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May 30, 2020

Mr. Donald Young, Engineer Manager
City of Redlands
35 Cajon Street, Suite 15A
Redlands, California 92373

Subject: Air Quality, Energy, and Greenhouse Gas Memorandum for the 301 West Palm Avenue Project (LSA Project No. CRX2001)

Dear Mr. Young:

LSA has prepared this air quality, energy and greenhouse gas memorandum for the 301 West Palm Avenue Project (project) in the City of Redlands (City). The purpose of this memorandum is to provide the air quality and greenhouse gas emissions analysis in support of the Initial Study and Mitigated Negative Declaration (IS/MND).

INTRODUCTION AND PROJECT DESCRIPTION

The air quality and greenhouse gas (GHG) emissions analysis has been prepared to evaluate the potential air quality and GHG impacts associated with the proposed project located at the corner of Palm Avenue and Alvarado Street. The approximately 8.81-acre project site is currently developed the large home fronting Palm Avenue (Palm House), the smaller home facing Alvarado Street (Alvarado House), and the Carriage Barn immediately behind the Palm House. The proposed project is on Assessor's Parcel Number (APN) 0173-231-05 and would consist of development of 30 single-family homes in a gated neighborhood. A passive public park is proposed for the corner of Palm Avenue and Alvarado Street. The proposed project will subdivide the current APN into four parcels: Parcel 1 consisting of 1.54 acres for the Palm House and Carriage Barn, Parcel 2 consisting of 0.43 acre for the Alvarado House, Parcel 3 consisting of 0.86 acre for the Public Park, and Parcel 4 consisting of 5.99 acres for the single-family home community. The proposed project would involve removing an estimated 472 orange trees and one palm tree from Parcels 3 and 4 (i.e., 6.85 acres). Attachment A, Figure 1 presents the location map of the proposed project and Figure 2 presents the conceptual site plan.

SURROUNDING SENSITIVE USES

Certain land uses are considered sensitive to air quality. Examples of these include residential areas, educational facilities, hospitals, childcare facilities, and senior housing. The closest off-site sensitive receptors are the residential land uses east and northwest of the proposed project site. The nearest sensitive receptors (i.e., single-family residences) are approximately within 25 feet east of proposed project site.

APPROACH TO ANALYSIS

To evaluate air pollutant emissions from the construction and operation of the proposed project, LSA conducted the California Emission Estimator Model (CalEEMod) analysis, which is the current air quality and land use emissions model recommended by the California Air Resources Board (ARB) for

evaluating emissions from land use projects. Emissions from construction were based on the CalEEMod default for the construction phase scenario and anticipated opening date schedule. Emissions from operation of the proposed project include vehicle emissions, area source emissions, and energy use emissions. The construction and operational emissions were then compared with the CEQA air quality significance thresholds from the South Coast Air Quality Management District (SCAQMD). A climate action plan service population matrix evaluation was conducted to determine whether or not the proposed project would be consistent with the City of Redlands's *Climate Action Plan*.

EXISTING SETTING

The proposed project site is located in the City of Redlands, which is part of the South Coast Air Basin (Basin) and is under the jurisdiction of the SCAQMD.

Climate/Meteorology

Air quality in the planning area is affected not only by various emission sources (e.g., mobile, stationary, and area sources) but also by atmospheric conditions such as wind speed, wind direction, temperature, and rainfall. The combination of topography, low mixing height, abundant sunshine, and emissions from the second largest urban area in the United States gives the Basin the worst air pollution problem in the nation.

Climate in the Basin is determined by its terrain and geographical location. The Basin 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 Basin, which lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a climate that is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted; however, periods of extremely hot weather, winter storms, or Santa Ana wind conditions do occur.

The annual average temperature varies throughout the Basin, ranging from the low- to middle-60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, inland areas, including the City, show more variability in annual minimum and maximum temperatures than coastal areas. The climatological station closest to the site is the San Bernardino Station.¹ The monthly average maximum temperature recorded at this station from January 1893 to September 2004 ranged from 66.2°F in January to 96.2°F in July, with an annual average maximum of 79.9°F. The monthly average minimum temperature recorded at this station ranged from 38.5°F in January to 59.4°F in August, with an annual average minimum of 48.2°F. These levels are still representative of the project area. January is typically the coldest month and August is typically the warmest month in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin and along the coastal side of the mountains. The San Bernardino Station monitored precipitation from January 1893 to September 2004. Average

¹ Western Region Climate Center. 2020. Website: <http://www.wrcc.dri.edu> (accessed April 2020).

monthly rainfall during that period varied from 0.1 inch in January to no rainfall between May and October, with an annual total of 0.2 inch. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by midmorning.

