Appendix B
Air Quality Analysis

ESA

Prepared for
Ensemble Real Estate Investments
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AIR QUALITY TECHNICAL REPORT

3RD AND PACIFIC AVENUE PROJECT

LONG BEACH, CALIFORNIA

RAMBOLL

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ACRONYMS AND ABBREVIATIONS

Acronym	Definition
AB	Assembly Bill
ACC	Advanced Clean Car
AQMP	Air Quality Management Plan
AvgHp	Maximum rated average horsepower
BTU	British Thermal Units
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CARB	California Air Resources Board
CCAR	California Climate Action Registry
C-C	Commercial-customer
CEQA	California Environmental Quality Act
C-NW	Commercial-nonwork
CO	Carbon Monoxide
C-W	Commercial-work
EMFAC	EMission FACtors model
EPA	Environmental Protection Agency
g/m^3	gram per cubic meter
GHG	greenhouse gas
HI	Hazard Index
H-O	home-other
H-S	home-shop
H-W	home-work
H_2S	Hydrogen Sulfide
IS/MND	Impact Study/Mitigated Negative Declaration
JPA	Joint Powers Authority
L/gal	Liter/gallon
LST	Localized Significance Threshold
NAAQS	National Ambient Air Quality Standards
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
OEHHA	Office of Environmental Health Hazard Assessment
PDF	Project Design Features
PM	Particulate matter
$PM_{2.5}$	Particulates 2.5 Microns or Smaller
PM_{10}	Particulates 10 Microns or Smaller
ppmv	Parts per million by volume
ROG	reactive organic gases
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SCS	Sustainable Communities Strategy
SB	Senate Bill
SCAB	South Coast Air Basin

ACRONYMS AND ABBREVIATIONS *(CONTINUED)*

Acronym	Definition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SRA	Source Receptor Area
TAC	toxic air contaminant
TDM	Transportation Demand Management
USEPA	United States Environmental Protection Agency
VMT	vehicle miles travelled
VOC	Volatile Organic Compound
$\mu g/m^3$	Micrograms per cubic meter

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 emissions of criteria air pollutants, such as nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), sulfur oxides (SO_x), and particulate matter (PM) of aerodynamic diameter less than 10 micrometers (PM_{10}) or less than 2.5 micrometers ($PM_{2.5}$). This report provides an inventory surveying the emissions that would result from the Project.

The California Emission Estimator Model® (CalEEMod) version 2016.3.2 program and other methods based on the regulatory and scientific literature were used to estimate criteria air pollutant emissions for both construction and operation of the Project. South Coast Air Quality Management District (SCAQMD) mass-based Localized Significance Thresholds (LSTs) were used to evaluate potential ambient air impacts associated with construction and operation of the Project.

For construction, the mass daily criteria air pollutant emissions are less than the SCAQMD significance thresholds for VOC, NO_X, CO, sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$. The evaluation of Project construction activities on ambient air quality using the LST methodology shows that Project construction emissions would not exceed the ambient air quality standard significance thresholds for nitrogen dioxide (NO_2), CO, PM_{10}, and $PM_{2.5}$ standards. The primary construction activities that contribute to the estimated ambient air quality impacts are fuel combustion sources (i.e., off-road construction equipment) and fugitive dust. The construction emissions are based on conservative assumptions to represent the maximum level of construction activity that may occur on the Project Site.

For operational emissions, the mass daily criteria air pollutant emissions are less than the SCAQMD significance thresholds for VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$. The primary source of the operational emissions is the traffic-related mobile sources. The emissions from traffic-related mobile sources are expected to decline in the future, as vehicles are required to become more fuel efficient due to existing regulations (e.g., Pavley Standard and the Advanced Clean Cars program).

1. INTRODUCTION

The purpose of this technical report is to present the quantitative analyses that were used to evaluate the Project's air quality emissions. Emissions during construction and operation of the Project were quantified. In addition, South Coast Air Quality Management District (SCAQMD) mass-based Localized Significance Thresholds (LSTs) were used to evaluate ambient air impacts associated with Project construction emissions.

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).

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Table 1 summarizes the land uses for the proposed Project.

1.1.1 Regulatory Measures

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

- Compliance with SCAQMD Rule 403 regarding fugitive dust. The analysis quantifies the emission reductions associated with the watering of active construction areas to minimize fugitive dust emissions (assumed three times daily);[1]
- Compliance with SCAQMD Rule 1113 regarding Architectural Coatings. This rule limits the VOC content of architectural coatings used in the SCAQMD. The rule provides various standards for the coating category;[2]
- 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

[1] Note that the control efficiency of watering is dependent on numerous variables such as soil/ground conditions, temperature, and vehicle travel specifics. For unpaved roads, increased frequency and/or water amounts are expected to improve the control efficiency.

[2] Available at: http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf. Accessed: December 2018.

- 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; and
- Provide outdoor amenity spaces and the Paseo, which would promote active use zones.

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 Conditions

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. EXISTING SETTING

2.1.1 Climate and Meteorology

Climate within the South Coast Air Basin (SCAB) is determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the SCAB. The region lies in the semi-permanent high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. It maintains moderate temperatures and comfortable humidity, and limits precipitation to a few storms during the winter-wet season. This weather pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, or Santa Ana winds do exist.

Although the SCAB has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, there is a limited capacity to disperse air contaminants horizontally. The typical wind flow pattern fluctuates only with occasional winter storms or strong northeasterly Santa Ana winds from the mountains and deserts northeast of the SCAB. Summer wind flow patterns represent worst-case conditions, as this is the period of higher temperatures and more sunlight, which results in ozone formation.

2.1.2 Criteria Air Pollutants

Air quality at a given location can be characterized by the concentration of various pollutants in the air. Units of concentration are generally expressed as parts per million by volume (ppmv) or micrograms per cubic meter ($\mu g/m^3$) of air. The significance of a pollutant concentration is determined by comparing the concentration to an appropriate national or state ambient air quality standard. These standards represent the allowable atmospheric concentrations at which the public health and welfare are protected. They include a reasonable margin of safety to protect the more sensitive individuals in the population.

Pollutants for which ambient air quality standards have been adopted are known as criteria air pollutants. These pollutants can harm human health and the environment, and cause property damage. These pollutants are called "criteria" air pollutants because they are regulated by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels. The set of limits based on human health is called the primary standards. Another set of limits intended to prevent environmental and property damage is called the secondary standards. The criteria air pollutants of greatest concern in this air quality assessment are ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), respirable particulate matter less than 10 micrometers in diameter (PM_{10}), and fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$). Nitrogen oxides (NO_x) and sulfur oxides (SO_x) refer to generic groups of compounds that include NO_2 and SO_2, respectively. These oxides are produced during combustion. Because members of these compound groups typically change rapidly from one form to another, emissions from combustion sources such as diesel engines are often stated in terms of total NO_x and total SO_x emissions, rather than being listed by individual compound.

EPA establishes the National Ambient Air Quality Standards (NAAQS) and defines how to demonstrate whether an area meets the NAAQS. CARB establishes the California Ambient Air Quality Standards (CAAQS), which must be equal to or more stringent than the NAAQS when initially adopted. CARB defines how to demonstrate whether an area meets the CAAQS.

As discussed above, one of the main concerns with criteria air pollutants is that they contribute directly to regional human health problems. The known adverse effects associated with these criteria pollutants are shown in Table A.

Table A. Adverse Effects Associated with Criteria Air Pollutants[3]

Pollutant[d]	Adverse Effects
Ozone (O_3)	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals and (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide (CO)	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide (NO_2)	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide (SO_2)	(a) Broncho-constriction accompanied by symptoms that may include wheezing, shortness of breath, and chest tightness during exercise or physical activity in persons with asthma
Suspended Particulate Matter less than 10 Microns (PM_{10})	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma)[a]
Suspended Particulate Matter less than 2.5 microns ($PM_{2.5}$)	(a) Excess deaths from short-term and long-term exposures; (b) excess seasonal declines in pulmonary function, especially in children; (c) asthma exacerbation and possibly induction; (d) adverse birth outcomes including low birth weight; (e) increased infant mortality; (f) increased respiratory symptoms in children such as cough and bronchitis; and (g) increased hospitalization for both cardiovascular and respiratory disease (including asthma)[a]
Lead[b]	(a) Increased body burden; (b) impairment of blood formation and nerve conduction, and neurotoxin.

[3] SCAQMD. 2007. Air Quality Management Plan. Available at: https://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/2007-air-quality-management-plan. Accessed: March 2019.

Table A. Adverse Effects Associated with Criteria Air Pollutants[3]	
Pollutant[d]	**Adverse Effects**
Sulfates[c]	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardiopulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage

Notes:

[a] More detailed discussions on the health effects associated with exposure to suspended particulate matter can be found in the following documents: Office of Environmental Health Hazard Assessment's, Particulate Matter Health Effects and Standard Recommendations[4], and EPA's Air Quality Criteria for Particulate Matter[5].

[b] Lead is not a pollutant of concern for the Project.

[c] Sulfate is not a pollutant of concern for the Project. SCAQMD has not established an emissions threshold for sulfates, nor does it require dispersion modeling against the localized significance thresholds.

[d] CAAQS have also been established for hydrogen sulfide, vinyl chloride, and visibility reducing particles. They are not shown in this table because they are not pollutants of concern for the Project.

Of the criteria air pollutants of concern, ozone is unique because it is not directly emitted from Project-related sources. Rather, ozone is a secondary pollutant formed from the precursor pollutants volatile organic compounds (VOC) and NO_x. VOC and NO_x react to form ozone in the presence of sunlight through a complex series of photochemical reactions. As a result, unlike inert pollutants, ozone levels usually peak several hours after the precursors are emitted and many miles downwind of the source. Because of the complexity and uncertainty of predicting photochemical pollutant concentrations, ozone impacts are indirectly addressed in this study by comparing Project-generated emissions of VOC and NOx to daily emission thresholds set by the SCAQMD. These emission thresholds are discussed in Table A.

Generally, concentrations of photochemical pollutants, such as ozone, are highest during the summer and coincide with the season of maximum solar insolation. Concentrations of CO tend to be the greatest during the winter and are a product of light wind conditions and surface-based temperature inversions that are frequent during that time of year and that limit atmospheric dispersion. However, in the case of PM_{10} impacts from fugitive dust sources, maximum concentrations may occur during high wind events or near man-made ground-disturbing activities, such as vehicular activities on roads and earth moving during construction activities.

