.

and sizes of work trucks and buses. CalEEMod® includes reductions associated with this regulation.

The Project will also benefit from USEPA/NHTSA advanced fuel economy and GHG standards (Phase 2) which were adopted in 2016 for medium- and heavy-duty trucks for model years 2018 and beyond.[45] However, the analysis does not incorporate the potential emission reductions from the USEPA/NHTSA Phase 2 standards. The Phase 2 program includes technology-advancing standards that substantially reduce GHG emissions and fuel consumption resulting in an ambitious, yet achievable, program that will allow manufacturers to meet the applicable standards over time, at reasonable cost, through a mix of different technologies. The Phase 2 program's standards will be phased in beginning with model year 2021 and culminating with model year 2027. Excluding these reductions from the analysis results in a more conservative (i.e., higher) Project emissions inventory given the likely decreases in GHG emissions associated with the USEPA/NHTSA standards.

Based on the Project's Transportation Impact Study, the analysis assumes a 5 percent reduction in vehicle trips associated with non-auto trips.

[45] USEPA, Office of Transportation and Air Quality. 2016. Available at: https://www3.epa.gov/otaq/climate/documents/420f16044.pdf. Accessed: December 2018.

4. PROJECT INVENTORY IN CONTEXT

4.1 Consistency with Applicable Plans and Strategies

This Project will comply with the various requirements of state, regional, and local regulations related to GHG emissions reduction.

Table 8 contains a list of State GHG reduction strategies applicable to the Project. The table demonstrates that the Project is consistent with these strategies, thus supporting the State's strategies in the Climate Change Scoping Plan. **Table 9** contains a list of actions and strategies from the 2016 SCAG RTP/SCS that are applicable to the Project. As shown in the table, the Project would implement strategies to reduce vehicle emissions and as a result would be consistent with the objectives of the 2016 RTP/SCS. **Table 10** contains a list of local strategies (City of Long Beach Sustainable City Action Plan) to reduce GHG emissions. As discussed in these tables, the Project is consistent with the goals and actions of these plans.

4.2 Comparison with Significance Threshold

In accordance with State CEQA Guidelines, this report considers the "extent to which the [P]roject may increase or reduce [GHG] emissions as compared to the existing environmental setting". As previously documented, the Project site – in its existing condition – is a parking lot. GHG emissions from the parking lot were not calculated and conservatively not incorporated into the analysis. The proposed Project would emit 4,387 MT CO_2e per year. While the Project results in an obvious change to the existing environment, by increasing existing GHG emission levels by 4,387 MT of CO2e per year, there is no scientific or regulatory consensus regarding what particular quantity of GHG emissions is significant. Further, no agency with regulatory authority and expertise, such as CARB or SCAQMD, has adopted numeric GHG thresholds for land use development projects for purposes of CEQA. Indeed, while global climate change is widely viewed as a cumulative problem warranting international treatment and regulation, no authoritative regulatory body has yet devised a numeric emissions cap that can be applied at the project level. Therefore, this numeric delta is not a meaningful or reliable indicator of the Project's significance.

A summary of GHG emissions for the service population efficiency analysis is presented in **Table 11**. As shown in this table, dividing the total Project 2020 scenario mitigated GHG emissions by the estimated service population yields an efficiency metric of 4.3 MT CO_2e per service population per year as compared to 4.8 for the year 2020 threshold. This comparison is provided for informational purposes.

TABLES

Table 1. Project Land Uses and Square Footages
3rd and Pacific Avenue Project
Long Beach, California

Proposed Project[1]		CalEEMod Analysis				
		Land Use Category	**Land Use Subtype[2]**	**Land Use Unit Amount**	**Size Metric**	**Floor Surface Area (sqft)**
Residences	203 DU	Residential	Apartments High Rise	203	DU	285,851
Residences	142 DU	Residential	Apartments Mid Rise	142	DU	143,824
Retail	14,437 sqft	Retail	Regional Shopping Center	14.4	TSF	14,437
Parking	565 Spaces	Parking	Enclosed Parking Structure	565	Spaces	215,559

Notes:

[1] Project land uses are based on the Project Description and Site Plans (Ensemble, 2018).

[2] Land uses as defined in CalEEMod®. When an exact mapping of a land use was not available in CalEEMod® relative to the "Project Entitlement," a land use with similar emission characteristics was chosen. For example, retail was represented as a 'regional shopping center'.

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel

DU - dwelling unit

sqft - square feet

TSF - thousand square feet

Table 2. Construction Land Use Acreages
3rd and Pacific Avenue Project
Long Beach, California

Land Use Type	Land Use Sub type	Lot (acres)[1]
Residences	Apartments Mid Rise	1.22
Residences	Apartments High Rise	
Parking	Enclosed Parking Structure	
Retail	Regional Shopping Center	

Notes:

[1] Lot acreage consistent with the Transportation Impact Analysis (TIA; Law & Greenspan, 2018).

Table 3. Construction Schedule and Equipment Mix Assumptions
3rd and Pacific Avenue Project
Long Beach, California

Construction Phase Name[1,2]	Phase Dates		Phase Length[5]	Offroad Equipment	
	Phase Start Date	Phase End Date		Equipment Type	Equipment Unit Amount
Demolition	1/1/2020	2/27/2020	42	Concrete/Industrial Saws	1
				Rubber Tired Dozers	1
				Tractors/Loaders/Backhoes	3
Site Preparation	2/28/2020	3/5/2020	5	Graders	1
				Rubber Tired Dozers	1
				Tractors/Loaders/Backhoes	1
Grading[3]	3/6/2020	6/5/2020	66	Concrete/Industrial Saws	1
				Rubber Tired Dozers	1
				Tractors/Loaders/Backhoes	1
Building Construction	6/8/2020	10/28/2021	364	Cranes	1
				Forklifts	1
				Generator Sets	1
				Tractors/Loaders/Backhoes	1
				Welders	3
Paving[4]	9/1/2021	11/26/2021	63	Cement and Mortar Mixers	1
				Pavers	1
				Paving Equipment	1
				Rollers	1
				Tractors/Loaders/Backhoes	1
Architectural Coating	9/1/2021	11/26/2021	63	Air Compressors	1

Notes:
[1] Project construction schedule is based on a project specific estimate.
[2] Construction assumptions based on CalEEMod® defaults.
[3] Grading includes excavation activity.
[4] Paving includes leveling of land/pavements around the constructed buildings.
[5] Construction activity assumed to occur 5 days/week.

Abbreviations:
CalEEMod - CALifornia Emissions Estimator MODel

Table 4. Construction Demolition and Grading Volumes
3rd and Pacific Avenue Project
Long Beach, California

Project Construction Phase	Amount	Unit
Demolition[1]	246	tons
Grading[2]	59,260	cy (exported)

Notes:

[1] The existing project site is a parking lot; therefore, the demolition amount was conservatively estimated based on the project acreage and assuming 1 foot of height.

[2] The amount of exported material is a project specific estimate.

Abbreviation:

cy - cubic yards

ft^2 - square feet

Table 5. Construction Emissions Summary
3rd and Pacific Avenue Project
Long Beach, California

Calendar Year	Total Off-Road Emissions	Total On-Road Emissions			Total Construction Emissions
		Worker	Vendor	Hauling	
	(MT CO_2e)				
2020	225	268	139	287	919
2021	241	392	199	0	832
Total	**467**	**659**	**338**	**287**	**1,751**
				30-yr amortized	**58**

Notes:
[1] Construction emissions include on-site and off-site (worker/vendor/hauling) emissions, estimated using CalEEMod v.2016.3.2 or methodologies described in the text. CO_2e includes CO_2, CH_4, and N_2O emissions, weighted by their respective global warming potentials.

Abbreviations:
CalEEMod - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
MT - metric tons
N_2O - nitrogen dioxide
yr - year

Table 6. Utility Greenhouse Gas Intensity Factor Associated with Renewable Portfolio Standard
3rd and Pacific Avenue Project
Long Beach, California

Energy Delivered [MWh]				
	2016	**2017**	**Average**	**Units**
Total Energy Delivery[2]	73,269,113	73,459,883	--	MWh
from renewables[2]	20,735,159	23,213,323		MWh
from non-renewables	52,533,954	50,246,560	--	MWh
% of Total Energy From Renewables[1]	28.3%	31.6%	--	
% of Total Energy From Non-Renewables	72%	68%	--	
CO_2 Intensity Factor per Total Energy Delivered[1]	529.00	549.00	539.00	lbs CO_2/MWh delivered
CO_2 Intensity Factor per Total Non-Renewable Energy[3]	737.80	802.63	--	lbs CO_2/MWh delivered

Estimated Intensity Factors for Total Energy Delivered[4]				
2020 RPS (33%)	**494.3**	**537.8**	**516.04**	lbs CO_2/MWh delivered

Notes:

[1]2016 and 2017 intensity factor per total energy delivered and percent of total energy from renewables information provided in the 2016 SCE Corporate Responsibility Report, page 10. Available at: https://www.edison.com/content/dam/eix/documents/sustainability/eix-2017-sustainability-report.pdf. Accessed: December 2018.

[2] The total energy from renewable energy as provided in the SCE 2017 Preliminary Annual 33% RPS Compliance Report Appendix A - Page 4. Available at: http://www3.sce.com/sscc/law/dis/dbattach5e.nsf/0/446EF1446AAE3736882582FA0072EA27/$FILE/R1502020-SCE%202017%20Annual%20RPS%20Compliance-PUBLIC.pdf. Accessed: December 2018.

[3] The emissions metric presented here is calculated based on the total CO_2 emissions divided by the energy delivered from non-renewable sources.

[4] The intensity factors for default RPS assumption are estimated by multiplying the percentage of energy delivered from non-renewable energy by the CO_2 emissions per total non-renewable energy metric calculated above. The emission factor presented here is 33% RPS for 2020, which is conservative as Project construction will not be completed until 2021. The estimate provided here assume that renewable energy sources do not result in any CO_2 emissions.

Abbreviations:

CO_2 - carbon dioxide
lbs - pounds
MT - metric tons
MWh - megawatt-hour
PUP - Power/Utility Protocol
RPS - Renewable Portfolio Standard
SCE - Southern California Edison

Table 7. CalEEMod Inputs Associated with Project Traffic
3rd and Pacific Avenue Project
Long Beach, California

CalEEMod Land Use	Unit	Peak Daily Trips[1]	Peak Daily Trips with Non-Auto Trip Adjustment[1]	Trip Rates[2] (trips/day/unit)		
				Weekday	Saturday	Sunday
Apartments High Rise	DU	638	606	2.99	3.54	2.59
Apartments Mid Rise	DU	746	709	4.99	4.80	4.40
Enclosed Parking Structure	Spaces	0	0	0.00	0	0
Regional Shopping Center	TSF	1,321	1,255	86.93	101.73	51.38

Notes:

[1] Peak daily trips were based on the Transportation Impact Analysis (TIA; Law & Greenspan, 2018). Based on the TIA, a 5% reduction is included for "non-auto trips" (i.e., public transit, walking, biking, etc.).

[2] Trip rates are provided as one-way trips.

[3] Weekend trip rates were scaled from the TIA using CalEEMod® default ratios for each land use.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

DU - dwelling unit

TDM - Transportation Demand Management

TIA - Transportation Impact Analysis

TSF - thousand square feet

Table 8. Consistency with Applicable State Greenhouse Gas Reduction Strategies
3rd and Pacific Avenue Project
Long Beach, California

Sector/Source	Category Description	Consistency Analysis
Energy		
California Renewables Portfolio Standard and SB 350	Increases the proportion of electricity from renewable sources to 33 percent renewable power by 2020. SB 350 requires 50 percent by 2030. It also requires the State Energy Resources Conservation and Development Commission to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.	**Consistent.** The Project would use electricity provided by SCE, which is required to meet the 2020 and 2030 standards. The Project would also meet the applicable requirements from the 2016 CalGreen Building Standards Code related to energy efficiency and conservation.
CCR, Title 24	Energy Efficiency Standards for Residential and Nonresidential Buildings	**Consistent.** The Project would meet the applicable requirements from the 2016 CalGreen Building Standards Code related to energy efficiency and conservation. In addition, the Project would integrate solar hot water systems for residential units, with a target of 40% of all hot water being provided by solar energy and the Project would target LEED Accreditation.
Assembly Bill 1109	The Lighting Efficiency And Toxics Reduction Act (AB 1109) prohibits manufacturing specified general purpose lights that contain levels of hazardous substances prohibited by the European Union. AB 1109 also requires a reduction in average statewide electrical energy consumption by not less than 50 percent from the 2007 levels for indoor residential lighting and not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018.	**Consistent.** The Project would meet the applicable requirements from the Title 24, Part 6 California Energy Code. In addition, the Project would target LEED Accreditation and integrate daylighting into the building design.
California Green Building Standards Code Requirements	All bathroom exhaust fans shall be ENERGY STAR compliant.	**Consistent.** The Project would utilize energy efficiency appliances and equipment and would meet the energy standards in ASHRAE 90.1-2010, Appendix G and the Title 24, 2019 Building Energy Efficiency Standards.
	Air filtration systems are required to meet a minimum of MERV 8 or higher.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Refrigerants used in newly installed HVAC systems shall not contain any CFCs.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Parking spaces shall be designed for clean air vehicles (e.g., carpool/vanpool, low-emitting or fuel-efficient vehicles) depending on the number of total parking spaces provided. For projects with over 201 parking spaces, at least eight percent of total parking spaces will be designed for such vehicles.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code, such as EV charging stations at least 3% of total parking space count. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, and a ride share staging area on the site plan.
	Long-term and short-term bike parking shall be provided for five percent of vehicle parking spaces with a minimum of one two-bike capacity rack.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code. For example, the midrise building would include a bicycle storage and service center.
	Include a stormwater soil loss prevention plan through a local ordinance such as with a Stormwater Pollution Prevention Plan (SWPPP) or an effective combination or erosion and sediment control and good housekeeping best management practices.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code. In addition, the Project design would include storm water planting areas.
California Green Building Standards Code Requirements	All irrigation controllers must be installed with weather sensing or soil moisture sensors.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Requires a minimum of 65 percent recycle or salvaged for reuse of nonhazardous construction and demolition debris or meet a local construction and demolition waste management ordinance, whichever is more stringent.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Requires documentation of types of waste recycled, diverted or reused.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Requires use of low VOC coatings consistent with SCAQMD Rule 1168. 100 percent of vegetation, rocks, soils from land clearing shall be recycled or stockpiled on-site.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.