Winds in the project area blow predominantly from the south-southwest, with relatively low velocities. Wind speeds in the project area average about 5 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly on shore into Riverside and San Bernardino Counties. In the winter, the greatest pollution problems are carbon monoxide (CO) and nitrogen oxides (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

Local Air Quality

The SCAQMD, together with the ARB, maintains ambient air quality monitoring stations in the Basin. The air quality monitoring stations closest to the site are the Redlands¹ and San Bernardino² Monitoring Stations, which monitor most air pollutant data, except for sulfur dioxide (SO₂), which were obtained from the Fontana station.³ The air quality trends from these two stations are used to represent the ambient air quality in the vicinity of the proposed project site. The ambient air quality data monitored at these stations within the past three years are listed in Table A.

As shown in Table A, the State 1-hour ozone (O₃) standard was exceeded 53 to 79 times per year in the past three years. The federal 8-hour O₃ standard was exceeded 98 to 115 days per year in the past three years, and the State 8-hour O₃ standard was exceeded 94 to 114 times per year in the past three years. The State 24-hour coarse particulate (PM₁₀) standard was exceeded at least twice in the past

¹ 500 N. Dearborn Street, Redlands, California 92374.

² 24302 4th Street, San Bernardino, California 92302.

³ 14360 Arrow Highway, Fontana, California 92335.

three years and the federal 24-hour fine particulate (PM_{2.5}) standard was exceeded once in 2016 and 2017.

Table A: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
Ozone (O₃) – Redlands Monitoring Station				
Maximum 1-hour concentration (ppm)		0.145	0.156	0.136
Number of days exceeded:	State: > 0.09 ppm	55	79	53
Maximum 8-hour concentration (ppm)		0.119	0.135	0.114
Number of days exceeded:	State: > 0.07 ppm	100	115	98
	Federal: > 0.07 ppm	97	114	94
Coarse Particulates (PM₁₀) – Redlands Monitoring Station				
Maximum 24-hour concentration (µg/m ³)		72.8	77.0	70.1
Number of days exceeded:	State: > 50 µg/m ³	4	2	2
	Federal: > 150 µg/m ³	0	0	0
Annual arithmetic average concentration (µg/m ³)		27.8	26.2	25.1
Exceeded for the year:	State: > 20 µg/m ³	Yes	Yes	Yes
Fine Particulates (PM_{2.5}) – San Bernardino Monitoring Station				
Maximum 24-hour concentration (µg/m ³)		53.5	38.2	30.1
Number of days exceeded:	Federal: > 35 µg/m ³	1	1	0
Annual arithmetic average concentration (µg/m ³)		11.1	11.4	11.1
Exceeded for the year:	State: > 12 µg/m ³	No	No	No
	Federal: > 12 µg/m ³	No	No	No
Carbon Monoxide (CO) – San Bernardino Monitoring Station				
Maximum 1-hour concentration (ppm)		2.2	2.7	1.2
Number of days exceeded:	State: > 20 ppm	0	0	0
	Federal: > 35 ppm	0	0	0
Maximum 8-hour concentration (ppm)		1.7	2.5	1.3
Number of days exceeded:	State: ≥ 9.0 ppm	0	0	0
	Federal: ≥ 9 ppm	0	0	0
Nitrogen Dioxide (NO₂) – San Bernardino Monitoring Station				
Maximum 1-hour concentration (ppm)		0.060	0.066	0.057
Number of days exceeded:	State: > 0.18 ppm	0	0	0
	Federal: > 0.10 ppm	0	0	0
Annual arithmetic average concentration (ppm)		0.016	0.015	0.015
Exceeded for the year:	State: > 0.030 ppm	No	No	No
	Federal: > 0.053 ppm	No	No	No
Sulfur Dioxide (SO₂) – Fontana Monitoring Station				
Maximum 24-hour concentration (ppm)		0.0008	0.0011	0.0009
Number of days exceeded:	State: > 0.04 ppm	0	0	0
Maximum 1-hour concentration (ppm)		0.0063	0.0039	0.0029
Number of days exceeded:	State: > 0.25 ppm	0	0	0
	Federal: > 0.075 ppm	0	0	0

Source: EPA. Air Data Air Quality Monitors. Website: http://www.epa.gov/airdata/ad_maps.html (accessed April 2020).