Table B, NAAQS and CAAQS Attainment Status,[6] summarizes the attainment status of Los Angeles County for the pollutants regulated by the NAAQS and CAAQS. As seen in Table B,

[4] OEHHA. 2002. Office of Environmental Health Hazard Assessment's Particulate Matter Health Effects and Standard Recommendations. Available at: https://oehha.ca.gov/air/criteria-pollutant/2001-particulate-matter-health-effects-and-standard-recommendations. Accessed: March 2019.

[5] EPA. 2004. Air Quality Criteria for Particulate Matter, Final Report. Available at: https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=87903. Accessed: March 2019.

[6] USEPA. The Green Book Non-Attainment Areas for Criteria Pollutants. Available at: https://www.epa.gov/green-book. Accessed: March 2019.

Los Angeles County is currently in attainment (or unclassified or maintenance) for: the federal, 24-hour PM_{10} standard; the federal and State CO standards; the federal NO_2 standards; the federal and State SO_2 standards; and, the State hydrogen sulfide, vinyl chloride, sulfates, and visibility-reducing particles standards. However, as also shown in Table B, Los Angeles County is currently designated as nonattainment for the federal and State O_3 standards ("extreme"); the State PM_{10} standards; the federal and State $PM_{2.5}$ standards; the federal and State Pb standards; and, the State NO_2 standards.[7,8]

Table B. NAAQS and CAAQS Attainment Status

Pollutant	Averaging Period	Los Angeles County Attainment Status	
		California Standard[a]	Federal Standard[b]
Ozone (O_3)	1 hour	Extreme Non-Attainment	---
	8 hour	Extreme Non-Attainment	Extreme Non-Attainment
Respirable Particulate Matter (PM_{10})	24 hour	Non-Attainment	Attainment
	Annual	Non-Attainment	---
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	Non-Attainment
	Annual	Non-Attainment	Non-Attainment
Carbon Monoxide (CO)	1 hour	Attainment	Attainment (Maintenance)
	8 hour	Attainment	Attainment (Maintenance)
Nitrogen Dioxide (NO_2)[c]	1 hour	Non-Attainment	Unclassified/Attainment
	Annual	Non-Attainment	Unclassified/Attainment
Lead (Pb)[c,d]	30 day average	Non-Attainment	---
	Rolling 3-month average	---	Non-Attainment
Sulfur Dioxide (SO_2)	1 hour	Attainment	Attainment
	3 hour	---	Attainment
Hydrogen Sulfide (H_2S)	1 hour	Unclassified	---
Vinyl Chloride	24 hour	No information Available	---
Sulfates	24 hour	Attainment	---

7 Ibid.

8 California standard attainment status based on CARB website. Available at: http://www.arb.ca.gov/desig/adm/adm.htm. Accessed: March 2019.

Table B. NAAQS and CAAQS Attainment Status

Pollutant	Averaging Period	Los Angeles County Attainment Status	
		California Standard[a]	Federal Standard[b]
Visibility-Reducing Particles	8 hour	Unclassified	---

Notes:

[a] California standard attainment status based on CARB website[9].

[b] Federal standard attainment status based on USEPA Green book[10] and Regional 9 Air Quality Maps[11].

[c] Attainment status for the California standard is for the year 2012.

[d] Non-attainment applies to the southern portion of Los Angeles County only.

[9] Ibid.

[10] Ibid 5.

[11] USEPA. 2014. EPA Region 9 Air Quality Maps. Available at: http://www.epa.gov/region09/air/maps/. Accessed on: March 2019.

3. REGULATORY SETTING

3.1.1 Federal and State Ambient Air Quality Standards

The Federal Clean Air Act (CAA) requires the adoption of NAAQS, which are periodically updated, to protect the public health and welfare from the effects of air pollution. Current federal standards are set for SO_2, CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and Lead (Pb).[12]

The State of California also has established additional standards, known as the California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS.

Specific geographic areas are classified as either "attainment" or "non-attainment" areas for each pollutant based upon the comparison of measured data with the NAAQS and CAAQS. Those areas designated as "non-attainment" for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans developed to meet federal requirements are included in an overall program referred to as the State Implementation Plan (SIP). If the SIP is deemed acceptable, the USEPA will delegate responsibility for implementation pursuant to the SIP to the State and/or its air districts therein.

3.1.2 Air Toxics Program

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California Toxic Air Contaminants (TAC) list identifies more than 700 pollutants, of which carcinogenic and non-carcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) hazardous air pollutants. The Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel-powered equipment. Several Airborne Toxic Control Measures that reduce diesel emissions including In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) and In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).

3.1.3 California Health and Safety Code Section 41700

This section of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public,

[12] NAAQS. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed: March 2019.

or that endanger the comfort, repose, health, or safety of any of those persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

3.1.4 Federal Vehicle Standards

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.

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.

3.1.5 Pavley Standards

AB 1493 ("the Pavley Standard" or 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 through 2016. AB 1493 also required the California Climate Action Registry (CCAR) to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits. AB 1493 further authorized CARB to grant emission reduction credits for reductions of GHG emissions prior to the date of enforcement of regulations, using model year 2000 as the baseline for reduction.

In 2004, CARB applied to the USEPA for a waiver under the CAA to authorize implementation of the AB 1493 regulations. Subsequently, on June 30, 2009, the USEPA granted the waiver to California for its GHG emission standards for motor vehicles. As part of this waiver, USEPA specified the following provision: CARB may not hold a manufacturer liable or responsible for any noncompliance caused by emission debits generated by a manufacturer for the 2009 model year.

CARB’s approach to passenger vehicles (cars and light trucks), under AB 1493, combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of standards. This new approach also includes efforts to support and accelerate the numbers of plug-in hybrids and zero-emission vehicles in California. These standards will apply to all passenger and light duty trucks used by customers, employees of and deliveries to the Proposed Project. While AB 1493 focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

3.1.6 Advanced Clean Cars

In January 2012, CARB approved the Advanced Clean Cars (ACC) program,[13] a new emissions-control program for model year 2017 through 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, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions. While ACC focuses on the reduction of GHG emissions, it is anticipated that this regulation would also help reduce criteria air pollutants.

3.1.7 Diesel Emissions Control Measures

CARB has adopted a number of Airborne Toxic Control Measures (ATCMs) to control diesel particulate emissions and emissions from in-use on- and off-road diesel-fueled vehicles. With the assistance of the Advisory Committee and its subcommittees, CARB developed and approved the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*[14] and the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*.[15] Various control measures adopted by CARB to reduce diesel emissions are summarized below.

3.1.8 Regional and Local Regulations and Guidance

Air pollution often does not conform to city and/or county jurisdictional boundaries, and the State has been divided into air basins based on geographical and meteorological conditions. Air pollution within each air basin is regulated by the regional air pollution control districts/air quality management districts, in a manner that is consistent with and in furtherance of standards adopted by the USEPA and CARB. The Project site is located within the SCAB and the jurisdictional boundaries of the District.

3.1.8.1 District Rules and Regulations

While CARB is responsible for the regulation of mobile emission sources within the state, local AQMDs and Air Pollution Control Districts (APCDs) are responsible for enforcing standards and regulating stationary sources. The project site is located within the SCAB and is subject to the guidelines and regulations of the SCAQMD.

In 1993, SCAQMD developed a California Environmental Quality Act (CEQA) Handbook to assist with air quality analyses. The handbook consists of air quality significance thresholds, localized significance thresholds (LSTs) for criteria pollutants, and greenhouse gases (GHG) CEQA significance thresholds.[16] SCAQMD is in the process of developing a revised handbook to replace the 1993 version of the handbook.

SCAQMD also established an Air Quality Management Plan (AQMP), which is a regional plan for achieving AQ standards and clean air. The most recent 2016 AQMP provides a

[13] Advanced Clean Cars Program. Available at: https://ww2.arb.ca.gov/index.php/our-work/programs/advanced-clean-cars-program. Accessed: March 2019.

[14] CARB. 2000. Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles. Available at: https://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. Accessed: March 2019.

[15] CARB. California's Diesel Risk Reduction Plan: Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines. Available at: https://www.arb.ca.gov/diesel/documents/rmg.htm. Accessed: March 2019.

[16] SCAQMD. Air Quality Analysis Handbook. Available at: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook. Accessed: March 2019.

comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures.[17]

3.1.8.2 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[18] 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.

[17] SCAQMD. Air Quality Management Plan (AQMP). Available at: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan. Accessed: March 2019.

[18] 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.

4. SIGNIFICANCE THRESHOLDS

The SCAQMD has established significance thresholds[19] to assess the impacts of project-related construction and operational emissions on regional and local ambient air quality. **Table 2** shows the mass daily thresholds for construction and operations as adopted by the SCAQMD for criteria air pollutant emissions. The analysis summarized in this report estimates Project-related construction and operational mass emissions and compares the emissions to these mass daily significance thresholds. This report also compares the ambient air quality impacts from onsite construction and operational activities to the state and local ambient air quality standards, for which the SCAQMD has established LSTs.[20] LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. The SCAQMD's methodology typically does not require an evaluation of ambient air impacts for operational emissions because the Project does not include any of the land uses that typically require such an analysis to be performed.[21] The primary emissions from operational activities that would require an evaluation of project emissions relative to ambient air quality significance thresholds include, but are not limited to, NO_x and CO combustion emissions from stationary sources such as flares and turbines, and/or significant onsite mobile sources such as earth-moving equipment.

[19] SCAQMD, 2015. Air Quality Significance Thresholds. March. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December 2018.

[20] SCAQMD, 2008. Final LST Methodology Document. Revised. July. Available at: http://www.aqmd.gov/ceqa/handbook/lst/lst.html. Accessed: December 2018.

[21] SCAQMD, 2008. Final LST Methodology Document. Revised. July. Available at: http://www.aqmd.gov/ceqa/handbook/lst/lst.html. Accessed: December 2018.

5. CRITERIA AIR POLLUTANT EMISSION INVENTORIES

This section describes the methodology that Ramboll US Corporation (Ramboll) used to develop the criteria air pollutant emissions inventories associated with the Project, which include construction and operational emissions. Sub-categories of the operational emissions include: area sources, energy use, and mobile sources.

5.1 Methodology for Calculating Mass Emissions

This analysis focuses on the potential change in air quality due to implementation of the Project. The Project would result in criteria air pollutant emissions from construction and operational sources. Construction activities would generate emissions at the site from off-road construction equipment, and on roadways resulting from construction-related truck hauling, vendor deliveries, and worker commuting. Operational activities would also generate emissions from both onsite and offsite sources, including worker/customer/resident commuting, building energy uses, and area sources, such as consumer products, architectural coating, and landscaping.