Table 8. Consistency with Applicable State Greenhouse Gas Reduction Strategies
3rd and Pacific Avenue Project
Long Beach, California

Sector/Source	Category Description	Consistency Analysis
Mobile Sources		
AB 1493 (Pavley Regulations)	Reduces GHG emissions in new passenger vehicles from model year 2012 through 2016 (Phase I) and model years 2017–2025 (Phase II). Also reduces gasoline consumption to a rate of 31 percent of 1990 gasoline consumption (and associated GHG emissions) by 2020.	**Consistent.** The Project would be consistent with this regulation and would not conflict with implementation of the vehicle emissions standards.
Low Carbon Fuel Standard (Executive Order S-01-07)	Establishes protocols for measuring life-cycle carbon intensity of transportation fuels and helps to establish use of alternative fuels.	**Consistent.** The Project would be consistent with this regulation and would not conflict with implementation of the transportation fuel standards.
Advanced Clean Cars Program	In 2012, CARB adopted the Advanced Clean Cars (ACC) program to reduce criteria pollutants and GHG emissions for model year vehicles 2015 through 2025. ACC includes the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.	**Consistent.** The Project would be consistent with this regulation and would not conflict with implementation of the transportation fuel standards.
SB 375	SB 375 establishes mechanisms for the development of regional targets for reducing passenger vehicle GHG emissions. Under SB 375, CARB is required, in consultation with the state's Metropolitan Planning Organizations, to set regional GHG reduction targets for the passenger vehicle and light-duty truck sector for 2020 and 2035.	**Consistent.** The Project is a mixed-used infill development that would be consistent with SCAG RTP/SCS goals and objectives under SB 375. The Project would incorporate design features that would meet the applicable requirements of the 2016 CalGreen Building Standards Code to ensure reductions with mobile GHG emissions. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, a ride share staging area on the site plan, and a bicycle storage and service center.
Water		
CCR, Title 24	Title 24 includes water efficiency requirements for new residential and non-residential uses.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
Senate Bill X7-7	The Water Conservation Act of 2009 sets an overall goal of reducing per capita urban water use by 20 percent by December 31, 2020. Each urban retail water supplier shall develop water use targets to meet this goal.	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code. The Long Beach Water Department (LBWD) would be able to supply the demands of the Project. In addition, LBWD is increasing recycled water use by expanding the recycled water distribution system to provide water for irrigation, industrial use, and groundwater recharge to meet state goals of reducing per capita urban water use.
Solid Waste		
California Integrated Waste Management Act (IWMA) of 1989 and Assembly Bill (AB) 341.	The IWMA mandated that state agencies develop and implement an integrated waste management plan which outlines the steps to be taken to divert at least 50 percent of their solid waste from disposal facilities. AB 341 directs CalRecycle to develop and adopt regulations for mandatory commercial recycling and sets a statewide goal for 75 percent disposal reduction by the year 2020.	**Consistent.** The Project will institute a recycling and composting program and will be serviced by CR&R Incorporated.

Table 8. Consistency with Applicable State Greenhouse Gas Reduction Strategies
3rd and Pacific Avenue Project
Long Beach, California

Sector/Source	Category Description	Consistency Analysis
Other Sources		
Climate Action Team	Reduce diesel-fueled commercial motor vehicle idling.	**Consistent.** The Project's mitigation measures would be consistent with the CARB Air Toxics Control Measure to limit heavy duty diesel motor vehicle idling to no more than 5 minutes at any given time.
	Achieve California's 50 percent waste diversion mandate (Integrated Waste Management Act of 1989) to reduce GHG emissions associated with virgin material extraction.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code. The Project will institute a recycling and composting program and would be serviced by CR&R Incorporated.
	Plant five million trees in urban areas by 2020 to effect climate change emission reductions.	**Consistent.** The Project would provide appropriate landscaping on the Project Site including native trees, eco/green walls, trees over structured elements, irrigation, and plantings at the building bases.
	Implement efficient water management practices and incentives, as saving water saves energy and GHG emissions.	**Consistent.** The Project would meet this requirement as part of its compliance with the 2016 CalGreen Building Standards Code.
	Reduce GHG emissions from electricity by reducing energy demand. The California Energy Commission updates appliance energy efficiency standards that apply to electrical devices or equipment sold in California. Recent policies have established specific goals for updating the standards; new standards are currently in development.	**Consistent.** The Project would utilize energy efficiency appliances and equipment and would meet the energy standards in ASHRAE 90.1- 2010 Appendix G, the Title 24, 2019 Building Energy Efficiency Standards, the 2016 CalGreen Building Standards Code. In addition, the Project will incorporate energy savings measures such as solar water heaters and living roofs and it will target LEED accreditation.
	Apply strategies that integrate transportation and land-use decisions, including but not limited to promoting jobs/housing proximity, high-density residential/commercial development along transit corridors, and implementing intelligent transportation systems.	**Consistent.** The Project promotes high-density residential/commercial development with access to public transit and was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking.
	Reduce energy use in private buildings	**Consistent.** The Project would utilize energy efficiency appliances and equipment and would meet the energy standards in ASHRAE 90.1- 2010 Appendix G, the Title 24, 2019 Building Energy Efficiency Standards, the 2016 CalGreen Building Standards Code. In addition, the Project would incorporate energy savings measures such as solar water heaters and living roofs and it would target LEED accreditation.

Abbreviations:
AB - Assembly Bill
ACC - Advanced Clean Cars
AQMD - Air Quality Management District
ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
CA - California
CARB - California Air Resources Board
CCR - California Code of Regulations
CFC - Code of Federal Regulations
EV - Electric vehicle
GHG - Greenhouse gas
HVAC - Heating, Ventilation and Air Conditioning
IMWA - California Integrated Waste Management Act
LEV - Low-Emission vehicle
LEED - Leadership in Energy and Environmental Design
MERV - Minimum Efficiency Reporting Value (for air filtration)
PHEV - Plug-in hybrid electric vehicles
REU - Redding Electric Utility
RTP- Regional Transpiration Plan
SB - Senate Bill
SCAG - Southern California Association of Governments
SCE - Southern California Edison
SCS - Sustainable Community Strategies
SRTA - Shasta Regional Transportation Agency
SWPPP - Stormwater Pollution Prevention Plan
VOC - Volatile Organic Compound
ZEV - Zero-Emission vehicle

Table 9. Consistency with Applicable 2016 SCAG RTP/SCS Actions and Strategies
3rd and Pacific Avenue Project
Long Beach, California

Actions and Strategies	Responsible Party	Consistency Analysis
Focus Area: Energy		
Encourage the use of range-limited battery electric and other alternative fueled vehicles through policies and programs, such as, but not limited to, neighborhood oriented development, complete streets, and Electric (and other alternative fuel) Vehicle Supply Equipment in public parking lots.	Local Jurisdictions, COGs, SCAG, CTCs	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City or Southern California Association of Governments (SCAG) fuel efficient and alternative fuel vehicle goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, and a ride share staging area on the site plan.
Support projects, programs, and policies that support active and healthy community environments that encourage safe walking, bicycling, and physical activity by children, including, but not limited to development of complete streets, school siting policies, joint use agreements, and bicycle and pedestrian safety education.	Local Jurisdictions, SCAG	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City or SCAG pedestrian and biking goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. The Project would also include a bicycle storage and service center.
Collaborate with the region's public health professionals to enhance how SCAG addresses public health issues in its regional planning, programming, and project development activities.	SCAG, State, Local Jurisdictions	**Consistent.** The Project would not impair the City's, SCAG's, or the State's ability to collaborate with the region's public health professionals regarding the integration of public health issues in regional planning. The Project would comply with construction and operations emissions regulations to minimize air pollutant emissions and in turn contribute towards maintaining public health.
Update local zoning codes, General Plans, and other regulatory policies to promote a more balanced mix of residential, commercial, industrial, recreational and institutional uses located to provide options and to contribute to the resiliency and vitality of neighborhoods and districts.	Local Jurisdictions	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition the Project is located near public transit and would promote recreational uses with a bicycle storage and service center and enhanced pedestrian experience with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking.
Support projects, programs, policies and regulations that encourage the development of complete communities, which includes a diversity of housing choices and educational opportunities, jobs for a variety of skills and education, recreation and culture, and a full-range of shopping, entertainment and services all within a relatively short distance.	Local Jurisdictions, SCAG	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition the Project would promote recreational uses with a bicycle storage and service center and enhanced pedestrian experience with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking.
Pursue joint development opportunities to encourage the development of housing and-mixed use projects around existing and planned rail stations or along high-frequency bus corridors, in transit-oriented development areas, and in neighborhood-serving commercial areas.	Local Jurisdictions, CTCs	**Consistent.** The Project promotes high-density residential/commercial development with access to public transit and was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking.

Table 9. Consistency with Applicable 2016 SCAG RTP/SCS Actions and Strategies
3rd and Pacific Avenue Project
Long Beach, California

Actions and Strategies	Responsible Party	Consistency Analysis
Focus Area: Energy (*Continued*)		
Consider developing healthy community or active design guidelines that promote physical activity and improved health.	Local Jurisdictions	**Consistent.** The Project would be consistent with these initiatives through compliance with the 2016 CalGreen Building Standards Code and would not conflict with City encouragement of active and green lifestyles. In addition, the Project would include outdoor amenity spaces and the Paseo, which would promote active use zones.
Create incentives for local jurisdictions and agencies that support land use policies and housing options that achieve the goals of SB 375.	State, SCAG	**Consistent.** The Project in an infill development that promotes high-density residential/commercial development with access to public transit and was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, a ride share staging area on the site plan, and a bicycle storage and service center.
Transportation Network Action and Strategies		
Prioritize transportation investments to support compact infill development that includes a mix of land uses, housing options, and open/park space, where appropriate, to maximize the benefits for existing communities, especially vulnerable populations, and to minimize any negative impacts	SCAG, CTCs, Local Jurisdictions	**Consistent.** The Project would be consistent with these initiatives and would not conflict with city or state transportation initiatives. Furthermore, the Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. The Project is located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience.
Explore and implement innovative strategies and projects that enhance mobility and air quality, including those that increase the walkability of communities and accessibility to transit via non- auto modes, including walking, bicycling, and neighborhood electric vehicles (NEVs) or other alternative fueled vehicles.	SCAG, CTCs, Local Jurisdictions	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City or SCAG pedestrian and biking goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. The Project would also include a bicycle storage and service center.
Collaborate with local jurisdictions to plan and develop residential and employment development around current and planned transit stations and neighborhood commercial centers.	SCAG, CTCs, Local Jurisdictions	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition, the Project is located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience.
Collaborate with local jurisdictions to provide a network of local community circulators that serve new TOD, HQTAs, and neighborhood commercial centers providing an incentive for residents and employees to make trips on transit	SCAG, CTCs, Local Jurisdictions	**Consistent.** The Project will feature mixed-uses on the Project Site. The Project is designed to ensure a bicycle, transit, and pedestrian friendly environment.