Table A: Ambient Air Quality Monitored in the Project Vicinity

Pollutant	Standard	2016	2017	2018
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$\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
 NA = not available

EPA = United States Environmental Protection Agency
 ppm = parts per million

Air Pollution Constituents and Attainment Status

The ARB coordinates and oversees both State and federal air pollution control programs in the State and oversees activities of local air quality management agencies and maintains air quality monitoring stations throughout the State in conjunction with the United States Environmental Protection Agency (EPA) and local air quality districts. The ARB has divided the State into 15 air basins based on meteorological and topographical factors of air pollution. Data collected at these stations are used by the ARB and EPA to classify air basins as attainment, nonattainment, nonattainment-transitional, or unclassified, based on air quality data for the most recent three calendar years compared with the Ambient Air Quality Standards (AAQS).

Attainment areas may be:

- Attainment/unclassified (“unclassifiable” in some lists), which have never violated the air quality standard of interest or do not have enough monitoring data to establish attainment or nonattainment status;
- Attainment/maintenance (National Ambient Air Quality Standards [NAAQS] only), which violated an NAAQS that is currently in use (was nonattainment) in or after 1990, but now attains the standard and is officially redesignated as attainment by the EPA with a maintenance State Implementation Plan (SIP); or
- Attainment (usually only for California Ambient Air Quality Standards [CAAQS], but sometimes for NAAQS), which have adequate monitoring data to show attainment, have never been nonattainment, or, for NAAQS, have completed the official maintenance period.

Additional restrictions are imposed on nonattainment areas as required by the EPA. The air quality data collected from monitoring stations are also used to monitor progress in attaining air quality standards. Table B lists the attainment status for the criteria pollutants in the Basin.

Table B: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
O ₃ 1-hour	Nonattainment	N/A
O ₃ 8-hour	Nonattainment	Extreme Nonattainment ¹
PM ₁₀	Nonattainment	Attainment/Maintenance
PM _{2.5}	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO ₂	Attainment	Unclassified/Attainment (1-hour) Attainment/Maintenance (Annual)
SO ₂	Attainment	Unclassified/Attainment
Lead	Attainment ²	Unclassified/Attainment ¹
All others	Attainment/Unclassified	Attainment/Unclassified

Table B: Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State	Federal
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Source: ARB. Air Quality Standards and Area Designations. Website: <http://www.arb.ca.gov/desig/desig.htm> (accessed April 2020).

¹ Area has a design value of 0.175 ppm and above.

² Except in Los Angeles County.

ARB = California Air Resources Board

N/A = not applicable

O₃ = ozone

PM_{2.5} = particulate matter less than 2.5 microns in size

CO = carbon monoxide

NO₂ = nitrogen dioxide

PM₁₀ = particulate matter less than 10 microns in size

ppm = parts per million

SO₂ = sulfur dioxide

Description of Global Climate Change and its Sources

Global climate change (GCC) is the observed increase in the average temperature of the Earth's atmosphere and oceans along with other significant changes in climate (e.g., precipitation or wind) that last for an extended period of time. The term "global climate change" is often used interchangeably with the term "global warming," but "global climate change" is preferred to "global warming" because it helps convey that there are other changes in addition to rising temperatures.

Climate change refers to any change in measures of weather (e.g., temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors (e.g., changes in the sun's intensity), natural processes within the climate system (e.g., changes in ocean circulation), or human activities (e.g., the burning of fossil fuels, land clearing, or agriculture). The primary observed effect of GCC has been a rise in the average global tropospheric¹ temperature of 0.36°F per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling shows that further warming may occur, which may induce additional changes in the global climate system during the current century. Changes to the global climate system, ecosystems, and the environment of the State could include higher sea levels, drier or wetter weather, changes in ocean salinity, changes in wind patterns, or more energetic aspects of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and increased intensity of tropical cyclones. Specific effects in the State might include a decline in the Sierra Nevada snowpack, erosion of the State's coastline, and seawater intrusion in the San Joaquin Delta.

Global surface temperatures have risen by 1.33°F ±0.32°F over the last 100 years. The rate of warming over the last 50 years is almost double that over the last 100 years (Intergovernmental Panel on Climate Change [IPCC] 2013). The latest projections, based on state-of-the-art climate models, indicate that temperatures in the State are expected to rise 3°F to 10.5°F by the end of the century (California Energy Commission 2006). The prevailing scientific opinion on climate change is that "most of the warming observed over the last 60 years is attributable to human activities" (IPCC 2013). Increased amounts of carbon dioxide (CO₂) and other GHGs are the primary causes of the human-induced component of warming. The observed warming effect associated with the presence of GHGs in the atmosphere (from either natural or human sources) is often referred to as "the greenhouse effect."²

¹ The troposphere is the zone of the atmosphere characterized by water vapor, weather, winds, and decreasing temperature with increasing altitude.