To estimate the criteria air pollutant emissions from the Project, 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.

CalEEMod®

Ramboll primarily utilized the CalEEMod® version 2016.3.2[22] to assist in quantifying the criteria air pollutant emissions in the inventories presented in this report for the Project. CalEEMod® is a statewide program designed to calculate both criteria air and greenhouse gas (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 several 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 United States Environmental Protection Agency (USEPA) AP-42 emission factors,[23] California Air Resources Board's (CARB's) on-road and off-road equipment emission models such as the EMission FACtor model (EMFAC) and the Off-road Emissions Inventory Program model (OFFROAD), and studies commissioned by California agencies such as the California Energy Commission and CalRecycle.

CalEEMod® is based upon CARB-approved Off-Road and On-Road Mobile-Source Emission Factor models (OFFROAD and EMFAC, respectively), and is designed to estimate construction and operational emissions for land use development projects and allows for the input of

[22] SCAQMD et al. 2017. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: December 2018.

[23] 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: https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors. Accessed: December 2018.

project specific information. OFFROAD[24] is an emissions factor model used to calculate emission rates from off-road mobile sources (e.g., construction equipment, agricultural equipment). EMFAC[25] is an emissions factor model used to calculate emission rates from on-road vehicles (e.g., passenger vehicles, haul trucks).

CalEEMod® provides a simple platform to calculate both construction and operational emissions from a land use project. It calculates both the daily maximum and annual average for criteria air pollutants as well as total or annual GHG emissions. Specifically, the model aids the user in the following calculations:

- Short-term construction emissions associated with demolition, site preparation, grading, building, coating, and paving from off-road construction equipment, on-road mobile equipment associated with workers, vendors, and hauling, fugitive dust associated with grading, demolition, truck loading, and roads, and volatile emissions of reactive organic gases (ROG) from architectural coating and paving.[26] Fugitive dust from windblown sources such as storage piles are not quantified in CalEEMod®, which is consistent with approaches taken in other comprehensive models.
- Operational emissions associated with the fully built out land use development, such as on-road mobile vehicle traffic generated by the land uses, fugitive dust associated with roads, volatile emissions of ROG from architectural coating, off-road emissions from landscaping equipment, volatile emissions of ROG from consumer products and cleaning supplies, wood stoves and hearth usage, and natural gas usage in the buildings.

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. For the emission inventory, Ramboll used default values for Los Angeles County (South Coast) (i.e., the portion of Los Angeles County that is within SCAQMD jurisdiction), unless otherwise noted in the methodology descriptions below. Details regarding the specific methodologies used by CalEEMod® can be found in the CalEEMod® User's Guide and associated appendices.[27] The CalEEMod® output files are provided for reference in **Appendix A** to this report.

Project-specific land use information was inputted into CalEEMod® along with an approximate construction schedule developed by 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®

[24] CARB. Mobile Source Emissions Inventory – Off-Road Diesel Vehicles. Available at: https://www.arb.ca.gov/msei/ordiesel.htm. Accessed: December 2018.

[25] CARB. Mobile Source Emissions Inventory – Categories. On-Road Motor Vehicles. Available at: https://www.arb.ca.gov/msei/categories.htm#onroad_motor_vehicles. Accessed: December 2018.

[26] SCAQMD, 2017. CalEEMod User's Guide, Appendix A states: "VOCs can be either reactive or non-reactive. Over the years, non-reactive VOCs have been exempt from regulation. CalEEMod calculates the VOC emissions from the application of architectural coatings based on the locally required VOC content limit of the coatings. ROG is an organic gas that undergoes a photochemical reaction, thus, is reactive. ROG emissions are generated from the exhaust of mobile sources and these combustion emissions are calculated in CalEEMod based on CARB's ROG emission factors. Both VOC and ROGs are precursors to ozone so they are summed in the CalEEMod report under the header ROG. For the purposes of comparing the ROG value to a VOC significance threshold, the terms can be used interchangeably."

[27] SCAQMD et al. 2017. California Emissions Estimator Model® User's Guide, Appendix A. Available at: http://www.CalEEMod.com/. Accessed: December 2018.

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 was incorporated for construction emissions. The demolition 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.

5.2 Construction Emissions

This section describes the estimation of 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.

Emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting.

Construction-related emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$ were estimated using CalEEMod®. Particulate matter (PM) emissions are composed of exhaust emissions and fugitive emissions. Exhaust emissions are typically released by the combustion engines of on-road vehicles and/or off-road equipment. Fugitive emissions are PM dust suspended in the air by wind action and construction-related activities. Default onsite equipment lists in CalEEMod® supplemented with Project specific modifications were used for the various construction phases. 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 emission calculations are intended to estimate maximum daily emissions. Each piece of equipment was assumed to operate based on CalEEMod® default assumptions (i.e., load factor and operational hours). The construction

land use acreages, schedule and equipment lists, and demolition and grading information are shown in **Tables 3 through 5**, 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**.

5.2.1 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

CalEEMod® was also used to calculate fugitive dust associated with the site preparation and grading phases from: grading, bulldozing, and truck loading. The fugitive dust emissions from the construction phases are calculated using the default CalEEMod® methodology, which is described in USEPA AP-42. PM_{10} and $PM_{2.5}$ emissions from onsite fugitive dust, will be controlled by watering consistent with the requirements for SCAQMD Rule 403 (assumed three times daily for this Project).

The emissions associated with off-road construction equipment are shown in **Table 6**. The maximum daily emissions typically occur during the grading and building construction phases.

5.2.2 Emissions from On-Road Trips

Construction generates on-road vehicle exhaust, evaporative, and dust 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.

Running emissions for all pollutants and PM emissions from tire and brake wear were divided by the VMT of each respective vehicle class from each scenario year and adjusted for unit conversions to derive emission factors in units of grams per VMT. All other emissions

(including evaporative) were divided by the number of trips to derive emission factors in units of grams per trip.

The emissions from mobile sources were calculated 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:

Emissions $_{\text{pollutant}}$ = emissions from vehicle running for each pollutant
VMT = vehicle miles traveled
EF $_{\text{running, pollutant}}$ = emission factor for running emissions

Evaporative emissions, starting emissions, and idling emissions are multiplied by the number of trips times the respective emission factor for each pollutant.

CalEEMod® was also used to calculate on-road fugitive dust associated with paved and unpaved roads consistent with the method discussed in the traffic section. The VMT from worker commuting, vendor commutes, soil hauling, and demolition hauling are accounted for.

The emissions associated with on-road construction activities are shown in **Table 6**.

5.2.3 Emissions from Architectural Coating

VOC or ROG off-gassing emissions result from evaporation of solvents contained in surface coatings. The program calculates the VOC evaporative emissions from application of residential and non-residential surface coatings using the following equation.

$$E_{AC} = EF_{AC} \times F \times A_{paint}$$

Where:

E = emissions (pound (lb) VOC)
EF = emission factor (lb/square foot (sqft))
A = building surface area (sqft). The total surface for painting was assumed to equals 2.7 times the floor square footage for residential and 2 times that for non-residential square footage. All of the land use information provided by a metric other than square footage was converted to square footage using the default conversions or user defined equivalence.
F = fraction of surface area. The default values based on SCAQMD methods used in their coating rules are 75% for the exterior surface and 25% for the interior.

The emission factor (EF) is based on the VOC content of the surface coatings and is calculated estimated using the equation below:

$$EF_{AC} = C_{VOC}/454(g/lb) \times 3.785(L/gal)/180*sqft)$$

Where:

EF = emission factor (lb/sqft)
C = VOC content gram per liter

The emission factors for coating categories were calculated using the equation above based on default VOC content provided by the air districts or CARB's statewide limits in CalEEMod®.

The emissions associated with architectural coating are included as a part of onsite construction emissions as shown in **Table 6**.

5.2.4 Emissions from Paving

CalEEMod® estimates VOC off-gassing emissions associated with asphalt paving of parking lots using the following equation:

$$E_{AP} = EF_{AP} \times A_{parking}$$

Where:

E = emissions (lb)
EF = emission factor (lb/acre). The Sacramento Metropolitan Air Quality Management District (SMAQMD) default emission factor is 2.62 lb/acre
A = area of the parking lot (acre)

The VOC off-gassing emissions associated with paving are included as a part of onsite construction emissions as shown in **Table 6**.

5.2.5 Maximum Daily Emissions from Construction

Since construction phases may or may not overlap in time, the maximum daily construction emissions will not necessarily be the sum of all possible daily emissions. CalEEMod®, therefore, calculates the maximum daily emissions for each construction phase. The program then adds together the maximum daily emissions for each construction phase that overlaps in time. Finally, the program reports the highest of these combined overlapping phases as a daily maximum. The maximum daily emissions estimated due to construction of the Project are summarized in **Table 6**. The emission categories described in 3.2.1 through 3.2.4 vary in level of emissions by pollutant. The maximum daily emissions for each pollutant across all phases is shown in Table 6. Complete emissions by phase and emission category can be found in **Appendix A**. The estimated emissions show that the regional daily emissions for construction are less than the SCAQMD mass daily significance thresholds for VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$.

5.3 Operational Emissions

Operational emissions are emissions that would occur after build-out of the Project. The criteria air pollutant operational mass emissions of ROGs, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ were estimated using CalEEMod®. The CalEEMod® output can be found in **Appendix A**. The source categories considered include area sources, natural gas energy use, and mobile sources.

5.3.1 Area Sources

Area sources are those emissions that are generally too small to be uniquely identified as point sources and are thus generally aggregated as a group. CalEEMod® estimates emissions for the following sources, which are included under the category of "area" sources: landscaping equipment, hearths, consumer products, and architectural coatings. Consistent with SCAQMD regulations, none of the dwelling units would have wood burning hearths. The Project will include natural gas fireplaces in 90% dwelling units based on CalEEMod® defaults.

Criteria air pollutant emissions due to natural gas combustion in buildings, except for hearths, could also be considered area sources, but are reported by CalEEMod® in the

emissions associated with building energy use (described below). The criteria air pollutant emissions generated by the Project were calculated using CalEEMod® defaults.