Table 9. Consistency with Applicable 2016 SCAG RTP/SCS Actions and Strategies
3rd and Pacific Avenue Project
Long Beach, California

Actions and Strategies	Responsible Party	Consistency Analysis
Transportation Network Action and Strategies (*Continued*)		
Develop first-mile/last-mile strategies on a local level to provide an incentive for making trips by transit, bicycling, walking, or neighborhood electric vehicle or other ZEV options.	CTCs, Local Jurisdictions	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City or SCAG pedestrian and biking goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. The Project is near public transit and would also include a bicycle storage and service center.
Encourage transit fare discounts and local vendor product and service discounts for residents and employees of TOD/HQTAs or for a jurisdiction's local residents in general who have fare media.	Local Jurisdictions	**Consistent.** The Project will feature mixed-uses on the Project Site. The Project is designed to ensure a bicycle, transit, and pedestrian friendly environment.
Continue to support the California Interregional Blueprint as a plan that links statewide transportation goals and regional transportation and land use goals to produce a unified transportation strategy.	SCAG	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition, the Project is located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience.
Examine major projects and strategies that reduce congestion and emissions and optimize the productivity and overall performance of the transportation system.	SCAG	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition, the Project is located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience. The Project's mitigation of congestion and emissions will be assessed through payment of the City's Transportation Improvement Fee.
Encourage the implementation of a Complete Streets policy that meets the needs of all users of the streets, roads and highways-including bicyclists, children, persons with disabilities, motorists, neighborhood electric vehicle (NEVs) users, movers of commercial goods, pedestrians, users of public transportation and seniors-for safe and convenient travel in a manner that is suitable to the suburban and urban contexts within the region.	Local Jurisdictions, COGs, SCAG, CTCs	**Consistent.** The Project will feature mixed-uses on the Project Site. The Project plan is designed to ensure a bicycle, transit, and pedestrian friendly environment. The Project would be designed and operated to meet the applicable requirements of the 2016 CalGreen Building Standards Code and 2017 Los Angeles Green Building Code, to provide Electric (and other alternative fuel) Vehicle Supply Equipment.
Support work-based programs that encourage emission reduction strategies and incentivize active transportation commuting or ride-share modes.	SCAG, Local Jurisdictions	**Consistent.** The Project is mostly residential and work-based programs would not be relevant. However, the Project provides a ride share staging area and a bicycle storage and service center.
Develop infrastructure plans and educational programs to promote active transportation options and other alternative fueled vehicles, such as neighborhood electric vehicles (NEVs), and consider collaboration with local public health departments, walking/biking coalitions, and/or Safe Routes to School initiatives, which may already have components of such educational programs in place	Local Jurisdictions	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition, the Project is located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience.
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options	Local Jurisdictions, CRCs	**Consistent.** The Project would not impair local jurisdictions or CRCs ability to encourage telecommuting programs by employers.

Table 9. Consistency with Applicable 2016 SCAG RTP/SCS Actions and Strategies
3rd and Pacific Avenue Project
Long Beach, California

Actions and Strategies	Responsible Party	Consistency Analysis
Transportation Network Action and Strategies (*Continued*)		
Emphasize active transportation and alternative fueled vehicle projects as part of complying with the Complete Streets Act (AB 1358).	SCAG, Local Jurisdictions	**Consistent.** The Project promotes high-density residential/commercial development with access to public transit and was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, a ride share staging, and a bicycle storage and service center.
Transportation System Management (TSM) Actions and Strategies		
Work with relevant state and local transportation authorities to increase the efficiency of the existing transportation system.	SCAG, Local Jurisdictions	**Consistent.** The Project would be located near public transit and would promote alternative transportation with a bicycle storage and service center and enhanced pedestrian experience. The Project's mitigation of congestion and emissions will be assessed through payment of the City's Transportation Improvement Fee.
Clean Vehicle Technology Actions and Strategies		
Support subregional strategies to develop infrastructure and supportive land uses to accelerate fleet conversion to electric or other near zero-emission technologies. The activities committed in the two subregions (Western Riverside COG and South Bay Cities COG) are put forward as best practices that others can adopt in the future. (See Appendix: Vehicle Technology, for more information.)	SCAG, Local Jurisdictions	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City or SCAG fuel efficient and alternative fuel vehicle goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, and a ride share staging area on the site plan.

Abbreviations:

AB - Assembly Bill
COG - Council of Government
CRC - California Rules of Court
CTC - California Transportation Commission
EV - Electric vehicle
GHG - Greenhouse gas
HQTA - High Quality Transit Area
NEV- Neighborhood electric vehicle
RTP - Regional Transportation Plan
SB - Senate Bill
SCAG - Southern California Association of Governments
SCS - Sustainable Community Strategies
SRTA - Shasta Regional Transportation Agency
TOD - Transit-Oriented Development
TSM- Transportation System Management
ZEV - Zero-Emission vehicle

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Buildings & Neighborhoods		
1. 100% of major city facilities are LEED certified (or equivalent) by 2020 2. At least 5 million square feet of privately developed LEED certified (or equivalent) green buildings by 2020 3. Double the number of LEED accredited professionals (or equivalent) in the City and community by 2012	<u>INITIATIVE 1: Accelerate the use of green building techniques in new development, renovations and retrofits to improve building efficiency and health:</u> 1. Explore green development requirements for the Long Beach Redevelopment Agency and any private project that includes public/city money 2. Incorporate sustainability strategies such as transit-oriented development, adaptive reuse and green buildings in the General Plan (Long Beach 2030) 3. Create a green affordable housing strategy and implement a green development policy for affordable housing projects in the city 4. Upgrade roofs to be solar ready and engage in site leases for solar projects 5. Implement solar and wind demonstration projects such as solar/wind-powered at bus stops, pay stations, signage and erect solar/wind displays in vacant city-owned lots 6. Create opportunities for community members to participate in fix-it green programs that demonstrate how to incorporate green techniques and products in home renovation 7. Provide training and funding to increase the number of LEED accredited employees 8. Explore the development of assessment districts for the funding of green improvements throughout the city	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code and would target LEED Accreditation. In addition, the Project has access to public transit nearby, will include a solar ready roof and an eco-roof.
4. 100% of city-owned vacant lots are utilized with interim green uses by 2012 5. Create at least 6 new community gardens by 2012 6. Plant at least 10,000 trees in Long Beach by 2020 7. 100% of suitable alley and parking lot projects use permeable pavement by 2020	<u>INITIATIVE 2: Enhance and enliven corridors and neighborhoods with green infrastructure and public spaces:</u> 1. Implement interim green uses in vacant city-owned lots by utilizing mulched green waste from city operations, developing solar, wind or landscaping pilot projects or locating community gardens 2. Implement public-right-of-way enhancements such as energy efficient street lights/signs, street furniture and public art 3. Designate locations throughout the City for community gardens and encourage edible landscapes 4. Plant landscaping demonstration projects that showcase native, drought-tolerant landscape techniques 5. Incorporate neighborhood elements like roundabouts, meandering sidewalks, street trees, public plazas and bike and pedestrian improvements that create a sense of place 6. Encourage neighborhood and business groups to sponsor and participate in community clean-up and beatification programs like tree plantings, coastal cleanups, etc. 7. Create a program that enables greening of alleys throughout the city 8. Incorporate green construction techniques in sidewalks, street maintenance and pothole repair and initiate pilot infrastructure projects that test green construction techniques such as permeable pavement 9. Survey City's watersheds to assess appropriate placement/suitability for permeable pavement	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code. In addition, the Project is an infill project that would enhance and enliven the neighborhood and corridors. For example, the Project would provide appropriate landscaping on the Project Site including native trees, eco/green walls, trees over structured elements, irrigation, and plantings at the building bases. These improvements would also be applied to the Solana and Roble Way/Paseo alleys.
8. 50% of Long Beach residents work in Long Beach by 2020 9. At least 60,000 residents in the downtown by 2020 10. By 2020, at least 30% of Long Beach residents use alternative transportation to get to work	<u>INITIATIVE 3: Enhance our community to encourage people to get out of their cars and into their neighborhoods:</u> 1. Establish live/work districts and establish incentives to encourage living near work 2. Establish workforce housing projects near large job centers in Long Beach such as Downtown, CSULB, Hospitals and Boeing 3. Encourage grocery stores and healthy food options in neighborhood centers 4. Create car-sharing and bike-sharing opportunities in neighborhood centers 5. Encourage additional locations for farmers markets throughout the City 6. Implement incentives to reduce vehicle miles traveled and save fuel 7. Encourage and expand local, neighborhood events and festivals 8. Incorporate traffic calming measures to make neighborhood streets more inviting and keep pedestrians and bicyclists safe 9. Create and expand unique neighborhood identity through the use of special signage and public art and adhering to unique architectural styles 10. Encourage neighborhood and business groups to sponsor or participate in local community events that draw residents and foster community involvement	**Consistent.** The Project would sustainably host business, retail, and residential uses in a variety of scales that are thoughtfully arranged within the Downtown Plan. In addition the Project would include a bicycle storage and service center, a minimum of one accessible EV parking space in each building, design for increasing EV charging, a ride share staging area on the site plan, and enhanced pedestrian experience.

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Energy		
1. Reduce greenhouse gas emissions from City facilities and operations by 15% by 2020	INITIATIVE 1: Shrink Long Beach's carbon footprint by reducing greenhouse gas emissions: 1. Complete, verify and release an annual City greenhouse gas inventory 2. Create a community greenhouse gas inventory 3. Employ best practices to avoid, minimize or mitigate greenhouse gas emissions for all planning and future development 4. Provide incentives to residents and businesses to implement energy efficiency measures and other measures that reduce greenhouse gas emissions 5. Educate and encourage residents and businesses to calculate their carbon footprint and pursue strategies to reduce their emissions 6. Support state and federal action to curb climate change	Consistent. The Project would be consistent with these initiatives and would not conflict with implementation of City energy efficiency, conservation, and renewable energy sources through compliance with the 2016 CalGreen Building Standards Code. As shown in Tables 1 and 2, the Project is consistent with state and federal actions to curb climate change. In addition, the Project would incorporate energy savings measures such as solar water heaters and living roofs and it would target LEED accreditation.
2. Reduce electricity use in City operations by 25% by 2020	INITIATIVE 2: Ensure all of the City of Long Beach's operational needs are met through energy efficiency, conservation and renewable energy sources: 1. Increase energy efficiency in City facilities through ongoing energy audits, retrofits, weatherization and preventative maintenance 2. Pursue emerging cutting-edge renewable energy technologies as they become available, such as LED, solar-hot water systems, wind 3. Annually achieve increased savings on City's electricity and gas bills 4. Participate in the SCE's Energy Leader Partnership for municipal governments 5. Require that all new City construction and major renovations are LEED silver 6. Require that all City leases and tenant improvements follow LEED standards and energy efficiency standards are built into all City lease/rental agreements 7. Aggressively apply for grants for energy efficiency programs and renewable energy projects 8. Partner with other City Departments, local companies and organizations to promote energy efficiency 9. Implement energy efficiency and conservation measures	**Consistent.** The Project would be consistent with these initiatives and would not conflict with implementation of City energy efficiency, conservation, and renewable energy sources through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would incorporate energy savings measures such as solar water heaters and living roofs and it would target LEED accreditation.
3. Reduce natural gas use in City operations by 15% by 2020		
4. Facilitate the development of at least 2 Megawatts of solar energy on city facilities by 2020		
5. Reduce community electricity use by 15% by 2020	INITIATIVE 3: Reduce electricity and natural gas consumption of the Long Beach community: 1. Participate in the SCE's Energy Leader Partnership for community outreach 2. Encourage the community to participate in energy efficiency and conservation programs from LBGO and SCE and provide energy efficiency education and resources to the community 3. Target specific high electricity use industries for energy efficiency programs 4. Encourage the use of energy efficient products including efficient lighting, energy monitoring systems, cool and green roofs, insulation and efficient HVAC systems 5. Encourage the community to invest in efficient building practices, energy retrofits, weatherization and renewable energy systems for homes and businesses 6. Require that private development projects incorporate Green Building Requirements for Private Development and encourage development projects to exceed Title 24 standards 7. Support incentives and rebates for electric and solar thermal installations for residents and businesses	**Consistent.** The Project would utilize energy efficiency appliances and equipment and would meet the energy standards in ASHRAE 90.1- 2010 Appendix G, the Title 24, 2019 Building Energy Efficiency Standards, the 2016 CalGreen Building Standards Code. In addition, the Project would incorporate energy savings measures such as solar water heaters and living roofs and it would target LEED accreditation.
6. Reduce community natural gas use by 10 % by 2020		
7. Facilitate the development of at least 8 Megawatts of solar energy within the community (private rooftops) by 2020		

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Green Economy & Lifestyle		
1. Identify and develop at least 2,000 green collar jobs in Long Beach by 2012 2. Enroll 100 green businesses in the Long Beach Green Business Certification Program by 2012 3. Target half of the business grants/loans for green business development by 2012	INITIATIVE 1: Establish Long Beach as the leading California city for green business and green job growth 1. Attract renewable energy and green technology manufacturing companies to establish a presence/office in Long Beach and facilitate the creation of jobs in the renewable/clean energy sector 2. Promote the development of renewable energy and emerging greenhouse gas technologies 3. Partner with CSULB, LBCC, Pacific Gateway Workforce Investment Network Youth Opportunities Center to create training programs for green jobs and create a green jobs center and training academy 4. Aggressively pursue grants and other funding related to green job training and placement 5. Repurpose business development grants and loans for green business development in Long Beach and encourage technology and manufacturing companies to take advantage of Long Beach green business development opportunities 6. Support power purchasing agreements, site leases and bulk purchasing arrangements for solar 7. Create innovative renewable energy partnerships and demonstration projects 8. Implement a City green business program that incorporate goals and strategies for waste reduction, energy efficiency, water conservation, green purchasing, etc. 9. Encourage the formation of an environmental business network to share information and promote green business strategies and best practices 10. Conduct green business workshops designed to help local businesses go green and showcase local green vendors and products	**Consistent.** The Project would be consistent with these initiatives through compliance with the 2016 CalGreen Building Standards Code and would not conflict with City green business and green job growth goals.
4. Increase City green spending to 100% by 2020 5. Annual increase in participation in citywide green events	INITIATIVE 2: Promote individual action that encourages active and green lifestyles, which supports a green economy 1. Update the City's green purchasing policy and the Sustainable Office Supply program to include additional requirements, green-only choices and automatic substitution to purchase materials with high post- consumer content that reduce quantity and toxicity of any generated waste 2. Develop a 'shop green' program to increase consumer awareness about local green businesses and available green products and where to get them so that consumers can easily make green purchasing choices 3. Organize and produce a Long Beach eco guide that includes information from all green programs across the City and create targeted outreach materials for homeowners, businesses and renters about how to live a green lifestyle 4. Advocate for extended producer responsibility (EPR) regional, state and national legislation programs 5. Expand public-private green partnerships that promote green products 6. Incorporate green benefits/message into all other City programs 7. Encourage healthy food options in Long Beach neighborhoods that are convenient, walkable/bikeable and encourage healthy eating habits 8. Encourage residents and their children to make exercise a lifestyle habit by participating in recreational and outdoor activities 9. Support the greening of neighborhood associations and encourage green neighborhood programs and activities such as tree plantings, cleanups and education 10. Leverage CDBG, HUD, and other funding to conduct green rehab projects, affordable housing programs, retrofits and weatherization 11. Partner with SCE and other agencies to implement green dorm program for student housing at local colleges	**Consistent.** The Project would be consistent with these initiatives through compliance with the 2016 CalGreen Building Standards Code and would not conflict with City encouragement of active and green lifestyles. In addition, the Project would include outdoor amenity spaces and the Paseo, which would promote active use zones.