² The temperature on Earth is regulated by a system commonly known as the "greenhouse effect." Just as the glass in a greenhouse allows heat from sunlight in and reduces the amount of heat that escapes, GHGs like CO₂, CH₄, and N₂O in the atmosphere keep the Earth at a relatively even temperature. Without the greenhouse effect, the Earth would be

GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced GCC are:¹

- Carbon dioxide (CO₂);
- Methane (CH₄);
- Nitrous oxide (N₂O);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Sulfur hexafluoride (SF₆).

Over the last 200 years, human activities have caused substantial quantities of GHGs to be released into the atmosphere. These extra emissions are increasing GHG concentrations in the atmosphere and enhancing the natural greenhouse effect, which scientists believe can cause global warming. While GHGs produced by human activities include naturally occurring GHGs (e.g., CO₂, CH₄, and N₂O), some gases (e.g., HFCs, PFCs, and SF₆) are completely new to the atmosphere. Certain other gases (e.g., water vapor) are short-lived in the atmosphere compared to these GHGs, which remain in the atmosphere for significant periods of time and contribute to climate change in the long term. Water vapor is generally excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes (e.g., oceanic evaporation). For the purposes of this air quality study, the term “GHGs” will refer collectively to the six gases identified in the bulleted list provided above.

These gases vary considerably in terms of global warming potential (GWP), which is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. GWP is based on several factors, including the relative effectiveness of a gas in absorbing infrared radiation and the length of time that the gas remains in the atmosphere (“atmospheric lifetime”). The GWP of each gas is measured relative to CO₂, the most abundant GHG. The definition of GWP for a particular GHG is the ratio of heat trapped by one unit mass of the GHG to the ratio of heat trapped by one unit mass of CO₂ over a specified time period. GHG emissions are typically measured in terms of metric tons² of “CO₂ equivalents” (metric tons [MT] of CO₂e). For example, N₂O is 298 times more potent at contributing to global warming than CO₂. Table C identifies the GWP for each GHG analyzed in this memorandum.

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a frozen globe; thus, the *naturally occurring* greenhouse effect is necessary to keep our planet at a comfortable temperature.

¹ The GHGs listed are consistent with the definition in Assembly Bill 32 (Government Code 38505), as discussed later in this memorandum.

² A metric ton is equivalent to approximately 1.1 tons.

Table C: Global Warming Potential for Selected Greenhouse Gases

Pollutant	Lifetime (Years)	Global Warming Potential (100-year) ¹
Carbon Dioxide (CO ₂)	~100 ²	1
Methane (CH ₄)	12	25
Nitrous Oxide (N ₂ O)	121	298

Source: ARB. First Update to the Climate Change Scoping Plan (2014).

¹ The 100-year global warming potential estimates are from Section 8.7.1.2 of The Global Warming Potential Concept in the IPCC 2007 Fourth Assessment Report (AR4). Website: http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_synthesis_report.htm (accessed April 2020).

² CO₂ has a variable atmospheric lifetime and cannot be readily approximated as a single number.

ARB = California Air Resources Board

CO₂ = carbon dioxide

IPCC = Intergovernmental Panel on Climate Change

The following discussion summarizes the characteristics of the six primary GHGs.

Carbon Dioxide

In the atmosphere, carbon generally exists in its oxidized form, as CO₂. Natural sources of CO₂ include the respiration (breathing) of humans, animals, and plants; volcanic outgassing; decomposition of organic matter; and evaporation from the oceans. Human-caused sources of CO₂ include the combustion of fossil fuels and wood, waste incineration, mineral production, and deforestation. The Earth maintains a natural carbon balance, and when concentrations of CO₂ are upset, the system gradually returns to its natural state through natural processes. Natural changes to the carbon cycle work slowly, especially compared to the rapid rate at which humans are adding CO₂ to the atmosphere. Natural removal processes (e.g., photosynthesis by land- and ocean-dwelling plant species) cannot keep pace with this extra input of human-made CO₂, and consequently the gas is building up in the atmosphere. The concentration of CO₂ in the atmosphere has risen approximately 30 percent since the late 1800s.¹

The transportation sector remained the largest source of GHG emissions in 2017, representing 40 percent of the State's GHG emission inventory.² The largest emissions category within the transportation sector is on-road, which consists of passenger vehicles (cars, motorcycles, and light-duty trucks) and heavy-duty trucks and buses. Emissions from on-road sources constitute approximately 99 percent of the transportation sector total. Industry and electricity generation were the State's second- and third-largest categories of GHG emissions, respectively.