5.3.1.1 Landscaping Equipment

Landscape maintenance includes fuel combustion emissions from equipment such as lawnmowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. The mass emissions of VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$ associated with landscaping equipment were calculated using the CalEEMod® default emission factors (i.e., grams per square foot per day for non-residential buildings), which were processed using OFFROAD2011 and CARB's Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment.[28] Based on CalEEMod® defaults, all operational days were assumed to be summer days, with no snow days. Therefore, the emission factors were multiplied by the total building square footage and the number of summer days. Pieces of equipment that would typically be used in snow conditions, such as snow blowers, were assumed to have no operational days.

5.3.1.2 Consumer Products

Consumer products are chemically formulated products used by institutional consumers, including, but not limited to, detergents; cleaning compounds; polishes; floor finishes; lawn and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings. SCAQMD did an evaluation of consumer product use compared to the total square footage of buildings using data from CARB consumer product Emission Inventory. VOC emissions from consumer product use were estimated based on the Project building area along with the default VOC emission rate in CalEEMod®.

$$\text{Emissions} = \text{EF} \times \text{Building Area}$$

Where:

EF = pounds of VOC per building square foot per day
The factor is 2.04×10^{-5} lbs/sqft/day for SCAQMD areas
Building Area = The total square footage of all buildings including residential square footage

5.3.1.3 Architectural Coatings

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. The operational emission methodology from architecture coating is the same as for construction. All land use buildings are assumed to be repainted at a rate of 10% of area per year. This is based on the assumptions used by SCAQMD.

5.3.2 Building Energy Use

Criteria air pollutants are emitted as a result of activities in buildings for which natural gas is typically used as an energy source. Combustion of any type of fuel emits criteria air pollutants directly into the atmosphere; when this occurs in a building, this is a direct emission source associated with that building. Unless otherwise noted, CalEEMod® default parameters were used. For both residential and non-residential land-uses, climate zone 11, which best represents the Los Angeles County (South Coast), was selected based on the

[28] CARB. 2003. Change in Population and Activity Factors for Lawn and Garden Equipment. Available at: http://www.arb.ca.gov/msprog/offroad/sore/lawn-and-garden-activity.pdf. Accessed: December 2018.

CalEEMod® forecast climate zone map. In California, Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting.[29] Because the Project will begin construction after 1/1/2019, 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.

5.3.3 Mobile Source Emissions

The criteria air pollutant 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 trip rates specified in the Transportation Impact Study[30] (**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.

5.3.3.1 Trip Reductions

Based on the Project's Transportation Impact Study, the analysis assumes a 5 percent reduction in vehicle trips associated with the Project's hotel and residential land uses due to the Project's TDM program and is incorporated within the trip rates (see Section 3.3.3 above).

5.3.4 Operational Emissions Results

The maximum daily criteria air pollutant emissions due Project operations are summarized in **Table 8** for the Project. These emissions were estimated using the methodology as described above. The estimated emissions include onsite emissions from area sources and offsite emissions from on-road sources. Because existing emissions are assumed to be zero, the proposed Project mass emissions are compared directly to the SCAQMD mass daily significance thresholds for criteria air pollutants.

The estimated emissions show that the operational maximum daily emissions for the Project are less than the SCAQMD mass daily significance thresholds for all criteria air pollutants, i.e., VOC, NO_X, CO, SO_2, PM_{10}, and $PM_{2.5}$. The primary source of the operational emissions is the traffic mobile sources. The emissions from traffic mobile sources are expected to gradually decline in the future, as cars become more fuel efficient due to existing regulations (i.e., Pavley Standard and the Advanced Clean Cars program).

[29] 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.

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

6. COMPLIANCE WITH AMBIENT AIR STANDARDS

6.1 Localized Significance Thresholds

As discussed in Section 2, SCAQMD LSTs can be used to evaluate Project emissions relative to the SCAQMD ambient air quality standard significance thresholds. For this Project, the onsite construction emissions for NO_x, CO, PM_{10}, and $PM_{2.5}$ were compared to the applicable LST thresholds provided in Appendix C of SCAQMD's LST Methodology.[31] In particular, the thresholds chosen for the Project were for Source Receptor Area No. 4 (South Coastal LA County), a project area of 1-acre, and a receptor distance of 25 meters (i.e., the closest receptor distance available).

While the exact construction schedule and equipment mix may vary from the current analysis, the maximum daily emissions are not expected to be higher than those estimated given the conservative assumptions included in this analysis. The results show that the estimated maximum onsite daily emissions for Project construction would be less than the SCAQMD LSTs for NO_x, CO, PM_{10}, and $PM_{2.5}$ (**Table 9**).

[31] SCAQMD, 2008. Final LST Methodology Document. Appendix C. Available at: http://www.aqmd.gov/ceqa/handbook/lst/lst.html. Accessed: December 2018.

7. CUMULATIVE ANALYSIS

The cumulative air quality impacts analysis is based on the guidance provided by SCAQMD. "As Lead Agency, the [SCAQMD] uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in IS/MND. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant." [32]

For reference, there are also several projects in Long Beach area. These are shown in Appendix B. While the construction of the projects may overlap with this Project, it is otherwise speculative to further evaluate the cumulative impacts with these projects due to the relative uncertainty of when these projects will also be under construction and what those construction emissions would be.

7.1 Construction Impacts

As discussed above, if a project exceeds SCAQMD's recommended significance thresholds for project-specific construction air emissions, then the project would have a cumulatively considerable increase in emissions for those pollutants. For the proposed Project, construction-related maximum daily emissions are less than the SCAQMD mass daily significance thresholds for all criteria air pollutants (**Table 6**). Thus, the Project's emissions would not have a cumulatively considerable contribution to a cumulative impact. In terms of localized air quality impacts, the Project also would not have a cumulatively considerable contribution to a cumulative impact (**Table 9**).

7.2 Operational Impacts

As discussed above, if a project exceeds SCAQMD's recommended significance thresholds for project-specific operational air emissions, then the project would have a cumulatively considerable increase in emissions for those pollutants. For the proposed Project, operational emissions would be below the SCAQMD's mass daily significance thresholds for all criteria air pollutants (**Table 8**). Thus, the Project would not have a cumulatively considerable increase in emissions.

[32] SCAQMD. 2003. White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution. Appendix D. August. Available at: http://www.aqmd.gov/docs/default-source/Agendas/Environmental-Justice/cumulative-impacts-working-group/cumulative-impacts-white-paper.pdf?sfvrsn=2l. Accessed: December 2018.

8. SUMMARY OF RESULTS

For construction, the maximum daily criteria air pollutant emissions for the Project are estimated to be less than the SCAQMD significance thresholds for VOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ (**Table 6**). The Project will comply with SCAQMD Rules and Regulations that require the use of low-VOC coatings to minimize the potential VOC emissions. The Project will also minimize fugitive PM emissions by complying with the requirements of SCAQMD Rule 403. The construction emissions are based on conservative assumptions to represent the maximum level of construction activity that may occur on the Project site.

For operations, the maximum daily criteria air pollutant emissions for the Project are less than the SCAQMD significance thresholds for VOC, NO_x, CO, SO_2, PM_{10}, and $PM_{2.5}$ (**Table 8**). The primary source of the operational emissions is the traffic mobile sources, which are expected to decline in the future, as cars become more fuel efficient due to existing regulations (i.e., Pavley Standard and the Advanced Clean Cars program).

Lastly, Project emissions were found to be less than the applicable SCAQMD LST thresholds; therefore, the Project is not anticipated to generate significant adverse localized air quality impacts (**Table 9**).

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. Mass Daily and Ambient Air Quality Significance Thresholds[1]
3rd and Pacific Avenue Project
Long Beach, California

Mass Daily Thresholds (lbs/day)		
Pollutant	**Construction**	**Operation**
NO_X	100	55
VOC	75	55
PM_{10}	150	150
$PM_{2.5}$	55	55
SO_X	150	150
CO	550	550
Lead	3	3
Ambient Air Quality Standards for Criteria Air Pollutants		
NO_2 1-hour average Annual Arithmetic Mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM_{10} 24-hour Average Annual Average	10.4 µg/m^3 (construction); 2.5 µg/m^3 (operation) 1.0 µg/m^3	
$PM_{2.5}$ 24-hour Average	10.4 µg/m^3 (construction); 2.5 µg/m^3 (operation)	
SO_2 1-hour Average 24-hour Average	0.25 ppm (state); 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour Average	25 µg/m^3 (state)	
CO 1-hour Average 8-hour Average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month Average	1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

Abbreviations:

µg/m^3 - micrograms per cubic meter
CO - carbon monoxide
lbs - pounds
MT - metric tonnes
NO_x - nitrogen oxides
PM - particulate matter
$PM_{2.5}$ - fine particulate matter
PM_{10} - coarse particulate matter
ppm - parts per million
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide
TACs - toxic air contaminants
VOC - volatile organic compounds

Reference:

[1] SCAQMD Air Quality Significance Thresholds. Revision March 2015. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December 2018

Table 3. 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 4. 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 5. 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 6. Maximum Daily Construction Criteria Air Pollutant Emissions
3rd and Pacific Avenue Project
Long Beach, California

Source Location	Source Type	VOC	NO_x	CO	SO_2	PM_{10}[1]	$PM_{2.5}$[1]
		(lb/day)					
Onsite		46	21	15	0.0	2.4	1.3
Offsite[2]	Worker	1.8	1.2	15	0.0	3.9	1.0
	Vendor	0.3	8.0	2.3	0.0	0.5	0.2
	Hauling	1.0	33	7.6	0.1	2.1	0.6
Total[3]		**49**	**63**	**40**	**0.2**	**9**	**3**
SCAQMD Significance Threshold[5]		75	100	550	150	150	55
Above Threshold?		No	No	No	No	No	No

Notes:

[1] PM emissions include exhaust PM and fugitive dust emissions.

[2] Construction trips were estimated using CalEEMod® default methodology.

[3] The maximum emissions reported for each pollutant may occur on different days. The sum of the emissions may not add up due to rounding.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel

CEQA - California Environmental Quality Act

CO - carbon monoxide

lb - pounds

NO_x - nitrogen oxides

PM - particulate matter

$PM_{2.5}$ - fine particulate matter

PM_{10} - coarse particulate matter

SCAQMD - South Coast Air Quality Management District

SO_2 - sulfur dioxide

VOC - volatile organic compounds

Reference:

[5] SCAQMD Air Quality CEQA Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December, 2018.