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Transportation		
1. Increase the average fuel efficiency of the gasoline- powered City fleet to 35 mpg by 2020	INITIATIVE 1: Reduce emissions and improve air quality by moving toward more fuel efficient and alternative fuel vehicles: 1. Expand the use of alternative fuels through environmentally responsible programs including but not limited to CNG, LNG, Biodiesel, electric and plug-in hybrid, hydrogen, etc. 2. Incorporate alternative fuel vehicles into the City fleet when vehicle leases turn over, emphasize fuel efficiency and optimize routes for service vehicles 3. Establish local alternative fuel fueling stations for both City and public use 4. Develop and implement a comprehensive Long Beach Green Airport Program that includes mitigation measures and incentive programs to reduce air emissions from airplanes, vehicles and cargo handling equipment and incorporates greening Airport office operations 5. Attract car-sharing companies to the City especially in parking impacted areas to reduce the need for individual vehicles 6. Encourage local car-pool programs to reduce the number of single occupancy commute trips and promote the public's use of low or no emission vehicles 7. Support the use of neighborhood electric vehicles by improving street safety and incorporating street calming measures 8. Convert all street sweeping and refuse vehicles from diesel fuel sources to liquefied natural gas (LNG)	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City fuel efficient and alternative fuel vehicle goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would include a minimum of one accessible EV parking space in each building, design for increasing EV charging, and a ride share staging area on the site plan.
2. 100% of the City fleet is alternative fuel and/or low emission by 2020		
3. Reduce vehicle emissions by 30% by 2020		
4. Increase public transit ridership by 25% by 2016	INITIATIVE 2: Increase public transit ridership by expanding access, infrastructure and convenience: 1. Create connections between transit and biking systems including placing bike racks on local and regional buses, the Passport and Aqualink and include bike parking at key bus stops. 2. Establish baselines/guidelines to create green transportation standards in Long Beach, including companies such as LB Yellow Cab and LB Transit 3. Expand transit systems so that anyone can travel anywhere within the City by any form of transit 4. Increase the number of solar-powered electric bus tracking signs that provide live bus wait times 5. Increase the number of alternative fuel buses in the LB Transit fleet 6. Expand and enhance bus stop amenities such as benches, shelters, signage and public art to provide comfortable and convenient waiting areas	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City public transportation goals through compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would include a bicycle storage and service center.
5. Increase city employee average vehicle ridership to 1.5 by 2012		
6. 100% of taxi cab fleets are alternative fuel and/or low emissions by 2016		

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Transportation *(Continued)*		
7. Increase bike ridership from 1% to 10% by 2016	INITIATIVE 3: Provide an environment and culture where walking and biking are safe, viable and preferred modes of transportation in the city 1. Create a safe, connected, and easy to navigate bike transportation system (routes, signage, parking, education) 2. Work with the City's Bike Ambassador and Mobility Coordinator to create signature bike projects/programs 3. Offer bike friendly public facilities, transit, and shops through special route maps, increase bike rental locations and promote bike paths that circulate through popular tourist attractions and provide connections to local cycling groups 4. Promote bike share opportunities throughout the city by creating a bike share program at CSULB and partner with local business to expand bike share program throughout the City 5. Encourage the community, through education, to create a culture where cyclists and motorists interact safely by partnering with community groups, City Departments and LB Transit to link buses to bicycles, promote bike events and awareness like Bike To Work day and Bicycle Rodeos 6. Implement fun, healthy bicycle programs by partnering with the LBUSD to establish educational bike programs, partnering with the HHS to establish exercise bike and walking programs and partnering with PRM to establish recreational bike programs 7. Incorporate traffic calming measures to make streets more inviting and keep pedestrians and bicyclists safe and implement walking infrastructure that creates neighborhood identity and promotes safe passages 8. Develop internal expertise among City staff for innovative mobility concepts like complete streets 9. Encourage and expand the use of bike valet at local, neighborhood events and festivals	**Consistent.** The Project would be consistent with these initiatives and would not conflict with City pedestrian and biking goals. In addition, the Project was developed in accordance with the Downtown Plan design guideline for pedestrian oriented design with a Paseo that joins the north and south portions of the site and enhances the midblock experience, a promenade path linking east to the retail district of Pine Street and an alley extension east of Pine reaching to City Place Parking. The Project would also include a bicycle storage and service center.
8. Create a system of at least 200 miles of interconnected bike routes (Class 1-3) by 2020		
9. Reduce future port-related emissions by 47% reduction in DPM, 45% reduction in NOx, and 52% reduction in SOx from OGV, CHE & HDV source categories by 2011	INITIATIVE 4: Implement the Clean Air Action Plan (CAAP), designed to significantly reduce port- related air emissions over a 5-year plan, through a partnership with the Harbor Department and its tenants 1. Develop and implement mitigation measures and incentive programs necessary to reduce air emissions from trucks, locomotives, harbor craft, ocean-going vessels and cargo handling equipment (reduced through modernizing the fleets, retrofitting with exhaust after-treatment controls, and using cleaner fuels) 2. Reduce the public health risk associated with port-related mobile sources 3. Maintain the CAAP website to provide the public status of implementation progress, and updates to emission reduction programs 4. Reduce emissions through participation in the Green Flag Vessel Speed Reduction Program, aimed at reducing nitrous oxide (NOx) emissions from ships by slowing their speeds as they approach and depart the port 5. Implement the Technology Advancement Program to identify, evaluate, and demonstrate new and emerging emissions reduction technologies/strategies that could be utilized in future updates to the CAAP 6. Implement the Clean Trucks Program (CTP), which calls for drayage truck owners to scrap & replace old, polluting trucks with the assistance of a port-subsidized lease or loan 7. Construct the cold ironing infrastructure at all POLB container terminals	**N/A.** This goal and initiatives are related to Ports.

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Urban Nature		
1. Create 8 acres of open space per 1,000 residents by 2020	<u>INITIATIVE 1: Create a more balanced network of open spaces through acquisition, restoration and greenway linkages, consistent with the 2002 Open Space and Recreation Element of the General Plan</u> 1. Create a Green Linkage Plan that connects existing & future parks, open space & beaches through greenway linkages & pedestrian & bike paths 2. Create a diversity of recreational space including pocket parks, playing fields, playgrounds, trails, etc. 3. Expand the adopt-a-park program & create public-private partnerships for continued park maintenance 4. Create joint use park facilities & work with LBUSD to enhance the utilization of school sites for public use 5. Work with local transit partners to create transit connections within & to parks, open space & beaches & explore a recreational transportation program 6. Identify partnerships, funding & begin the planning process for an urban nature center along the L.A. River 7. Incorporate sustainable principles & practices into golf course, marina, beach, park & playground/field design & maintenance (grasscycling, reclaimed water irrigation, water conservation, recycling/waste management & integrated pest management) 8. Continue to minimize & find alternatives to the use of chemical pesticides & herbicides in city parks & open space 9. Require all new developments to provide usable open space tailored to the recreational demands they would otherwise place on public resources 10. Create walking trails & use native, drought-tolerant landscaping in street & frontage road medians	**Consistent.** The Project would meet the requirement to optimize open spaces as part of its compliance with the 2016 CalGreen Building Standards Code. In addition, the Project would include outdoor amenity spaces and the Paseo, which would promote active use zones.
2. Create 100 miles of green linkages by 2020		
3. Establish one or more Nature Centers along the L.A. River by 2016		
4. Establish a native landscape demonstration in every park 1 acre or larger by 2020	<u>INITIATIVE 2: Promote biodiversity citywide by encouraging the wide scale use of native or edible landscapes</u> 1. Identify partnerships, funding & complete the Deforest Wetlands project 2. Work with utility companies & others who own the former Pacific Electric right-of-ways to create projects that green our right-of-ways 3. Ensure all open space & greening projects incorporate native/drought tolerant plants & use low-water strategies 4. Encourage private residences to remove water intensive landscapes & replace them with native, drought-tolerant and/or edible landscapes 5. Protect & restore the City's urban creek system 6. Leverage public & private dollars to implement habitat & wetland restoration projects in the community & develop new & enhance existing marine life habitats 7. Work to acquire & restore lands along the San Gabriel & Los Angeles Rivers & Los Cerritos Wetlands & Colorado Lagoon 8. Work with schools & community groups to create partnerships to establish & maintain community gardens	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code. In addition, the Project would provide appropriate landscaping on the Project Site including native trees, eco/green walls, trees over structured elements, irrigation, and plantings at the building bases. These improvements would also be applied to the Solana and Roble Way/Paseo alleys.
5. Establish a community garden in every park 5 acres or larger by 2020		
6. Convert 1,200 front yards to native or edible landscape by 2016		

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Urban Nature *(Continued)*		
7. Train 500 Habitat Stewards by 2016	INITIATIVE 3: Increase awareness and promote the natural environment as a place to play, learn and be active 1. Offer environmental habitat educational programs for schools & partner with LBUSD, LBCC & CSULB to incorporate educational courses/lessons about nature & our impact on the environment 2. Support the Wetland & Marine Science Center at Colorado Lagoon, El Dorado Nature Center and other experiential learning opportunities in our outdoor classroom 3. Encourage and promote local entertainment, leisure and community events at the beaches and in parks 4. Aggressively promote tree planting in city parks & open space & promote the tree dedication program 5. Promote the Ranchos as locations for history & nature, including native, drought-tolerant landscapes 6. Promote volunteer opportunities with Adopt-a-beach, Adopt-a-wetland, Coastal Cleanup days and the Aquarium of the Pacific 7. Participate & encourage community participation in Green Port Fest & other community festivals geared toward environmental education & stewardship 8. Incorporate community participation in planning parks, open space, gardens & demonstration projects to increase community ownership	Consistent. The Project would be consistent with these initiatives and would not conflict with City's goals to to increase awareness and promote the natural environment as a place to, play, learn and be active. In addition, the Project would include outdoor amenity spaces and the Paseo, which would promote active use zones.
8. Annual increase of youth who are trained as Long Beach Bioneers		
Waste Reduction		
1. Annual reduction in average pounds of solid waste generated per person per day	INITIATIVE 1: Increase diversion by reducing waste and increasing recycling and reuse 1. Implement the Multifamily Recycling Ordinance and continue to structure waste hauler contracts to offer economic incentives for recycling and disincentives for excess waste 2. Establish commercial recycling guidelines intended to increase the recycling rate of the commercial sector, keeping waste out of the waste stream 3. Establish an Environmental Depot facility that will recycle electronic waste and dispose of hazardous waste 4. Establish a publicly accessible compost/mulch facility in the city and create beneficial uses for city greenwaste within city limits (grasscycling, mulching, etc.) 5. Develop commercial sector food-waste recovery programs and expand edible food redistribution programs 6. Create comprehensive publicly-accessible recycling infrastructure at all city facilities and locations and require businesses to have recycling pick-up and public recycling on site 7. Encourage residential composting and expand the City's residential composting program 8. Aggressively implement measures to decrease beach debris and expand beach recycling programs 9. Investigate emerging conversion technologies as part of long-term waste management strategies 10. Establish City purchasing guidelines that requires the purchase of reusable and/or recycled products and require City operations to participate in take-back programs where available 11. Implement an electronic record keeping/processing system for City operations to decrease the use of paper	**Consistent.** The Project would be consistent with these initiatives through compliance with the 2016 CalGreen Building Standards Code and would not conflict with City waste reduction goals. The Project would institute a recycling and composting program and would be serviced by CR&R Incorporated.