Methane

CH₄ is produced when organic matter decomposes in environments lacking sufficient oxygen. Natural sources of CH₄ include fires, geologic processes, and bacteria that produce CH₄ in a variety of settings (most notably, wetlands) (EPA 2010). Anthropogenic sources include rice cultivation,

¹ California Environmental Protection Agency (CalEPA). 2010. Climate Action Team Report to Governor Schwarzenegger and the Legislature. December. Website: <https://ww2.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF>, accessed May 2020.

² ARB. 2019a. GHG Current California Emission Inventory Data. Website: <https://www.arb.ca.gov/cc/inventory/data/data.htm>, accessed May 2020.

livestock, landfills and waste treatment, biomass burning, and fossil fuel combustion (e.g., the burning of coal, oil, and natural gas). As with CO₂, the major removal process of atmospheric CH₄—a chemical breakdown in the atmosphere—cannot keep pace with source emissions, and CH₄ concentrations in the atmosphere are increasing.

Nitrous Oxide

N₂O is produced naturally by a wide variety of biological sources, particularly microbial action in soils and water. Tropical soils and oceans account for the majority of natural source emissions. N₂O is also a product of the reaction that occurs between nitrogen and oxygen during fuel combustion. Both mobile and stationary combustion sources emit N₂O. The quantity of N₂O emitted varies according to the type of fuel, technology, and pollution control device used, as well as maintenance and operating practices. Agricultural soil management and fossil fuel combustion are the primary sources of human-generated N₂O emissions in the State.

Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride

HFCs are primarily used as substitutes for O₃-depleting substances regulated under the Montreal Protocol.¹ PFCs and SF₆ are emitted from various industrial processes, including aluminum smelting, semiconductor manufacturing, electric power transmission and distribution, and magnesium casting. There is no aluminum or magnesium production in the State; however, the rapid growth in the semiconductor industry, which is active in the State, has led to greater use of PFCs. However, there are no known project-related emissions of these three GHGs; therefore, these substances are not discussed further in this analysis.

Emissions Sources and Inventories

An emissions inventory that identifies and quantifies the primary human-generated sources and sinks of GHGs is a well-recognized and useful tool for addressing climate change. This section summarizes the latest information on national, State, and local GHG emission inventories. However, because GHGs persist for a long time in the atmosphere (Table C), accumulate over time, and are generally well mixed, their impact on the atmosphere and climate cannot be tied to a specific point of emission.

United States Emissions

In 2017, the United States emitted approximately 6.456 billion MT CO₂e, down from 7.4 billion MT CO₂e in 2007. United States emissions decreased by 0.5 percent from 2016 to 2017. This decrease was largely driven by a decrease in emissions from fossil fuel combustion, which was a result of multiple factors including a continued shift from coal to natural gas and increased use of renewables

¹ The Montreal Protocol is an international treaty that was approved on January 1, 1989, and was designated to protect the O₃ layer by phasing out the production of several groups of halogenated hydrocarbons believed to be responsible for O₃ depletion and that are potent GHGs.

in the electric-power sector, and milder weather that contributed to less overall electricity use. In 2017, the total United States GHG emissions were approximately 13 percent less than 2005 levels.¹

State of California Emissions

According to ARB emission inventory estimates, the State emitted approximately 424 million MT CO₂e (MMT CO₂e) emissions in 2017. This is a decrease of 5 MMT CO₂e from 2016 and below the 2020 target of 431 MMT CO₂e.²

The transportation sector remains the largest source of GHG emissions, accounting for 40 percent, followed by electricity generation (both in-state and out-of-state) at 15 percent and industrial sources at 21 percent. The remaining sources of GHG emissions were residential and commercial activities at 9 percent, agriculture at 8 percent, high-GWP gases at 4.3 percent, and recycling and waste at 2 percent.³

REGULATORY SETTING

Federal Regulations/Standards

Pursuant to the Federal Clean Air Act (CAA) of 1970, the EPA established the NAAQS. The NAAQS were established for six major pollutants, termed “criteria” pollutants. Criteria pollutants are defined as those pollutants for which the federal and State governments have established AAQS, or criteria, for outdoor concentrations in order to protect public health.