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	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. Maximum Daily Operational Criteria Air Pollutant Emissions
3rd and Pacific Avenue Project
Long Beach, California

Source[1]	VOC[2]	NO_x	CO	SO_2[3]	PM_{10}	$PM_{2.5}$
	(lb/day)					
Area	11	5.5	31	0.0	0.6	0.6
Energy	0.1	0.8	0.3	0.0	0.1	0.1
Traffic	5.1	24	65	0.2	17	4.7
Sub-Total	**16**	**30**	**96**	**0.3**	**18**	**5**
Existing Conditions Emissions[4]	0	0	0	0	0	0
Project Total[5]	**16**	**30**	**96**	**0.3**	**18**	**5**
SCAQMD Significance Threshold[6]	55	55	550	150	150	55
Above Threshold?	No	No	No	No	No	No

Notes:

[1] Emissions were estimated using CalEEMod® for all operational categories.

[2] ROG as defined by CalEEMod® is assumed to be equal to VOC as defined by SCAQMD.

[3] CalEEMod® reported SO_2 emissions are assumed to represent SO_x emissions.

[4] The existing condition is a parking lot. Emissions from the parking lot were not calculated and conservatively not incorporated into the

[5] Totals may not add up due to rounding.

Abbreviations:

CalEEMod® - CALifornia Emissions Estimator MODel
CEQA - California Environmental Quality Act
CO - carbon monoxide
lbs - pounds
NO_x - nitrogen oxides
PM_{10} - coarse particulate matter
$PM_{2.5}$ - fine particulate matter
ROG - reactive organic gases
VOC - volatile organic compounds
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide

Reference:

[6] SCAQMD Air Quality CEQA Significance Thresholds. Available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. Accessed: December, 2018.

Table 9. Maximum Daily Onsite Project Emissions and Comparison to Localized Significance Thresholds
3rd and Pacific Avenue Project
Long Beach, California

Source Type	NO_x	CO	PM_{10}[1]	$PM_{2.5}$[1]
	(lb/day)			
Onsite Construction[2]	21	15	2.4	1.3
Comparison to Localized Significance Threshold[3]				
Allowable Emissions - Construction (lb/day)[4]	57	585	4.0	3.0
Exceed Threshold?	No	No	No	No

Notes:

[1] PM emissions include exhaust PM and fugitive dust emissions.

[2] Only onsite construction emissions are compared with the LST mass rate table.

[3] Using Localized Significance Thresholds (LST) developed by SCAQMD (2008). 'Allowable emissions' are the maximum emissions that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. SCAQMD's LST Methodology available at: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook/localized-significance-thresholds. Accessed: December 2018.

[4] Allowable emissions based on mass rate look-up tables provided as Appendix C to SCAQMD's LST Methodology. Most stringent mass rate emissions are obtained for criteria pollutants in Source Receptor Area No. 4 (South Coastal LA County).

Abbreviations:

CalEEMod - CALifornia Emissions Estimator MODel
CO - carbon monoxide
lb - pounds
LST - Localized Significance Threshold
NO_x - nitrogen oxides
NO_2 - Nitrogen Dioxide
PM - particulate matter
SCAQMD - South Coast Air Quality Management District
SO_2 - sulfur dioxide
VOC - volatile organic compounds

APPENDIX A
CALEEMOD® OUTPUT FILES

W3rd and Pacific - Full Buildout OY 2021

Los Angeles-South Coast County, Summer

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, Summer

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

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

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 (Maximum Daily Emission)

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	lb/day										lb/day					
2020	3.8804	47.3858	30.3402	0.1037	7.0677	1.1542	7.8559	3.1027	1.0778	3.8315	0.0000	11,065.8711	11,065.8711	1.0985	0.0000	11,093.3341
2021	50.6112	31.4420	42.6356	0.1066	5.2418	1.2471	6.4890	1.4011	1.1875	2.5886	0.0000	10,492.2988	10,492.2988	1.0521	0.0000	10,518.6010
Maximum	**50.6112**	**47.3858**	**42.6356**	**0.1066**	**7.0677**	**1.2471**	**7.8559**	**3.1027**	**1.1875**	**3.8315**	**0.0000**	**11,065.8711**	**11,065.8711**	**1.0985**	**0.0000**	**11,093.3341**

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	lb/day										lb/day					
2020	3.8804	47.3858	30.3402	0.1037	4.3253	1.1542	5.1909	1.7051	1.0778	2.4340	0.0000	11,065.8711	11,065.8711	1.0985	0.0000	11,093.3341
2021	50.6112	31.4420	42.6356	0.1066	5.2418	1.2471	6.4890	1.4011	1.1875	2.5886	0.0000	10,492.2988	10,492.2988	1.0521	0.0000	10,518.6010
Maximum	**50.6112**	**47.3858**	**42.6356**	**0.1066**	**5.2418**	**1.2471**	**6.4890**	**1.7051**	**1.1875**	**2.5886**	**0.0000**	**11,065.8711**	**11,065.8711**	**1.0985**	**0.0000**	**11,093.3341**

	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**	**22.28**	**0.00**	**18.58**	**31.03**	**0.00**	**21.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Energy	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
Mobile	5.1347	23.4499	64.7121	0.2188	17.1078	0.1814	17.2891	4.5785	0.1693	4.7478		22,251.9128	22,251.9128	1.1784		22,281.3732
Total	**16.3614**	**29.7396**	**95.8350**	**0.2584**	**17.1078**	**0.8206**	**17.9284**	**4.5785**	**0.8086**	**5.3871**	**0.0000**	**29,911.1454**	**29,911.1454**	**1.3742**	**0.1395**	**29,987.0656**

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	lb/day										lb/day					
Area	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Energy	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
Mobile	5.1347	23.4499	64.7121	0.2188	17.1078	0.1814	17.2891	4.5785	0.1693	4.7478		22,251.9128	22,251.9128	1.1784		22,281.3732
Total	**16.3614**	**29.7396**	**95.8350**	**0.2584**	**17.1078**	**0.8206**	**17.9284**	**4.5785**	**0.8086**	**5.3871**	**0.0000**	**29,911.1454**	**29,911.1454**	**1.3742**	**0.1395**	**29,987.0656**

	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)

OffRoad Equipment

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

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	lb/day										lb/day					
Fugitive Dust					0.1253	0.0000	0.1253	0.0190	0.0000	0.0190			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.1253**	**1.1525**	**1.2778**	**0.0190**	**1.0761**	**1.0951**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

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	lb/day										lb/day					
Hauling	4.9900e-003	0.1643	0.0364	4.5000e-004	9.9900e-003	5.2000e-004	0.0105	2.7400e-003	5.0000e-004	3.2400e-003		48.9047	48.9047	3.3300e-003		48.9879
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
Worker	0.0598	0.0426	0.5692	1.5400e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		152.8947	152.8947	4.8200e-003		153.0152
Total	**0.0648**	**0.2069**	**0.6056**	**1.9900e-003**	**0.1553**	**1.7300e-003**	**0.1570**	**0.0413**	**1.6200e-003**	**0.0429**		**201.7994**	**201.7994**	**8.1500e-003**		**202.0031**

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	lb/day										lb/day					
Fugitive Dust					0.0564	0.0000	0.0564	8.5400e-003	0.0000	8.5400e-003			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.0564**	**1.1525**	**1.2089**	**8.5400e-003**	**1.0761**	**1.0847**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

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	lb/day										lb/day					
Hauling	4.9900e-003	0.1643	0.0364	4.5000e-004	9.9900e-003	5.2000e-004	0.0105	2.7400e-003	5.0000e-004	3.2400e-003		48.9047	48.9047	3.3300e-003		48.9879
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
Worker	0.0598	0.0426	0.5692	1.5400e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		152.8947	152.8947	4.8200e-003		153.0152
Total	**0.0648**	**0.2069**	**0.6056**	**1.9900e-003**	**0.1553**	**1.7300e-003**	**0.1570**	**0.0413**	**1.6200e-003**	**0.0429**		**201.7994**	**201.7994**	**8.1500e-003**		**202.0031**

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	lb/day										lb/day					
Fugitive Dust					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.2693**	**0.8210**	**6.0903**	**2.8965**	**0.7553**	**3.6517**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

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	lb/day										lb/day					
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
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
Worker	0.0368	0.0262	0.3503	9.4000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		94.0890	94.0890	2.9700e-003		94.1632
Total	**0.0368**	**0.0262**	**0.3503**	**9.4000e-004**	**0.0894**	**7.5000e-004**	**0.0902**	**0.0237**	**6.9000e-004**	**0.0244**		**94.0890**	**94.0890**	**2.9700e-003**		**94.1632**

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	lb/day										lb/day					
Fugitive Dust					2.3712	0.0000	2.3712	1.3034	0.0000	1.3034			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**2.3712**	**0.8210**	**3.1922**	**1.3034**	**0.7553**	**2.0587**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

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	lb/day										lb/day					
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
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
Worker	0.0368	0.0262	0.3503	9.4000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		94.0890	94.0890	2.9700e-003		94.1632
Total	**0.0368**	**0.0262**	**0.3503**	**9.4000e-004**	**0.0894**	**7.5000e-004**	**0.0902**	**0.0237**	**6.9000e-004**	**0.0244**		**94.0890**	**94.0890**	**2.9700e-003**		**94.1632**

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	lb/day										lb/day					
Fugitive Dust					5.0158	0.0000	5.0158	2.5410	0.0000	2.5410			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**5.0158**	**0.6844**	**5.7002**	**2.5410**	**0.6296**	**3.1706**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

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	lb/day										lb/day					
Hauling	0.9804	32.2743	7.1517	0.0887	1.9625	0.1030	2.0655	0.5380	0.0986	0.6365		9,606.0638	9,606.0638	0.6539		9,622.4100
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
Worker	0.0368	0.0262	0.3503	9.4000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		94.0890	94.0890	2.9700e-003		94.1632
Total	**1.0173**	**32.3005**	**7.5020**	**0.0896**	**2.0519**	**0.1038**	**2.1557**	**0.5617**	**0.0992**	**0.6609**		**9,700.1528**	**9,700.1528**	**0.6568**		**9,716.5732**

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	lb/day										lb/day					
Fugitive Dust					2.2571	0.0000	2.2571	1.1434	0.0000	1.1434			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**2.2571**	**0.6844**	**2.9415**	**1.1434**	**0.6296**	**1.7731**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

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	lb/day										lb/day					
Hauling	0.9804	32.2743	7.1517	0.0887	1.9625	0.1030	2.0655	0.5380	0.0986	0.6365		9,606.0638	9,606.0638	0.6539		9,622.4100
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
Worker	0.0368	0.0262	0.3503	9.4000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		94.0890	94.0890	2.9700e-003		94.1632
Total	**1.0173**	**32.3005**	**7.5020**	**0.0896**	**2.0519**	**0.1038**	**2.1557**	**0.5617**	**0.0992**	**0.6609**		**9,700.1528**	**9,700.1528**	**0.6568**		**9,716.5732**