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Waste Reduction (Continued)		
2. Increase the number of students participating in TREC to 2,000 per year by 2016	INITIATIVE 2: Increase awareness and promote the concepts of reduce, reuse, and recycle 1. Create a public education campaign to reduce litter and waste by promoting the use of all types of reusable products instead of disposable products (reusable grocery bags, water bottles, etc.) and refusal of singe-use items 2. Continue public education efforts through continued to support Litter Free Long Beach and other educational programs that promote reduction of waste and litter 3. Continue educating school children to recycle and reduce litter by continuing Traveling Recycling Education Center (TREC) and Lunch with a Lizard programs 4. Develop an environmental recycling awareness program to be implemented in targeted industries (hospitality, medical, restaurants, etc.) 5. Publicize and encourage free-cycling programs 6. Promote sustainable landscaping practices and composting 7. Promote and support community beach clean-ups and increase the frequency of beach clean-ups events 8. Promote the use of post-consumer content products thereby reducing demand for virgin materials 9. Promote take-back programs that allow customers to return packaging or used products to manufacturer for proper disposal 10. Promote the proper disposal of special wastes such as Household Hazardous Wastes and electronic waste	**Consistent.** The Project would be consistent with these initiatives through compliance with the 2016 CalGreen Building Standards Code and would not conflict with City waste reduction goals. The Project would institute a recycling and composting program and would be serviced by the CR&R Incorporated.
3. Attract and retain of total of 20 RMDZ manufacturing companies by 2020	INITIATIVE 3: Utilize recyclable materials as a raw materials source for industrial development to enhance the recycled-materials market in Long Beach 1. Continue existing operations of the Long Beach Recycling Market Development Zone to foster economic development and job opportunities 2. Expand RMDZ boundaries 3. Promote RMDZ products in the local marketplace 4. Offer incentives such as free press for businesses that participate in the "Litter Free Zone" program 5. Encourage location of RMDZ businesses to Long Beach by fast tracking permits and licenses 6. Promote community-based programs that provide jobs for disadvantaged individuals in RMDZ businesses 7. Participate in e-waste recycling program and support private e-waste programs and events 8. Require city operations and encourage businesses and residents to buy recycled products to support the recycled products market 9. Aggressively apply for grants and partner with others agencies to leverage funding to implement used oil and tire recycling programs and other litter programs 10. Partner with Conservation Corps and other local recycling businesses to further recycling and reuse	**Consistent.** The Project would meet the requirement for recyclable materials as raw materials as part of its compliance with the 2016 CalGreen Building Standards Code.

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis
Water		
1. Reduce per capita use of potable water, exceeding the State mandate to achieve a demand reduction of 20% in per capita water use by the year 2020	INITIATIVE 1: Ensure a sustainable water supply through conservation and reduced dependence on imported water 1. Make it illegal and socially unacceptable to waste water in Long Beach 2. Reduce amount of water used for landscape irrigation by improving irrigation systems and by replacing grass lawns with landscapes that are more drought-tolerant, enhance the environment, require less maintenance, and reduce the amount and pollution load of urban runoff into the Long Beach coastal zone 3. Further reduce demand for potable water by converting industrial and irrigation demands to recycled water wherever practical and cost-effective 4. Continue research and development of cost-effective and environmentally responsible seawater desalination as an alternative, sustainable supply of potable water 5. Continue to improve management and yield of groundwater basin that Long Beach relies on for approximately 50% of its potable water 6. Update landscaping standards to require drought-tolerant and native landscaping to reduce water consumption	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code. The Long Beach Water Department (LBWD) would be able to supply the demands of the Project. In addition, LBWD is increasing recycled water use by expanding the recycled water distribution system to provide water for irrigation, industrial use, and groundwater recharge
2. Through a pilot program, facilitate the installation of rain catchment systems at 5 City facilities by 2012	INITIATIVE 2: Implement low impact development strategies to reduce runoff and pollution at the source and increase the beneficial use of rainwater 1. Aggressively pursue strategies to keep trash off our beaches and pollution out of our ocean 2. Continue to manage urban and stormwater runoff by installing emerging treatment technologies into the storm drain system 3. Continue to work with upstream cities in the Los Angeles River Watershed to implement stormwater best management practices (BMPs) in the watershed to reduce pollutant loadings 4. Pursue legislation and secure funding to mitigate surface water and ground water pollution 5. Participate in and promote beach, neighborhood and community and business corridor cleanups in order to keep our watersheds and beaches clean 6. Encourage the use of development techniques to direct rooftop runoff to pervious areas such as yards, garden beds, vegetated/soft bottom open channels, or on-site structural BMPs for capture, treatment, reuse 7. Design streets to direct rainwater runoff to landscaped areas 8. Utilize and/or replace non pervious surfaces with permeable materials (e.g., sidewalks, driveways, outdoor patios, and parking lots) 9. Continue to pursue the breakwater reconnaissance study 10. Update development standards to require low impact development strategies such as detention basins, infiltration basins, infiltration trenches, conservation of natural areas, permeable pavements, treatment wetlands, bioswales, curb cuts, green roofs, rain gardens, and other pre/post construction BMPs. 11. Expand Stormwater Management Education and Outreach programs to a watershed-based program and develop public-private educational partnerships to promote behavioral change	**Consistent.** The Project was developed in accordance with the Downtown Plan design guideline and the 2016 CalGreen Building Standards Code. In addition, the Project design would include storm water planting areas.
3. Facilitate the development of 50 green roofs communitywide by 2016		

Table 10. Consistency with Applicable City of Long Beach Sustainable City Action Plan Greenhouse Gas Emission Reduction Measures
3rd and Pacific Avenue Project
Long Beach, California

Goals	Initiatives	Consistency Analysis

Abbreviations:
ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
BMP - Best management practices
CAAP - Clean Air Action Plan
CDBG - Community Development Block Grant
CHE - cargo handling equipment
CNG - Compressed natural gas
CSULB - California State University - Long Beach
CTP - Clean Trucks Program
EV - electric vehicle
EPR - extended producer responsibility
GHG - Greenhouse Gas
HDV - Heavy Duty Vehicle
HUD- Department of Housing and Urban Development
HVAC - Heating, Ventilation and Air Conditioning
L.A. - Los Angeles
LB - Long Beach
LBCC - Long Beach Community College
LBGO - Long Beach Gas and Oil
LBUSD - Long Beach Unified School District
LBWD - The Long Beach Water Department
LED - Light-emitting diode
LEED - Leadership in Energy and Environmental Design
LNG - Liquified Natural Gas
NOx - nitrous oxide
OGV - ocean going vehicle
POLB -Port of Long Beach
RMDZ - Recycling Market Development Zone
SCE - Southern California Edison
TREC - Traveling Recycling Education Center

Table 11. Summary of GHG Emissions
3rd and Pacific Avenue Project
Long Beach, California

Category[1]	CO_2e Emissions[2] (MT/yr)
Area	81
Energy Use	827
Water Use	143
Waste Disposed	87
Traffic	3,192
Sub-Total	**4,330**
Construction Amortized	58
Total	**4,389**
Service Population[3]	1,013
Total per Service Population (MT/yr/SP)	4.3
2020 Threshold (MT/yr/SP)	4.8

Notes:

[1] CO_2e emissions were calculated for calendar year 2020 using CalEEMod®.

[2] CO_2e includes CO_2, CH_4, and N_2O emissions, which are weighted by their respective global warming potentials.

[3] The service population was estimated using the Downtown Plan EIR for residential density in Long Beach and the EIA worker estimate for retail. The Downtown Plan EIR available at: http://www.lbds.info/planning/environmental_planning/environmental_reports.asp.

EIA worker estimates are available at:
https://www.eia.gov/consumption/commercial/data/2012/bc/cfm/pba1.php

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel
CH_4 - methane
CO_2 - carbon dioxide
CO_2e - carbon dioxide equivalents
EIR - Environmental Impact Report
EIA - Energy Information Administration
MT - metric tons
GHG - greenhouse gases
N_2O - nitrous oxide
yr - year

References:

Downtown Plan EIR.

APPENDIX A

W3rd and Pacific - Full Buildout OY2020

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	565.00	Space	0.40	215,559.00	0
Apartments High Rise	203.00	Dwelling Unit	0.53	285,851.00	589
Apartments Mid Rise	142.00	Dwelling Unit	0.26	143,824.00	412
Regional Shopping Center	14.40	1000sqft	0.03	14,437.00	12

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	516.04	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

W3rd and Pacific - Full Buildout OY2020 - Los Angeles-South Coast County, Annual

Project Characteristics - This run estimates emissions for a full project buildout for operational year 2020 to compare against GHG thresholds. Construction emissions are evaluated in a separate CalEEMod run.

Land Use - Land uses provided by Project Sponsor.

Construction Phase - Not evaluating construction in this CalEEMod run.

Off-road Equipment - Not evaluating construction in this CalEEMod run.

Trips and VMT - Not evaluating construction in this CalEEMod run.

On-road Fugitive Dust - Not evaluating construction in this CalEEMod run.

Grading - Not evaluating construction in this CalEEMod run.

Architectural Coating - Not evaluating construction in this CalEEMod run.

Vehicle Trips - Weekday trip rate from a traffic analysis. Saturday and Sunday trip rates were scaled based on CalEEMod defaults.

Woodstoves - By South Coast regulation, no wood burning devices are allowed in homes.

Area Coating -

Energy Use -

Water And Wastewater -

Solid Waste -

Off-road Equipment - Construction is not being modeled in this CalEEMod run.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	172.55	182.70
tblFireplaces	NumberGas	120.70	127.80
tblFireplaces	NumberWood	10.15	0.00
tblFireplaces	NumberWood	7.10	0.00
tblLandUse	LandUseSquareFeet	226,000.00	215,559.00
tblLandUse	LandUseSquareFeet	203,000.00	285,851.00
tblLandUse	LandUseSquareFeet	142,000.00	143,824.00
tblLandUse	LandUseSquareFeet	14,400.00	14,437.00

tblLandUse	LotAcreage	5.08	0.40
tblLandUse	LotAcreage	3.27	0.53
tblLandUse	LotAcreage	3.74	0.26
tblLandUse	LotAcreage	0.33	0.03
tblLandUse	Population	581.00	589.00
tblLandUse	Population	406.00	412.00
tblLandUse	Population	0.00	12.00
tblOffRoadEquipment	HorsePower	172.00	81.00
tblOffRoadEquipment	LoadFactor	0.42	0.73
tblOffRoadEquipment	OffRoadEquipmentType	Concrete/Industrial Saws	Other Construction Equipment
tblOffRoadEquipment	PhaseName		No Construction Phases Modeled
tblProjectCharacteristics	CO2IntensityFactor	702.44	516.04
tblVehicleTrips	ST_TR	4.98	3.54
tblVehicleTrips	ST_TR	6.39	4.80
tblVehicleTrips	ST_TR	49.97	101.73
tblVehicleTrips	SU_TR	3.65	2.59
tblVehicleTrips	SU_TR	5.86	4.40
tblVehicleTrips	SU_TR	25.24	51.38
tblVehicleTrips	WD_TR	4.20	2.99
tblVehicleTrips	WD_TR	6.65	4.99
tblVehicleTrips	WD_TR	42.70	86.93
tblWoodstoves	NumberCatalytic	10.15	0.00
tblWoodstoves	NumberCatalytic	7.10	0.00
tblWoodstoves	NumberNoncatalytic	10.15	0.00
tblWoodstoves	NumberNoncatalytic	7.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00

tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

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	1.8798	0.1057	3.6045	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1300e-003	1.3700e-003	80.9744
Energy	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	822.4551	822.4551	0.0399	0.0107	826.6436
Mobile	0.8382	4.1962	10.8858	0.0346	2.6839	0.0359	2.7198	0.7195	0.0337	0.7532	0.0000	3,187.7102	3,187.7102	0.1814	0.0000	3,192.2441
Waste						0.0000	0.0000		0.0000	0.0000	35.2839	0.0000	35.2839	2.0852	0.0000	87.4143
Water						0.0000	0.0000		0.0000	0.0000	7.4697	110.3133	117.7829	0.7734	0.0194	142.8987
Total	**2.7352**	**4.4496**	**14.5537**	**0.0361**	**2.6839**	**0.0727**	**2.7566**	**0.7195**	**0.0705**	**0.7900**	**42.7536**	**4,200.8672**	**4,243.6208**	**3.0870**	**0.0315**	**4,330.1751**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8798	0.1057	3.6045	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1300e-003	1.3700e-003	80.9744
Energy	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	822.4551	822.4551	0.0399	0.0107	826.6436
Mobile	0.8382	4.1962	10.8858	0.0346	2.6839	0.0359	2.7198	0.7195	0.0337	0.7532	0.0000	3,187.7102	3,187.7102	0.1814	0.0000	3,192.2441
Waste						0.0000	0.0000		0.0000	0.0000	35.2839	0.0000	35.2839	2.0852	0.0000	87.4143
Water						0.0000	0.0000		0.0000	0.0000	7.4697	110.3133	117.7829	0.7734	0.0194	142.8987
Total	**2.7352**	**4.4496**	**14.5537**	**0.0361**	**2.6839**	**0.0727**	**2.7566**	**0.7195**	**0.0705**	**0.7900**	**42.7536**	**4,200.8672**	**4,243.6208**	**3.0870**	**0.0315**	**4,330.1751**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	No Construction Phases Modeled	Trenching	1/1/2019	12/31/2018	5	0	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.4