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	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	lb/day										lb/day					
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
Vendor	0.2668	7.9779	2.0903	0.0195	0.4802	0.0376	0.5177	0.1382	0.0359	0.1742		2,077.6852	2,077.6852	0.1268		2,080.8549
Worker	1.5831	1.1262	15.0619	0.0406	3.8451	0.0321	3.8773	1.0197	0.0296	1.0494		4,045.8283	4,045.8283	0.1276		4,049.0172
Total	**1.8499**	**9.1042**	**17.1521**	**0.0601**	**4.3253**	**0.0697**	**4.3950**	**1.1580**	**0.0655**	**1.2235**		**6,123.5135**	**6,123.5135**	**0.2544**		**6,129.8721**

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	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	lb/day										lb/day					
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
Vendor	0.2668	7.9779	2.0903	0.0195	0.4802	0.0376	0.5177	0.1382	0.0359	0.1742		2,077.6852	2,077.6852	0.1268		2,080.8549
Worker	1.5831	1.1262	15.0619	0.0406	3.8451	0.0321	3.8773	1.0197	0.0296	1.0494		4,045.8283	4,045.8283	0.1276		4,049.0172
Total	**1.8499**	**9.1042**	**17.1521**	**0.0601**	**4.3253**	**0.0697**	**4.3950**	**1.1580**	**0.0655**	**1.2235**		**6,123.5135**	**6,123.5135**	**0.2544**		**6,129.8721**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
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
Vendor	0.2280	7.2817	1.9036	0.0193	0.4802	0.0149	0.4951	0.1383	0.0142	0.1525		2,061.6047	2,061.6047	0.1215		2,064.6411
Worker	1.4746	1.0136	13.8554	0.0393	3.8451	0.0311	3.8762	1.0197	0.0286	1.0484		3,917.3683	3,917.3683	0.1154		3,920.2539
Total	**1.7026**	**8.2953**	**15.7591**	**0.0586**	**4.3253**	**0.0460**	**4.3712**	**1.1580**	**0.0429**	**1.2009**		**5,978.9730**	**5,978.9730**	**0.2369**		**5,984.8950**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
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
Vendor	0.2280	7.2817	1.9036	0.0193	0.4802	0.0149	0.4951	0.1383	0.0142	0.1525		2,061.6047	2,061.6047	0.1215		2,064.6411
Worker	1.4746	1.0136	13.8554	0.0393	3.8451	0.0311	3.8762	1.0197	0.0286	1.0484		3,917.3683	3,917.3683	0.1154		3,920.2539
Total	**1.7026**	**8.2953**	**15.7591**	**0.0586**	**4.3253**	**0.0460**	**4.3712**	**1.1580**	**0.0429**	**1.2009**		**5,978.9730**	**5,978.9730**	**0.2369**		**5,984.8950**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
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
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
Worker	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.0557**	**0.0383**	**0.5236**	**1.4900e-003**	**0.1453**	**1.1700e-003**	**0.1465**	**0.0385**	**1.0800e-003**	**0.0396**		**148.0401**	**148.0401**	**4.3600e-003**		**148.1491**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
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
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
Worker	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.0557**	**0.0383**	**0.5236**	**1.4900e-003**	**0.1453**	**1.1700e-003**	**0.1465**	**0.0385**	**1.0800e-003**	**0.0396**		**148.0401**	**148.0401**	**4.3600e-003**		**148.1491**

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	lb/day										lb/day					
Archit. Coating	45.7519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**45.9708**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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
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
Worker	0.2958	0.2033	2.7791	7.8900e-003	0.7713	6.2300e-003	0.7775	0.2045	5.7400e-003	0.2103		785.7512	785.7512	0.0232		786.3300
Total	**0.2958**	**0.2033**	**2.7791**	**7.8900e-003**	**0.7713**	**6.2300e-003**	**0.7775**	**0.2045**	**5.7400e-003**	**0.2103**		**785.7512**	**785.7512**	**0.0232**		**786.3300**

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	lb/day										lb/day					
Archit. Coating	45.7519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**45.9708**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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
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
Worker	0.2958	0.2033	2.7791	7.8900e-003	0.7713	6.2300e-003	0.7775	0.2045	5.7400e-003	0.2103		785.7512	785.7512	0.0232		786.3300
Total	**0.2958**	**0.2033**	**2.7791**	**7.8900e-003**	**0.7713**	**6.2300e-003**	**0.7775**	**0.2045**	**5.7400e-003**	**0.2103**		**785.7512**	**785.7512**	**0.0232**		**786.3300**

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	lb/day										lb/day					
Mitigated	5.1347	23.4499	64.7121	0.2188	17.1078	0.1814	17.2891	4.5785	0.1693	4.7478		22,251.9128	22,251.9128	1.1784		22,281.3732
Unmitigated	5.1347	23.4499	64.7121	0.2188	17.1078	0.1814	17.2891	4.5785	0.1693	4.7478		22,251.9128	22,251.9128	1.1784		22,281.3732

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	lb/day										lb/day					
NaturalGas Mitigated	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
NaturalGas Unmitigated	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972

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	lb/day										lb/day					
Apartments High Rise	5126.13	0.0553	0.4724	0.2010	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.0746	603.0746	0.0116	0.0111	606.6583
Apartments Mid Rise	3585.77	0.0387	0.3305	0.1406	2.1100e-003		0.0267	0.0267		0.0267	0.0267		421.8551	421.8551	8.0900e-003	7.7300e-003	424.3620
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
Regional Shopping Center	64.8676	7.0000e-004	6.3600e-003	5.3400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6315	7.6315	1.5000e-004	1.4000e-004	7.6768
Total		**0.0947**	**0.8092**	**0.3470**	**5.1700e-003**		**0.0654**	**0.0654**		**0.0654**	**0.0654**		**1,032.5612**	**1,032.5612**	**0.0198**	**0.0189**	**1,038.6971**

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	lb/day										lb/day					
Apartments High Rise	5.12613	0.0553	0.4724	0.2010	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.0746	603.0746	0.0116	0.0111	606.6583
Apartments Mid Rise	3.58577	0.0387	0.3305	0.1406	2.1100e-003		0.0267	0.0267		0.0267	0.0267		421.8551	421.8551	8.0900e-003	7.7300e-003	424.3620
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
Regional Shopping Center	0.0648676	7.0000e-004	6.3600e-003	5.3400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6315	7.6315	1.5000e-004	1.4000e-004	7.6768
Total		**0.0947**	**0.8092**	**0.3470**	**5.1700e-003**		**0.0654**	**0.0654**		**0.0654**	**0.0654**		**1,032.5612**	**1,032.5612**	**0.0198**	**0.0189**	**1,038.6971**

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	lb/day										lb/day					
Mitigated	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Unmitigated	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952

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	lb/day										lb/day					
Architectural Coating	0.7897					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.8698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.6027	5.1507	2.1918	0.0329		0.4164	0.4164		0.4164	0.4164	0.0000	6,575.2941	6,575.2941	0.1260	0.1206	6,614.3678
Landscaping	0.8698	0.3298	28.5842	1.5100e-003		0.1575	0.1575		0.1575	0.1575		51.3774	51.3774	0.0500		52.6274
Total	**11.1320**	**5.4805**	**30.7759**	**0.0344**		**0.5739**	**0.5739**		**0.5739**	**0.5739**	**0.0000**	**6,626.6715**	**6,626.6715**	**0.1760**	**0.1206**	**6,666.9952**

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	lb/day										lb/day					
Architectural Coating	0.7897					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.8698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.6027	5.1507	2.1918	0.0329		0.4164	0.4164		0.4164	0.4164	0.0000	6,575.2941	6,575.2941	0.1260	0.1206	6,614.3678
Landscaping	0.8698	0.3298	28.5842	1.5100e-003		0.1575	0.1575		0.1575	0.1575		51.3774	51.3774	0.0500		52.6274
Total	**11.1320**	**5.4805**	**30.7759**	**0.0344**		**0.5739**	**0.5739**		**0.5739**	**0.5739**	**0.0000**	**6,626.6715**	**6,626.6715**	**0.1760**	**0.1206**	**6,666.9952**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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, Winter

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, Winter

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

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

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 (Maximum Daily Emission)

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	lb/day										lb/day					
2020	4.0673	47.8064	29.2882	0.1021	7.0677	1.1542	7.8574	3.1027	1.0778	3.8330	0.0000	10,894.9557	10,894.9557	1.1221	0.0000	10,923.0086
2021	50.8278	31.5612	41.3673	0.1032	5.2418	1.2476	6.4894	1.4011	1.1880	2.5891	0.0000	10,152.4156	10,152.4156	1.0515	0.0000	10,178.7043
Maximum	**50.8278**	**47.8064**	**41.3673**	**0.1032**	**7.0677**	**1.2476**	**7.8574**	**3.1027**	**1.1880**	**3.8330**	**0.0000**	**10,894.9557**	**10,894.9557**	**1.1221**	**0.0000**	**10,923.0086**

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	lb/day										lb/day					
2020	4.0673	47.8064	29.2882	0.1021	4.3253	1.1542	5.1915	1.7051	1.0778	2.4355	0.0000	10,894.9557	10,894.9557	1.1221	0.0000	10,923.0086
2021	50.8278	31.5612	41.3673	0.1032	5.2418	1.2476	6.4894	1.4011	1.1880	2.5891	0.0000	10,152.4156	10,152.4156	1.0515	0.0000	10,178.7043
Maximum	**50.8278**	**47.8064**	**41.3673**	**0.1032**	**5.2418**	**1.2476**	**6.4894**	**1.7051**	**1.1880**	**2.5891**	**0.0000**	**10,894.9557**	**10,894.9557**	**1.1221**	**0.0000**	**10,923.0086**

	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**	**22.28**	**0.00**	**18.58**	**31.03**	**0.00**	**21.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Energy	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
Mobile	4.9877	23.9722	61.9194	0.2080	17.1078	0.1825	17.2903	4.5785	0.1704	4.7489		21,163.6363	21,163.6363	1.1781		21,193.0892
Total	**16.2144**	**30.2619**	**93.0423**	**0.2475**	**17.1078**	**0.8218**	**17.9295**	**4.5785**	**0.8097**	**5.3882**	**0.0000**	**28,822.8690**	**28,822.8690**	**1.3739**	**0.1395**	**28,898.7815**