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
No Construction Phases Modeled	Other Construction Equipment		8.00	81	0.73

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
No Construction Phases Modeled	0	0.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

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	0.8382	4.1962	10.8858	0.0346	2.6839	0.0359	2.7198	0.7195	0.0337	0.7532	0.0000	3,187.7102	3,187.7102	0.1814	0.0000	3,192.2441
Unmitigated	0.8382	4.1962	10.8858	0.0346	2.6839	0.0359	2.7198	0.7195	0.0337	0.7532	0.0000	3,187.7102	3,187.7102	0.1814	0.0000	3,192.2441

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	606.97	718.62	525.77	2,088,973	2,088,973
Apartments Mid Rise	708.58	681.60	624.80	2,367,256	2,367,256
Enclosed Parking Structure	0.00	0.00	0.00		
Regional Shopping Center	1,251.79	1,464.91	739.87	2,615,108	2,615,108
Total	2,567.34	2,865.13	1,890.44	7,071,338	7,071,338

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 High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907
Apartments Mid Rise	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907
Enclosed Parking Structure	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907
Regional Shopping Center	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

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	651.5030	651.5030	0.0366	7.5800e-003	654.6757
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	651.5030	651.5030	0.0366	7.5800e-003	654.6757
NaturalGas Mitigated	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9521	170.9521	3.2800e-003	3.1300e-003	171.9680
NaturalGas Unmitigated	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9521	170.9521	3.2800e-003	3.1300e-003	171.9680

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 High Rise	1.87104e+006	0.0101	0.0862	0.0367	5.5000e-004		6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003	0.0000	99.8458	99.8458	1.9100e-003	1.8300e-003	100.4391
Apartments Mid Rise	1.30881e+006	7.0600e-003	0.0603	0.0257	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8428	69.8428	1.3400e-003	1.2800e-003	70.2579
Enclosed Parking Structure	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
Regional Shopping Center	23676.7	1.3000e-004	1.1600e-003	9.7000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2635	1.2635	2.0000e-005	2.0000e-005	1.2710
Total		**0.0173**	**0.1477**	**0.0633**	**9.4000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**	**0.0000**	**170.9521**	**170.9521**	**3.2700e-003**	**3.1300e-003**	**171.9680**

5.2 Energy by Land Use - NaturalGas

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 High Rise	1.87104e+006	0.0101	0.0862	0.0367	5.5000e-004		6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003	0.0000	99.8458	99.8458	1.9100e-003	1.8300e-003	100.4391
Apartments Mid Rise	1.30881e+006	7.0600e-003	0.0603	0.0257	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8428	69.8428	1.3400e-003	1.2800e-003	70.2579
Enclosed Parking Structure	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
Regional Shopping Center	23676.7	1.3000e-004	1.1600e-003	9.7000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2635	1.2635	2.0000e-005	2.0000e-005	1.2710
Total		**0.0173**	**0.1477**	**0.0633**	**9.4000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**	**0.0000**	**170.9521**	**170.9521**	**3.2700e-003**	**3.1300e-003**	**171.9680**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	803896	188.1695	0.0106	2.1900e-003	189.0858
Apartments Mid Rise	562331	131.6259	7.4000e-003	1.5300e-003	132.2669
Enclosed Parking Structure	1.22222e+006	286.0871	0.0161	3.3300e-003	287.4803
Regional Shopping Center	194900	45.6205	2.5600e-003	5.3000e-004	45.8426
Total		**651.5030**	**0.0366**	**7.5800e-003**	**654.6757**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	803896	188.1695	0.0106	2.1900e-003	189.0858
Apartments Mid Rise	562331	131.6259	7.4000e-003	1.5300e-003	132.2669
Enclosed Parking Structure	1.22222e+006	286.0871	0.0161	3.3300e-003	287.4803
Regional Shopping Center	194900	45.6205	2.5600e-003	5.3000e-004	45.8426
Total		**651.5030**	**0.0366**	**7.5800e-003**	**654.6757**

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	1.8798	0.1057	3.6045	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1300e-003	1.3700e-003	80.9744
Unmitigated	1.8798	0.1057	3.6045	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1300e-003	1.3700e-003	80.9744

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	0.1441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5300e-003	0.0644	0.0274	4.1000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	74.5626	74.5626	1.4300e-003	1.3700e-003	75.0057
Landscaping	0.1094	0.0414	3.5771	1.9000e-004		0.0197	0.0197		0.0197	0.0197	0.0000	5.8261	5.8261	5.7100e-003	0.0000	5.9687
Total	**1.8798**	**0.1057**	**3.6045**	**6.0000e-004**		**0.0249**	**0.0249**		**0.0249**	**0.0249**	**0.0000**	**80.3887**	**80.3887**	**7.1400e-003**	**1.3700e-003**	**80.9744**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5300e-003	0.0644	0.0274	4.1000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	74.5626	74.5626	1.4300e-003	1.3700e-003	75.0057
Landscaping	0.1094	0.0414	3.5771	1.9000e-004		0.0197	0.0197		0.0197	0.0197	0.0000	5.8261	5.8261	5.7100e-003	0.0000	5.9687
Total	**1.8798**	**0.1057**	**3.6045**	**6.0000e-004**		**0.0249**	**0.0249**		**0.0249**	**0.0249**	**0.0000**	**80.3887**	**80.3887**	**7.1400e-003**	**1.3700e-003**	**80.9744**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	117.7829	0.7734	0.0194	142.8987
Unmitigated	117.7829	0.7734	0.0194	142.8987

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.2263 / 8.3383	66.1918	0.4345	0.0109	80.3007
Apartments Mid Rise	9.25187 / 5.8327	46.3017	0.3039	7.6200e-003	56.1709
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.06664 / 0.65375	5.2895	0.0350	8.8000e-004	6.4271
Total		**117.7829**	**0.7734**	**0.0194**	**142.8987**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.2263 / 8.3383	66.1918	0.4345	0.0109	80.3007
Apartments Mid Rise	9.25187 / 5.8327	46.3017	0.3039	7.6200e-003	56.1709
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.06664 / 0.65375	5.2895	0.0350	8.8000e-004	6.4271
Total		**117.7829**	**0.7734**	**0.0194**	**142.8987**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	35.2839	2.0852	0.0000	87.4143
Unmitigated	35.2839	2.0852	0.0000	87.4143

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	93.38	18.9553	1.1202	0.0000	46.9609
Apartments Mid Rise	65.32	13.2594	0.7836	0.0000	32.8495
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	15.12	3.0692	0.1814	0.0000	7.6039
Total		**35.2839**	**2.0852**	**0.0000**	**87.4143**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	93.38	18.9553	1.1202	0.0000	46.9609
Apartments Mid Rise	65.32	13.2594	0.7836	0.0000	32.8495
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	15.12	3.0692	0.1814	0.0000	7.6039
Total		**35.2839**	**2.0852**	**0.0000**	**87.4143**

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

W3rd and Pacific - Full Buildout OY 2021

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	565.00	Space	0.40	215,559.00	0
Apartments High Rise	203.00	Dwelling Unit	0.53	285,851.00	589
Apartments Mid Rise	142.00	Dwelling Unit	0.26	143,824.00	412
Regional Shopping Center	14.40	1000sqft	0.03	14,437.00	12

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	11			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	516.04	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

W3rd and Pacific - Full Buildout OY 2021 - Los Angeles-South Coast County, Annual

Project Characteristics - This run estimates emissions for a full project buildout for operational year 2021 to compare against AQ thresholds. Construction emissions are evaluated for use in AQ and GHG analyses.

Land Use - Land uses provided by Project Sponsor. Residential building square footage includes the residential amenity space.

Construction Phase - Construction schedule based on communication with Project Sponsor.

Trips and VMT -

Demolition - Demolition amount estimated based on existing site size.

Grading - Grading information from Project Sponsor.

Architectural Coating -

Vehicle Trips - Weekday trip rate from a traffic analysis. Saturday and Sunday trip rates were scaled based on CalEEMod defaults.

Woodstoves - By South Coast regulation, no wood burning devices are allowed in homes.

Area Coating -

Energy Use -

Water And Wastewater -

Solid Waste -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	20.00	42.00
tblConstructionPhase	NumDays	2.00	5.00
tblConstructionPhase	NumDays	4.00	66.00
tblConstructionPhase	NumDays	200.00	364.00
tblConstructionPhase	NumDays	10.00	63.00
tblConstructionPhase	NumDays	10.00	63.00
tblFireplaces	NumberGas	172.55	182.70
tblFireplaces	NumberGas	120.70	127.80
tblFireplaces	NumberWood	10.15	0.00
tblFireplaces	NumberWood	7.10	0.00
tblGrading	AcresOfGrading	2.50	0.00

tblGrading	MaterialExported	0.00	59,260.00
tblLandUse	LandUseSquareFeet	226,000.00	215,559.00
tblLandUse	LandUseSquareFeet	203,000.00	285,851.00
tblLandUse	LandUseSquareFeet	142,000.00	143,824.00
tblLandUse	LandUseSquareFeet	14,400.00	14,437.00
tblLandUse	LotAcreage	5.08	0.40
tblLandUse	LotAcreage	3.27	0.53
tblLandUse	LotAcreage	3.74	0.26
tblLandUse	LotAcreage	0.33	0.03
tblLandUse	Population	581.00	589.00
tblLandUse	Population	406.00	412.00
tblLandUse	Population	0.00	12.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	516.04
tblVehicleTrips	ST_TR	4.98	3.54
tblVehicleTrips	ST_TR	6.39	4.80
tblVehicleTrips	ST_TR	49.97	101.73
tblVehicleTrips	SU_TR	3.65	2.59
tblVehicleTrips	SU_TR	5.86	4.40
tblVehicleTrips	SU_TR	25.24	51.38
tblVehicleTrips	WD_TR	4.20	2.99
tblVehicleTrips	WD_TR	6.65	4.99
tblVehicleTrips	WD_TR	42.70	86.93
tblWoodstoves	NumberCatalytic	10.15	0.00
tblWoodstoves	NumberCatalytic	7.10	0.00
tblWoodstoves	NumberNoncatalytic	10.15	0.00
tblWoodstoves	NumberNoncatalytic	7.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00

tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	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					
2020	0.4185	3.8918	3.0076	9.9600e-003	0.5673	0.1168	0.6842	0.1954	0.1108	0.3062	0.0000	916.8297	916.8297	0.0881	0.0000	919.0328
2021	1.8626	2.6861	3.4348	9.2700e-003	0.4843	0.0948	0.5791	0.1298	0.0909	0.2207	0.0000	830.2492	830.2492	0.0708	0.0000	832.0204
Maximum	**1.8626**	**3.8918**	**3.4348**	**9.9600e-003**	**0.5673**	**0.1168**	**0.6842**	**0.1954**	**0.1108**	**0.3062**	**0.0000**	**916.8297**	**916.8297**	**0.0881**	**0.0000**	**919.0328**

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					
2020	0.4185	3.8918	3.0076	9.9600e-003	0.4676	0.1168	0.5844	0.1451	0.1108	0.2559	0.0000	916.8294	916.8294	0.0881	0.0000	919.0325
2021	1.8626	2.6861	3.4348	9.2700e-003	0.4843	0.0948	0.5791	0.1298	0.0909	0.2207	0.0000	830.2489	830.2489	0.0708	0.0000	832.0201
Maximum	**1.8626**	**3.8918**	**3.4348**	**9.9600e-003**	**0.4843**	**0.1168**	**0.5844**	**0.1451**	**0.1108**	**0.2559**	**0.0000**	**916.8294**	**916.8294**	**0.0881**	**0.0000**	**919.0325**

	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**	**9.48**	**0.00**	**7.89**	**15.47**	**0.00**	**9.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2020	3-31-2020	1.0001	1.0001
2	4-1-2020	6-30-2020	1.4009	1.4009
3	7-1-2020	9-30-2020	0.9125	0.9125
4	10-1-2020	12-31-2020	0.9226	0.9226
5	1-1-2021	3-31-2021	0.8266	0.8266
6	4-1-2021	6-30-2021	0.8270	0.8270
7	7-1-2021	9-30-2021	1.4426	1.4426
		Highest	1.4426	1.4426