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	lb/day										lb/day					
Area	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Energy	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
Mobile	4.9877	23.9722	61.9194	0.2080	17.1078	0.1825	17.2903	4.5785	0.1704	4.7489		21,163.6363	21,163.6363	1.1781		21,193.0892
Total	**16.2144**	**30.2619**	**93.0423**	**0.2475**	**17.1078**	**0.8218**	**17.9295**	**4.5785**	**0.8097**	**5.3882**	**0.0000**	**28,822.8690**	**28,822.8690**	**1.3739**	**0.1395**	**28,898.7815**

	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)

OffRoad Equipment

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

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	lb/day										lb/day					
Fugitive Dust					0.1253	0.0000	0.1253	0.0190	0.0000	0.0190			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.1253**	**1.1525**	**1.2778**	**0.0190**	**1.0761**	**1.0951**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

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	lb/day										lb/day					
Hauling	5.1100e-003	0.1664	0.0387	4.4000e-004	9.9900e-003	5.3000e-004	0.0105	2.7400e-003	5.1000e-004	3.2500e-003		48.0625	48.0625	3.4500e-003		48.1488
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
Worker	0.0664	0.0471	0.5213	1.4500e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		143.9647	143.9647	4.5400e-003		144.0781
Total	**0.0715**	**0.2136**	**0.5600**	**1.8900e-003**	**0.1553**	**1.7400e-003**	**0.1570**	**0.0413**	**1.6300e-003**	**0.0429**		**192.0272**	**192.0272**	**7.9900e-003**		**192.2269**

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	lb/day										lb/day					
Fugitive Dust					0.0564	0.0000	0.0564	8.5400e-003	0.0000	8.5400e-003			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**0.0564**	**1.1525**	**1.2089**	**8.5400e-003**	**1.0761**	**1.0847**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

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	lb/day										lb/day					
Hauling	5.1100e-003	0.1664	0.0387	4.4000e-004	9.9900e-003	5.3000e-004	0.0105	2.7400e-003	5.1000e-004	3.2500e-003		48.0625	48.0625	3.4500e-003		48.1488
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
Worker	0.0664	0.0471	0.5213	1.4500e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		143.9647	143.9647	4.5400e-003		144.0781
Total	**0.0715**	**0.2136**	**0.5600**	**1.8900e-003**	**0.1553**	**1.7400e-003**	**0.1570**	**0.0413**	**1.6300e-003**	**0.0429**		**192.0272**	**192.0272**	**7.9900e-003**		**192.2269**

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	lb/day										lb/day					
Fugitive Dust					5.2693	0.0000	5.2693	2.8965	0.0000	2.8965			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.2693**	**0.8210**	**6.0903**	**2.8965**	**0.7553**	**3.6517**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

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	lb/day										lb/day					
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
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
Worker	0.0409	0.0290	0.3208	8.9000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		88.5936	88.5936	2.7900e-003		88.6634
Total	**0.0409**	**0.0290**	**0.3208**	**8.9000e-004**	**0.0894**	**7.5000e-004**	**0.0902**	**0.0237**	**6.9000e-004**	**0.0244**		**88.5936**	**88.5936**	**2.7900e-003**		**88.6634**

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	lb/day										lb/day					
Fugitive Dust					2.3712	0.0000	2.3712	1.3034	0.0000	1.3034			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**2.3712**	**0.8210**	**3.1922**	**1.3034**	**0.7553**	**2.0587**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

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	lb/day										lb/day					
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
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
Worker	0.0409	0.0290	0.3208	8.9000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		88.5936	88.5936	2.7900e-003		88.6634
Total	**0.0409**	**0.0290**	**0.3208**	**8.9000e-004**	**0.0894**	**7.5000e-004**	**0.0902**	**0.0237**	**6.9000e-004**	**0.0244**		**88.5936**	**88.5936**	**2.7900e-003**		**88.6634**

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	lb/day										lb/day					
Fugitive Dust					5.0158	0.0000	5.0158	2.5410	0.0000	2.5410			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**5.0158**	**0.6844**	**5.7002**	**2.5410**	**0.6296**	**3.1706**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

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	lb/day										lb/day					
Hauling	1.0043	32.6920	7.6005	0.0871	1.9625	0.1046	2.0671	0.5380	0.1001	0.6380		9,440.6437	9,440.6437	0.6776		9,457.5843
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
Worker	0.0409	0.0290	0.3208	8.9000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		88.5936	88.5936	2.7900e-003		88.6634
Total	**1.0451**	**32.7210**	**7.9213**	**0.0880**	**2.0519**	**0.1053**	**2.1573**	**0.5617**	**0.1008**	**0.6624**		**9,529.2373**	**9,529.2373**	**0.6804**		**9,546.2477**

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	lb/day										lb/day					
Fugitive Dust					2.2571	0.0000	2.2571	1.1434	0.0000	1.1434			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**2.2571**	**0.6844**	**2.9415**	**1.1434**	**0.6296**	**1.7731**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

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	lb/day										lb/day					
Hauling	1.0043	32.6920	7.6005	0.0871	1.9625	0.1046	2.0671	0.5380	0.1001	0.6380		9,440.6437	9,440.6437	0.6776		9,457.5843
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
Worker	0.0409	0.0290	0.3208	8.9000e-004	0.0894	7.5000e-004	0.0902	0.0237	6.9000e-004	0.0244		88.5936	88.5936	2.7900e-003		88.6634
Total	**1.0451**	**32.7210**	**7.9213**	**0.0880**	**2.0519**	**0.1053**	**2.1573**	**0.5617**	**0.1008**	**0.6624**		**9,529.2373**	**9,529.2373**	**0.6804**		**9,546.2477**

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	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	lb/day										lb/day					
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
Vendor	0.2789	7.9763	2.3054	0.0189	0.4802	0.0382	0.5183	0.1382	0.0365	0.1747		2,020.8680	2,020.8680	0.1351		2,024.2463
Worker	1.7579	1.2469	13.7948	0.0383	3.8451	0.0321	3.8773	1.0197	0.0296	1.0494		3,809.5261	3,809.5261	0.1201		3,812.5280
Total	**2.0368**	**9.2232**	**16.1002**	**0.0572**	**4.3253**	**0.0703**	**4.3956**	**1.1580**	**0.0661**	**1.2241**		**5,830.3941**	**5,830.3941**	**0.2552**		**5,836.7743**

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	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

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	lb/day										lb/day					
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
Vendor	0.2789	7.9763	2.3054	0.0189	0.4802	0.0382	0.5183	0.1382	0.0365	0.1747		2,020.8680	2,020.8680	0.1351		2,024.2463
Worker	1.7579	1.2469	13.7948	0.0383	3.8451	0.0321	3.8773	1.0197	0.0296	1.0494		3,809.5261	3,809.5261	0.1201		3,812.5280
Total	**2.0368**	**9.2232**	**16.1002**	**0.0572**	**4.3253**	**0.0703**	**4.3956**	**1.1580**	**0.0661**	**1.2241**		**5,830.3941**	**5,830.3941**	**0.2552**		**5,836.7743**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
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
Vendor	0.2393	7.2667	2.1058	0.0188	0.4802	0.0154	0.4955	0.1383	0.0147	0.1529		2,005.0914	2,005.0914	0.1294		2,008.3275
Worker	1.6403	1.1220	12.6680	0.0370	3.8451	0.0311	3.8762	1.0197	0.0286	1.0484		3,688.5438	3,688.5438	0.1085		3,691.2573
Total	**1.8796**	**8.3886**	**14.7738**	**0.0558**	**4.3253**	**0.0464**	**4.3717**	**1.1580**	**0.0433**	**1.2013**		**5,693.6352**	**5,693.6352**	**0.2380**		**5,699.5847**

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	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

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	lb/day										lb/day					
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
Vendor	0.2393	7.2667	2.1058	0.0188	0.4802	0.0154	0.4955	0.1383	0.0147	0.1529		2,005.0914	2,005.0914	0.1294		2,008.3275
Worker	1.6403	1.1220	12.6680	0.0370	3.8451	0.0311	3.8762	1.0197	0.0286	1.0484		3,688.5438	3,688.5438	0.1085		3,691.2573
Total	**1.8796**	**8.3886**	**14.7738**	**0.0558**	**4.3253**	**0.0464**	**4.3717**	**1.1580**	**0.0433**	**1.2013**		**5,693.6352**	**5,693.6352**	**0.2380**		**5,699.5847**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
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
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
Worker	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.0620**	**0.0424**	**0.4787**	**1.4000e-003**	**0.1453**	**1.1700e-003**	**0.1465**	**0.0385**	**1.0800e-003**	**0.0396**		**139.3926**	**139.3926**	**4.1000e-003**		**139.4952**

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	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

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	lb/day										lb/day					
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
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
Worker	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.0620**	**0.0424**	**0.4787**	**1.4000e-003**	**0.1453**	**1.1700e-003**	**0.1465**	**0.0385**	**1.0800e-003**	**0.0396**		**139.3926**	**139.3926**	**4.1000e-003**		**139.4952**

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	lb/day										lb/day					
Archit. Coating	45.7519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**45.9708**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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
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
Worker	0.3290	0.2250	2.5410	7.4300e-003	0.7713	6.2300e-003	0.7775	0.2045	5.7400e-003	0.2103		739.8533	739.8533	0.0218		740.3975
Total	**0.3290**	**0.2250**	**2.5410**	**7.4300e-003**	**0.7713**	**6.2300e-003**	**0.7775**	**0.2045**	**5.7400e-003**	**0.2103**		**739.8533**	**739.8533**	**0.0218**		**740.3975**

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	lb/day										lb/day					
Archit. Coating	45.7519					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**45.9708**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

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	lb/day										lb/day					
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
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
Worker	0.3290	0.2250	2.5410	7.4300e-003	0.7713	6.2300e-003	0.7775	0.2045	5.7400e-003	0.2103		739.8533	739.8533	0.0218		740.3975
Total	**0.3290**	**0.2250**	**2.5410**	**7.4300e-003**	**0.7713**	**6.2300e-003**	**0.7775**	**0.2045**	**5.7400e-003**	**0.2103**		**739.8533**	**739.8533**	**0.0218**		**740.3975**