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	1.8791	0.1056	3.6004	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1000e-003	1.3700e-003	80.9735
Energy	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	822.4551	822.4551	0.0399	0.0107	826.6436
Mobile	0.7725	3.8871	10.0048	0.0337	2.6838	0.0290	2.7129	0.7194	0.0271	0.7465	0.0000	3,113.5417	3,113.5417	0.1697	0.0000	3,117.7853
Waste						0.0000	0.0000		0.0000	0.0000	35.2839	0.0000	35.2839	2.0852	0.0000	87.4143
Water						0.0000	0.0000		0.0000	0.0000	7.4697	110.3133	117.7829	0.7734	0.0194	142.8987
Total	**2.6689**	**4.1404**	**13.6685**	**0.0353**	**2.6838**	**0.0658**	**2.7497**	**0.7194**	**0.0639**	**0.7834**	**42.7536**	**4,126.6987**	**4,169.4523**	**3.0754**	**0.0315**	**4,255.7155**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8791	0.1056	3.6004	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1000e-003	1.3700e-003	80.9735
Energy	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	822.4551	822.4551	0.0399	0.0107	826.6436
Mobile	0.7725	3.8871	10.0048	0.0337	2.6838	0.0290	2.7129	0.7194	0.0271	0.7465	0.0000	3,113.5417	3,113.5417	0.1697	0.0000	3,117.7853
Waste						0.0000	0.0000		0.0000	0.0000	35.2839	0.0000	35.2839	2.0852	0.0000	87.4143
Water						0.0000	0.0000		0.0000	0.0000	7.4697	110.3133	117.7829	0.7734	0.0194	142.8987
Total	**2.6689**	**4.1404**	**13.6685**	**0.0353**	**2.6838**	**0.0658**	**2.7497**	**0.7194**	**0.0639**	**0.7834**	**42.7536**	**4,126.6987**	**4,169.4523**	**3.0754**	**0.0315**	**4,255.7155**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	2/27/2020	5	42	
2	Site Preparation	Site Preparation	2/28/2020	3/5/2020	5	5	
3	Grading	Grading	3/6/2020	6/5/2020	5	66	
4	Building Construction	Building Construction	6/8/2020	10/28/2021	5	364	
5	Paving	Paving	9/1/2021	11/26/2021	5	63	
6	Architectural Coating	Architectural Coating	9/1/2021	11/26/2021	5	63	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 24.75

Acres of Paving: 0.4

Residential Indoor: 870,092; Residential Outdoor: 290,031; Non-Residential Indoor: 21,656; Non-Residential Outdoor: 7,219; Striped Parking Area: 12,934 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

W3rd and Pacific - Full Buildout OY 2021 - Los Angeles-South Coast County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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	5	13.00	0.00	24.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	7,408.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	344.00	75.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	69.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6300e-003	0.0000	2.6300e-003	4.0000e-004	0.0000	4.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0447	0.4399	0.3078	5.1000e-004		0.0242	0.0242		0.0226	0.0226	0.0000	44.2421	44.2421	0.0114	0.0000	44.5264
Total	**0.0447**	**0.4399**	**0.3078**	**5.1000e-004**	**2.6300e-003**	**0.0242**	**0.0268**	**4.0000e-004**	**0.0226**	**0.0230**	**0.0000**	**44.2421**	**44.2421**	**0.0114**	**0.0000**	**44.5264**

3.2 Demolition - 2020

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	1.1000e-004	3.5600e-003	7.9000e-004	1.0000e-005	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9249	0.9249	6.0000e-005	0.0000	0.9266
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	1.2600e-003	1.0200e-003	0.0112	3.0000e-005	2.9900e-003	3.0000e-005	3.0200e-003	7.9000e-004	2.0000e-005	8.2000e-004	0.0000	2.7883	2.7883	9.0000e-005	0.0000	2.7905
Total	**1.3700e-003**	**4.5800e-003**	**0.0120**	**4.0000e-005**	**3.2000e-003**	**4.0000e-005**	**3.2400e-003**	**8.5000e-004**	**3.0000e-005**	**8.9000e-004**	**0.0000**	**3.7132**	**3.7132**	**1.5000e-004**	**0.0000**	**3.7170**

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					1.1800e-003	0.0000	1.1800e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0447	0.4399	0.3078	5.1000e-004		0.0242	0.0242		0.0226	0.0226	0.0000	44.2421	44.2421	0.0114	0.0000	44.5264
Total	**0.0447**	**0.4399**	**0.3078**	**5.1000e-004**	**1.1800e-003**	**0.0242**	**0.0254**	**1.8000e-004**	**0.0226**	**0.0228**	**0.0000**	**44.2421**	**44.2421**	**0.0114**	**0.0000**	**44.5264**

3.2 Demolition - 2020

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	1.1000e-004	3.5600e-003	7.9000e-004	1.0000e-005	2.1000e-004	1.0000e-005	2.2000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.9249	0.9249	6.0000e-005	0.0000	0.9266
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	1.2600e-003	1.0200e-003	0.0112	3.0000e-005	2.9900e-003	3.0000e-005	3.0200e-003	7.9000e-004	2.0000e-005	8.2000e-004	0.0000	2.7883	2.7883	9.0000e-005	0.0000	2.7905
Total	**1.3700e-003**	**4.5800e-003**	**0.0120**	**4.0000e-005**	**3.2000e-003**	**4.0000e-005**	**3.2400e-003**	**8.5000e-004**	**3.0000e-005**	**8.9000e-004**	**0.0000**	**3.7132**	**3.7132**	**1.5000e-004**	**0.0000**	**3.7170**

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					0.0132	0.0000	0.0132	7.2400e-003	0.0000	7.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0459	0.0193	4.0000e-005		2.0500e-003	2.0500e-003		1.8900e-003	1.8900e-003	0.0000	3.7816	3.7816	1.2200e-003	0.0000	3.8122
Total	**4.0700e-003**	**0.0459**	**0.0193**	**4.0000e-005**	**0.0132**	**2.0500e-003**	**0.0152**	**7.2400e-003**	**1.8900e-003**	**9.1300e-003**	**0.0000**	**3.7816**	**3.7816**	**1.2200e-003**	**0.0000**	**3.8122**

3.3 Site Preparation - 2020

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	9.0000e-005	7.0000e-005	8.2000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2043	0.2043	1.0000e-005	0.0000	0.2044
Total	**9.0000e-005**	**7.0000e-005**	**8.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2043**	**0.2043**	**1.0000e-005**	**0.0000**	**0.2044**

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					5.9300e-003	0.0000	5.9300e-003	3.2600e-003	0.0000	3.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0700e-003	0.0459	0.0193	4.0000e-005		2.0500e-003	2.0500e-003		1.8900e-003	1.8900e-003	0.0000	3.7816	3.7816	1.2200e-003	0.0000	3.8122
Total	**4.0700e-003**	**0.0459**	**0.0193**	**4.0000e-005**	**5.9300e-003**	**2.0500e-003**	**7.9800e-003**	**3.2600e-003**	**1.8900e-003**	**5.1500e-003**	**0.0000**	**3.7816**	**3.7816**	**1.2200e-003**	**0.0000**	**3.8122**

3.3 Site Preparation - 2020

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	9.0000e-005	7.0000e-005	8.2000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2043	0.2043	1.0000e-005	0.0000	0.2044
Total	**9.0000e-005**	**7.0000e-005**	**8.2000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2043**	**0.2043**	**1.0000e-005**	**0.0000**	**0.2044**

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					0.1655	0.0000	0.1655	0.0839	0.0000	0.0839	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0445	0.4978	0.2130	4.6000e-004		0.0226	0.0226		0.0208	0.0208	0.0000	40.8856	40.8856	0.0132	0.0000	41.2162
Total	**0.0445**	**0.4978**	**0.2130**	**4.6000e-004**	**0.1655**	**0.0226**	**0.1881**	**0.0839**	**0.0208**	**0.1046**	**0.0000**	**40.8856**	**40.8856**	**0.0132**	**0.0000**	**41.2162**

3.4 Grading - 2020

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	0.0327	1.1000	0.2425	2.9000e-003	0.0637	3.4200e-003	0.0671	0.0175	3.2700e-003	0.0208	0.0000	285.4977	285.4977	0.0199	0.0000	285.9949
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	1.2200e-003	9.8000e-004	0.0109	3.0000e-005	2.8900e-003	2.0000e-005	2.9200e-003	7.7000e-004	2.0000e-005	7.9000e-004	0.0000	2.6964	2.6964	8.0000e-005	0.0000	2.6985
Total	**0.0339**	**1.1010**	**0.2533**	**2.9300e-003**	**0.0666**	**3.4400e-003**	**0.0700**	**0.0183**	**3.2900e-003**	**0.0215**	**0.0000**	**288.1941**	**288.1941**	**0.0200**	**0.0000**	**288.6934**

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					0.0745	0.0000	0.0745	0.0377	0.0000	0.0377	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0445	0.4978	0.2130	4.6000e-004		0.0226	0.0226		0.0208	0.0208	0.0000	40.8856	40.8856	0.0132	0.0000	41.2162
Total	**0.0445**	**0.4978**	**0.2130**	**4.6000e-004**	**0.0745**	**0.0226**	**0.0971**	**0.0377**	**0.0208**	**0.0585**	**0.0000**	**40.8856**	**40.8856**	**0.0132**	**0.0000**	**41.2162**

3.4 Grading - 2020

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	0.0327	1.1000	0.2425	2.9000e-003	0.0637	3.4200e-003	0.0671	0.0175	3.2700e-003	0.0208	0.0000	285.4977	285.4977	0.0199	0.0000	285.9949
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	1.2200e-003	9.8000e-004	0.0109	3.0000e-005	2.8900e-003	2.0000e-005	2.9200e-003	7.7000e-004	2.0000e-005	7.9000e-004	0.0000	2.6964	2.6964	8.0000e-005	0.0000	2.6985
Total	**0.0339**	**1.1010**	**0.2533**	**2.9300e-003**	**0.0666**	**3.4400e-003**	**0.0700**	**0.0183**	**3.2900e-003**	**0.0215**	**0.0000**	**288.1941**	**288.1941**	**0.0200**	**0.0000**	**288.6934**

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	0.1513	1.1017	0.9825	1.6400e-003		0.0593	0.0593		0.0573	0.0573	0.0000	135.2489	135.2489	0.0251	0.0000	135.8766
Total	**0.1513**	**1.1017**	**0.9825**	**1.6400e-003**		**0.0593**	**0.0593**		**0.0573**	**0.0573**	**0.0000**	**135.2489**	**135.2489**	**0.0251**	**0.0000**	**135.8766**

3.5 Building Construction - 2020

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	0.0203	0.6055	0.1639	1.4300e-003	0.0352	2.8200e-003	0.0380	0.0102	2.6900e-003	0.0129	0.0000	138.8081	138.8081	8.8200e-003	0.0000	139.0287
Worker	0.1183	0.0954	1.0549	2.9000e-003	0.2808	2.3900e-003	0.2832	0.0746	2.2100e-003	0.0768	0.0000	261.7517	261.7517	8.2500e-003	0.0000	261.9579
Total	**0.1386**	**0.7009**	**1.2188**	**4.3300e-003**	**0.3160**	**5.2100e-003**	**0.3212**	**0.0848**	**4.9000e-003**	**0.0897**	**0.0000**	**400.5599**	**400.5599**	**0.0171**	**0.0000**	**400.9866**

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	0.1513	1.1017	0.9825	1.6400e-003		0.0593	0.0593		0.0573	0.0573	0.0000	135.2487	135.2487	0.0251	0.0000	135.8764
Total	**0.1513**	**1.1017**	**0.9825**	**1.6400e-003**		**0.0593**	**0.0593**		**0.0573**	**0.0573**	**0.0000**	**135.2487**	**135.2487**	**0.0251**	**0.0000**	**135.8764**

3.5 Building Construction - 2020

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	0.0203	0.6055	0.1639	1.4300e-003	0.0352	2.8200e-003	0.0380	0.0102	2.6900e-003	0.0129	0.0000	138.8081	138.8081	8.8200e-003	0.0000	139.0287
Worker	0.1183	0.0954	1.0549	2.9000e-003	0.2808	2.3900e-003	0.2832	0.0746	2.2100e-003	0.0768	0.0000	261.7517	261.7517	8.2500e-003	0.0000	261.9579
Total	**0.1386**	**0.7009**	**1.2188**	**4.3300e-003**	**0.3160**	**5.2100e-003**	**0.3212**	**0.0848**	**4.9000e-003**	**0.0897**	**0.0000**	**400.5599**	**400.5599**	**0.0171**	**0.0000**	**400.9866**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1948	1.4659	1.3867	2.3700e-003		0.0736	0.0736		0.0710	0.0710	0.0000	195.1637	195.1637	0.0348	0.0000	196.0347
Total	**0.1948**	**1.4659**	**1.3867**	**2.3700e-003**		**0.0736**	**0.0736**		**0.0710**	**0.0710**	**0.0000**	**195.1637**	**195.1637**	**0.0348**	**0.0000**	**196.0347**

3.5 Building Construction - 2021

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	0.0250	0.7957	0.2157	2.0500e-003	0.0508	1.6200e-003	0.0524	0.0147	1.5500e-003	0.0162	0.0000	198.7379	198.7379	0.0122	0.0000	199.0426
Worker	0.1591	0.1239	1.3984	4.0500e-003	0.4052	3.3400e-003	0.4086	0.1076	3.0800e-003	0.1107	0.0000	365.7015	365.7015	0.0108	0.0000	365.9706
Total	**0.1842**	**0.9196**	**1.6142**	**6.1000e-003**	**0.4560**	**4.9600e-003**	**0.4610**	**0.1223**	**4.6300e-003**	**0.1269**	**0.0000**	**564.4394**	**564.4394**	**0.0230**	**0.0000**	**565.0132**

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	0.1948	1.4659	1.3867	2.3700e-003		0.0736	0.0736		0.0710	0.0710	0.0000	195.1635	195.1635	0.0348	0.0000	196.0345
Total	**0.1948**	**1.4659**	**1.3867**	**2.3700e-003**		**0.0736**	**0.0736**		**0.0710**	**0.0710**	**0.0000**	**195.1635**	**195.1635**	**0.0348**	**0.0000**	**196.0345**

3.5 Building Construction - 2021

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	0.0250	0.7957	0.2157	2.0500e-003	0.0508	1.6200e-003	0.0524	0.0147	1.5500e-003	0.0162	0.0000	198.7379	198.7379	0.0122	0.0000	199.0426
Worker	0.1591	0.1239	1.3984	4.0500e-003	0.4052	3.3400e-003	0.4086	0.1076	3.0800e-003	0.1107	0.0000	365.7015	365.7015	0.0108	0.0000	365.9706
Total	**0.1842**	**0.9196**	**1.6142**	**6.1000e-003**	**0.4560**	**4.9600e-003**	**0.4610**	**0.1223**	**4.6300e-003**	**0.1269**	**0.0000**	**564.4394**	**564.4394**	**0.0230**	**0.0000**	**565.0132**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0244	0.2439	0.2790	4.3000e-004		0.0131	0.0131		0.0121	0.0121	0.0000	37.0597	37.0597	0.0118	0.0000	37.3534
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0244**	**0.2439**	**0.2790**	**4.3000e-004**		**0.0131**	**0.0131**		**0.0121**	**0.0121**	**0.0000**	**37.0597**	**37.0597**	**0.0118**	**0.0000**	**37.3534**

3.6 Paving - 2021

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	1.7600e-003	1.3700e-003	0.0155	4.0000e-005	4.4900e-003	4.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2300e-003	0.0000	4.0496	4.0496	1.2000e-004	0.0000	4.0526
Total	**1.7600e-003**	**1.3700e-003**	**0.0155**	**4.0000e-005**	**4.4900e-003**	**4.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2300e-003**	**0.0000**	**4.0496**	**4.0496**	**1.2000e-004**	**0.0000**	**4.0526**

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	0.0244	0.2439	0.2790	4.3000e-004		0.0131	0.0131		0.0121	0.0121	0.0000	37.0596	37.0596	0.0118	0.0000	37.3533
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0244**	**0.2439**	**0.2790**	**4.3000e-004**		**0.0131**	**0.0131**		**0.0121**	**0.0121**	**0.0000**	**37.0596**	**37.0596**	**0.0118**	**0.0000**	**37.3533**

3.6 Paving - 2021

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	1.7600e-003	1.3700e-003	0.0155	4.0000e-005	4.4900e-003	4.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2300e-003	0.0000	4.0496	4.0496	1.2000e-004	0.0000	4.0526
Total	**1.7600e-003**	**1.3700e-003**	**0.0155**	**4.0000e-005**	**4.4900e-003**	**4.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2300e-003**	**0.0000**	**4.0496**	**4.0496**	**1.2000e-004**	**0.0000**	**4.0526**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9000e-003	0.0481	0.0573	9.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	8.0428	8.0428	5.5000e-004	0.0000	8.0566
Total	**1.4481**	**0.0481**	**0.0573**	**9.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**8.0428**	**8.0428**	**5.5000e-004**	**0.0000**	**8.0566**

3.7 Architectural Coating - 2021

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	9.3500e-003	7.2800e-003	0.0822	2.4000e-004	0.0238	2.0000e-004	0.0240	6.3300e-003	1.8000e-004	6.5100e-003	0.0000	21.4941	21.4941	6.3000e-004	0.0000	21.5099
Total	**9.3500e-003**	**7.2800e-003**	**0.0822**	**2.4000e-004**	**0.0238**	**2.0000e-004**	**0.0240**	**6.3300e-003**	**1.8000e-004**	**6.5100e-003**	**0.0000**	**21.4941**	**21.4941**	**6.3000e-004**	**0.0000**	**21.5099**

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	1.4412					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9000e-003	0.0481	0.0573	9.0000e-005		2.9600e-003	2.9600e-003		2.9600e-003	2.9600e-003	0.0000	8.0427	8.0427	5.5000e-004	0.0000	8.0565
Total	**1.4481**	**0.0481**	**0.0573**	**9.0000e-005**		**2.9600e-003**	**2.9600e-003**		**2.9600e-003**	**2.9600e-003**	**0.0000**	**8.0427**	**8.0427**	**5.5000e-004**	**0.0000**	**8.0565**

3.7 Architectural Coating - 2021

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	9.3500e-003	7.2800e-003	0.0822	2.4000e-004	0.0238	2.0000e-004	0.0240	6.3300e-003	1.8000e-004	6.5100e-003	0.0000	21.4941	21.4941	6.3000e-004	0.0000	21.5099
Total	**9.3500e-003**	**7.2800e-003**	**0.0822**	**2.4000e-004**	**0.0238**	**2.0000e-004**	**0.0240**	**6.3300e-003**	**1.8000e-004**	**6.5100e-003**	**0.0000**	**21.4941**	**21.4941**	**6.3000e-004**	**0.0000**	**21.5099**

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	0.7725	3.8871	10.0048	0.0337	2.6838	0.0290	2.7129	0.7194	0.0271	0.7465	0.0000	3,113.5417	3,113.5417	0.1697	0.0000	3,117.7853
Unmitigated	0.7725	3.8871	10.0048	0.0337	2.6838	0.0290	2.7129	0.7194	0.0271	0.7465	0.0000	3,113.5417	3,113.5417	0.1697	0.0000	3,117.7853

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	606.97	718.62	525.77	2,088,973	2,088,973
Apartments Mid Rise	708.58	681.60	624.80	2,367,256	2,367,256
Enclosed Parking Structure	0.00	0.00	0.00		
Regional Shopping Center	1,251.79	1,464.91	739.87	2,615,108	2,615,108
Total	2,567.34	2,865.13	1,890.44	7,071,338	7,071,338

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 High Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Apartments Mid Rise	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3
Enclosed Parking Structure	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	8.40	6.90	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
Apartments Mid Rise	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
Enclosed Parking Structure	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891
Regional Shopping Center	0.547192	0.045177	0.202743	0.121510	0.016147	0.006143	0.019743	0.029945	0.002479	0.002270	0.005078	0.000682	0.000891

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	651.5030	651.5030	0.0366	7.5800e-003	654.6757
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	651.5030	651.5030	0.0366	7.5800e-003	654.6757
NaturalGas Mitigated	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9521	170.9521	3.2800e-003	3.1300e-003	171.9680
NaturalGas Unmitigated	0.0173	0.1477	0.0633	9.4000e-004		0.0119	0.0119		0.0119	0.0119	0.0000	170.9521	170.9521	3.2800e-003	3.1300e-003	171.9680

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 High Rise	1.87104e+006	0.0101	0.0862	0.0367	5.5000e-004		6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003	0.0000	99.8458	99.8458	1.9100e-003	1.8300e-003	100.4391
Apartments Mid Rise	1.30881e+006	7.0600e-003	0.0603	0.0257	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8428	69.8428	1.3400e-003	1.2800e-003	70.2579
Enclosed Parking Structure	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
Regional Shopping Center	23676.7	1.3000e-004	1.1600e-003	9.7000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2635	1.2635	2.0000e-005	2.0000e-005	1.2710
Total		**0.0173**	**0.1477**	**0.0633**	**9.4000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**	**0.0000**	**170.9521**	**170.9521**	**3.2700e-003**	**3.1300e-003**	**171.9680**

5.2 Energy by Land Use - NaturalGas

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 High Rise	1.87104e+006	0.0101	0.0862	0.0367	5.5000e-004		6.9700e-003	6.9700e-003		6.9700e-003	6.9700e-003	0.0000	99.8458	99.8458	1.9100e-003	1.8300e-003	100.4391
Apartments Mid Rise	1.30881e+006	7.0600e-003	0.0603	0.0257	3.8000e-004		4.8800e-003	4.8800e-003		4.8800e-003	4.8800e-003	0.0000	69.8428	69.8428	1.3400e-003	1.2800e-003	70.2579
Enclosed Parking Structure	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
Regional Shopping Center	23676.7	1.3000e-004	1.1600e-003	9.7000e-004	1.0000e-005		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	1.2635	1.2635	2.0000e-005	2.0000e-005	1.2710
Total		**0.0173**	**0.1477**	**0.0633**	**9.4000e-004**		**0.0119**	**0.0119**		**0.0119**	**0.0119**	**0.0000**	**170.9521**	**170.9521**	**3.2700e-003**	**3.1300e-003**	**171.9680**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	803896	188.1695	0.0106	2.1900e-003	189.0858
Apartments Mid Rise	562331	131.6259	7.4000e-003	1.5300e-003	132.2669
Enclosed Parking Structure	1.22222e+006	286.0871	0.0161	3.3300e-003	287.4803
Regional Shopping Center	194900	45.6205	2.5600e-003	5.3000e-004	45.8426
Total		**651.5030**	**0.0366**	**7.5800e-003**	**654.6757**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	803896	188.1695	0.0106	2.1900e-003	189.0858
Apartments Mid Rise	562331	131.6259	7.4000e-003	1.5300e-003	132.2669
Enclosed Parking Structure	1.22222e+006	286.0871	0.0161	3.3300e-003	287.4803
Regional Shopping Center	194900	45.6205	2.5600e-003	5.3000e-004	45.8426
Total		**651.5030**	**0.0366**	**7.5800e-003**	**654.6757**

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	1.8791	0.1056	3.6004	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1000e-003	1.3700e-003	80.9735
Unmitigated	1.8791	0.1056	3.6004	6.0000e-004		0.0249	0.0249		0.0249	0.0249	0.0000	80.3887	80.3887	7.1000e-003	1.3700e-003	80.9735

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	0.1441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5300e-003	0.0644	0.0274	4.1000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	74.5626	74.5626	1.4300e-003	1.3700e-003	75.0057
Landscaping	0.1087	0.0412	3.5730	1.9000e-004		0.0197	0.0197		0.0197	0.0197	0.0000	5.8261	5.8261	5.6700e-003	0.0000	5.9679
Total	**1.8791**	**0.1056**	**3.6004**	**6.0000e-004**		**0.0249**	**0.0249**		**0.0249**	**0.0249**	**0.0000**	**80.3887**	**80.3887**	**7.1000e-003**	**1.3700e-003**	**80.9735**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.6187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5300e-003	0.0644	0.0274	4.1000e-004		5.2100e-003	5.2100e-003		5.2100e-003	5.2100e-003	0.0000	74.5626	74.5626	1.4300e-003	1.3700e-003	75.0057
Landscaping	0.1087	0.0412	3.5730	1.9000e-004		0.0197	0.0197		0.0197	0.0197	0.0000	5.8261	5.8261	5.6700e-003	0.0000	5.9679
Total	**1.8791**	**0.1056**	**3.6004**	**6.0000e-004**		**0.0249**	**0.0249**		**0.0249**	**0.0249**	**0.0000**	**80.3887**	**80.3887**	**7.1000e-003**	**1.3700e-003**	**80.9735**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	117.7829	0.7734	0.0194	142.8987
Unmitigated	117.7829	0.7734	0.0194	142.8987

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.2263 / 8.3383	66.1918	0.4345	0.0109	80.3007
Apartments Mid Rise	9.25187 / 5.8327	46.3017	0.3039	7.6200e-003	56.1709
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.06664 / 0.65375	5.2895	0.0350	8.8000e-004	6.4271
Total		**117.7829**	**0.7734**	**0.0194**	**142.8987**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	13.2263 / 8.3383	66.1918	0.4345	0.0109	80.3007
Apartments Mid Rise	9.25187 / 5.8327	46.3017	0.3039	7.6200e-003	56.1709
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	1.06664 / 0.65375	5.2895	0.0350	8.8000e-004	6.4271
Total		**117.7829**	**0.7734**	**0.0194**	**142.8987**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	35.2839	2.0852	0.0000	87.4143
Unmitigated	35.2839	2.0852	0.0000	87.4143

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	93.38	18.9553	1.1202	0.0000	46.9609
Apartments Mid Rise	65.32	13.2594	0.7836	0.0000	32.8495
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	15.12	3.0692	0.1814	0.0000	7.6039
Total		**35.2839**	**2.0852**	**0.0000**	**87.4143**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	93.38	18.9553	1.1202	0.0000	46.9609
Apartments Mid Rise	65.32	13.2594	0.7836	0.0000	32.8495
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	15.12	3.0692	0.1814	0.0000	7.6039
Total		**35.2839**	**2.0852**	**0.0000**	**87.4143**

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