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	lb/day										lb/day					
Mitigated	4.9877	23.9722	61.9194	0.2080	17.1078	0.1825	17.2903	4.5785	0.1704	4.7489		21,163.6363	21,163.6363	1.1781		21,193.0892
Unmitigated	4.9877	23.9722	61.9194	0.2080	17.1078	0.1825	17.2903	4.5785	0.1704	4.7489		21,163.6363	21,163.6363	1.1781		21,193.0892

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	lb/day										lb/day					
NaturalGas Mitigated	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972
NaturalGas Unmitigated	0.0947	0.8092	0.3470	5.1600e-003		0.0654	0.0654		0.0654	0.0654		1,032.5612	1,032.5612	0.0198	0.0189	1,038.6972

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	lb/day										lb/day					
Apartments High Rise	5126.13	0.0553	0.4724	0.2010	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.0746	603.0746	0.0116	0.0111	606.6583
Apartments Mid Rise	3585.77	0.0387	0.3305	0.1406	2.1100e-003		0.0267	0.0267		0.0267	0.0267		421.8551	421.8551	8.0900e-003	7.7300e-003	424.3620
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
Regional Shopping Center	64.8676	7.0000e-004	6.3600e-003	5.3400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6315	7.6315	1.5000e-004	1.4000e-004	7.6768
Total		**0.0947**	**0.8092**	**0.3470**	**5.1700e-003**		**0.0654**	**0.0654**		**0.0654**	**0.0654**		**1,032.5612**	**1,032.5612**	**0.0198**	**0.0189**	**1,038.6971**

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	lb/day										lb/day					
Apartments High Rise	5.12613	0.0553	0.4724	0.2010	3.0200e-003		0.0382	0.0382		0.0382	0.0382		603.0746	603.0746	0.0116	0.0111	606.6583
Apartments Mid Rise	3.58577	0.0387	0.3305	0.1406	2.1100e-003		0.0267	0.0267		0.0267	0.0267		421.8551	421.8551	8.0900e-003	7.7300e-003	424.3620
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
Regional Shopping Center	0.0648676	7.0000e-004	6.3600e-003	5.3400e-003	4.0000e-005		4.8000e-004	4.8000e-004		4.8000e-004	4.8000e-004		7.6315	7.6315	1.5000e-004	1.4000e-004	7.6768
Total		**0.0947**	**0.8092**	**0.3470**	**5.1700e-003**		**0.0654**	**0.0654**		**0.0654**	**0.0654**		**1,032.5612**	**1,032.5612**	**0.0198**	**0.0189**	**1,038.6971**

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	lb/day										lb/day					
Mitigated	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952
Unmitigated	11.1320	5.4805	30.7759	0.0344		0.5739	0.5739		0.5739	0.5739	0.0000	6,626.6715	6,626.6715	0.1760	0.1206	6,666.9952

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	lb/day										lb/day					
Architectural Coating	0.7897					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.8698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.6027	5.1507	2.1918	0.0329		0.4164	0.4164		0.4164	0.4164	0.0000	6,575.2941	6,575.2941	0.1260	0.1206	6,614.3678
Landscaping	0.8698	0.3298	28.5842	1.5100e-003		0.1575	0.1575		0.1575	0.1575		51.3774	51.3774	0.0500		52.6274
Total	**11.1320**	**5.4805**	**30.7759**	**0.0344**		**0.5739**	**0.5739**		**0.5739**	**0.5739**	**0.0000**	**6,626.6715**	**6,626.6715**	**0.1760**	**0.1206**	**6,666.9952**

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	lb/day										lb/day					
Architectural Coating	0.7897					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.8698					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.6027	5.1507	2.1918	0.0329		0.4164	0.4164		0.4164	0.4164	0.0000	6,575.2941	6,575.2941	0.1260	0.1206	6,614.3678
Landscaping	0.8698	0.3298	28.5842	1.5100e-003		0.1575	0.1575		0.1575	0.1575		51.3774	51.3774	0.0500		52.6274
Total	**11.1320**	**5.4805**	**30.7759**	**0.0344**		**0.5739**	**0.5739**		**0.5739**	**0.5739**	**0.0000**	**6,626.6715**	**6,626.6715**	**0.1760**	**0.1206**	**6,666.9952**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

APPENDIX B
CUMULATIVE PROJECTS

3P Cumulative Projects

- 1628-1724 E. Ocean Blvd.
  - Add 51-unit condominiums to a 47-unit motel
- 245 W. Broadway
  - New mixed use project comprising of less than 6000 sq ft of retail, with 219 residential units located on 1.7 acre site
- 2010 Ocean Blvd.
  - New mixed use project comprised of 33 residential units and 72 hotel keys, including ground level restaurant w/ shared amenities located on a 1.04-acre site.
- 207 Seaside Way
  - 117 unit apartment building with 2 levels of parking
- 100 Aquarium Way
  - 22,642 sf expansion of existing aquarium front
- 495 The Promenade North
  - Mixed-use apartment building consisting of 20 units above 5200 sf of retail
- 110 W. Ocean Blvd.
  - Adaptive re-use conversion of existing 15-story Ocean Center Building from office use to 74 residential units. Re-establish retail use on Ocean & Pine.
- 150 W. Ocean Blvd.
  - 216 unit apartment building
- 1570-1598 Long Beach Blvd.
  - 36 unit condominium project above 10,000 sf commercial space.
- New Civic Center
  - Mixed use development including up to 580 units, 32,000 sf of retail, and 8,000 sf restaurant space, 200 room hotel and underground parking structure with 725 parking stalls.
- 1235 Long Beach Blvd.
  - 160-unit senior & Veterans housing with 202 stall parking garage.
- 777 Ocean Blvd.
  - 35-story mixed-use apt. tower w/315 dwelling units, approx. 6,700 sf of retail space.
- 507 Pacific Avenue
  - 4-story, 134 unit mixed use with 7,200 sf of retail/commercial/office space
- 230 W. 3rd St
  - Mixed use with 163 units, 261 subterranean parking spaces, total bldg area 145,506 sf
- 434 E. 4th St.

  - Mixed use with 49 apartment units, 1,580 sf retail space and 82 parking stalls
- 825 E. 7th St.
  - 19 unit apartment building
- 500 W. Broadway
  - Mixed use project with 142 residential units and 3500 sf of commercial space, and 202 parking spaces
- 320 Alamitos Ave.
  - 77 unit apartments with 1.5 level subterranean garage
- 1078, 1080-1090 Atlantic Ave and 1085-1095 Lime Ave
  - New 11,000 sf medical office building
- 1126 Queens Highway
  - 200-key hotel w/ 150,000 sf of floor area, 150,980 sf of restaurants, 38,254 sf of retail use, 150,000 theater use, 17,000 bowling alley, 52,120 sf golf venue, 4,000 sf museum and 61,287 sf of children's museum.
- 1468 14th St.
  - 3-story, 22,000 sf warehouse with covered and uncovered parking
- 2136-2144 W. 16th St.
  - Development of two vacant commercial lots to construct two 4,000 sf office/warehouse buildings with related parking and site improvements.
- 1795 Long Beach Blvd.
  - 5-story mixed use, 102 units and 3,900 SF of commercial space, 77 spaces.
- 245 W. Pacific Coast Hwy.
  - Mixed use building with 135 units and 25,000 sf of commercial space
- 107 Long Beach Blvd.
  - Modification of a previously approved Site Plan Review to allow the installation of 8 car lifts within a 5-story hotel with 34 guest rooms.
- 1400 Long Beach Blvd.
  - 65 unit condominium with ground floor commercial
- 3rd Street/ Broadway/Alamo Court/Long Beach Blvd.
  - 392 apartments and 32,807 sf of commercial space
- 425 E. 5th St.
  - 5-story, 16 unit apartment with 15 parking spaces
- 1900-1940 Long Beach Blvd.
  - 5-story mixed use building with 95 apartment units and 12,400 sf of retail.
- 1836-1852 Locust Ave.

  - 47 affordable units, 1 manager unit, 3600 sf of commercial space and 40 parking spaces
- 135 Linden Ave.
  - Mixed use, 7-story with 82 apartments and 4,091 sf of commercial retail space.
- 1901 W. Pacific Coast Hwy.
  - 1 industrial building with 194,840 sf.
- 635 Pine Ave and 636 Pacific ave.
  - Mixed use project located on 2 adjacent lots intersected by a public alley. The combined area of the lots is approx 1.04 acres. Project consists of two 8-story bldgs w/ a total of 271 residential apartment units and approx 1,400 sf of ground floor shell retail space. Buildings will include up to 3 levels of subterranean parking and 5 levels of Type 11 residential units over 3 levels of Type 1 residential units above grade.
- 1101 Long Beach Blvd.
  - Mixed use building totaling 190,577 sf with 92,846 sf of residential
- 127-139 E. Broadway
  - 189 apartments and 10,000 sf retail space mixed use building and 103,290 sf garage
- 1675 Santa Fe
  - 21,377 sf industrial building
- 2111 W. 14th st.
  - New 38,440 sf industrial manufacturing building.
- 100 E. Ocean Blvd.
  - High Rise Hotel w/ 429 rooms, ball room, meeting rooms pool deck and restaurant.
- 1112 Locust Ave.
  - 97 unit 7-story apartment building
- 1341 Long Beach Blvd.
  - 24 unit, 4-story apartment building
- 1401 Long Beach Blvd.
  - 142 unit apartment building
- 125 Long Beach Blvd.
  - Mixed use 218 units and 7300 sf of commercial space.
- 110 Pine Avenue
  - Adaptive reuse building **from** a bank building into a 189-room hotel
- 1 & 11 Golden Shore
  - Mixed use project with 750 dwelling units and 11,000 sf of commercial space.
- 1601 San Francisco ave.

  - 2 industrial buildings totaling 94,872 sf
- 210 E. Ocean Blvd.
  - Adaptive reuse of the former breakers hotel back to a hotel use with 185 rooms **from** a 233 bed congregate care facility.
- 810 Pine Ave.
  - 78 assisted living units
- 131 W. 3rd St.
  - Mixed use development with 366 dwelling unit and 18,000 sf ground floor retail. Total project floor area is 623,323 sf.
- 200 W. Ocean
  - Adaptive reuse of a former Verizon office building into residential building with 106 units with associated parking
- 231 Windsor Way
  - 321,595 sf expansion to the existing parking structure.
- 600 W. Broadway
  - 694-unit project with 632 parking garage.
- 469 Pacific Coast Hwy
  - 4-story affordable housing 39 units and 1 manager unit
- 700 W. 17th st.
  - 29,733 sf industrial building
- 201 W. Pacific Coast Hwy.

147 unit mixed use project with 189,000 sf total