As discussed above, data collected at permanent monitoring stations are used by the EPA to classify regions as “attainment” or “nonattainment,” depending on whether the regions met the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the EPA. The EPA has designated the Southern California Association of Governments (SCAG) as the Metropolitan Planning Organization (MPO) responsible for ensuring compliance with CAA requirements for the Basin.

State Regulations/Standards

In 1967, the State Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus (i.e., the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board), to establish the ARB. Since its formation, the ARB has worked with the public, the business sector, and local governments to find solutions to the State’s air pollution problems.

¹ United States Environmental Protection Agency 2019. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017. Website: <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>, accessed April 2020.

² California Air Resources Board 2019. GHG Current California Emission Inventory. California Greenhouse Gas Emissions for 2000 to 2017, Trends of Emissions and Other Indicators. 2019 Edition. Webpage last reviewed by ARB in 2019. Website: <http://www.arb.ca.gov/cc/inventory/data/data.htm>, accessed April 2020.

³ United States Environmental Protection Agency 2019. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2017. Website: <https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>, accessed April 2020.

The California Air Pollution Control Officers Association (CAPCOA) is a nonprofit association of the air pollution control officers from all 35 local air quality agencies throughout California. CAPCOA was formed in 1976 to promote clean air and to provide a forum for sharing knowledge, experience, and information among the air quality regulatory agencies around the State. CAPCOA meets regularly with federal and State air quality officials to develop statewide rules and to ensure consistent application of rules and regulations. CAPCOA works with specialized task forces (including regulated industry) by participating actively in the legislative process, and continuing to coordinate local efforts with those of the State and federal air agencies. The goal is to protect public health while maintaining economic vitality. California adopted the California Clean Air Act (CCAA) in 1988. The ARB administers the CAAQS for the 10 air pollutants designated in the CCAA. These 10 State air pollutants are the six criteria pollutants designated by the CAA plus four others: visibility-reducing particulates, H₂S, sulfates, and vinyl chloride.

California Climate Action Milestones

Assembly Bill (AB) 1493, authored by Assembly Member Fran Pavley in 2002, directed the ARB to adopt regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles. The so-called “Pavley” regulations, or Clean Car regulations, were approved by the ARB in 2004. On September 24, 2009, the ARB adopted amendments to AB 1493 that reduced GHG emissions in new passenger vehicles from 2009 through 2016. AB 1493 also directed the State’s Climate Action Registry to adopt protocols for reporting reductions in GHG emissions from mobile sources prior to the operative date of the regulations.

Executive Order (EO) S-3-05 (June 2005) established GHG targets for the State (e.g., returning to year 2000 emission levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050). EO S-3-05 directed the Secretary of the California Environmental Protection Agency to coordinate efforts to meet the targets with the heads of other State agencies. This group became the Climate Action Team.

In 2006, the State Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multiyear program to reduce GHG emissions in California. AB 32 required the ARB to develop a Scoping Plan that describes the approach California will take to reduce GHGs to achieve the goal of reducing emissions to 1990 levels by 2020. The Scoping Plan was first approved by the ARB in 2008 and must be updated every 5 years. The First Update to the Climate Change Scoping Plan was approved by the ARB on May 22, 2014. In 2016, the State Legislature passed Senate Bill (SB) 32, which codifies a 2030 GHG emissions reduction target of 40 percent below 1990 levels. With SB 32, the State Legislature passed companion legislation AB 197, which provides additional direction for developing the Scoping Plan. The ARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target set by EO B-30-15 and codified by SB 32.

California is implementing the world’s first Low Carbon Fuel Standard for transportation fuels, pursuant to both EO S-01-07 (signed January 2007) and AB 32. The standard requires a reduction of at least 10 percent in the CO intensity of the State’s transportation fuels by 2020. This reduction is expected to reduce GHG emissions in 2020 by 17.6 MMT CO₂e. Also in 2007, AB 118 created the Alternative and Renewable Fuel and Vehicle Technology Program. The California Energy Commission

(CEC) and ARB administer the program. This act provides funding for alternative fuel and vehicle technology research, development, and deployment in order to attain the State's climate change goals, achieve the State's petroleum reduction objectives and clean air and GHG emission reduction standards, develop public-private partnerships, and ensure a secure and reliable fuel supply.

In addition to vehicle emissions regulations and the Low Carbon Fuel Standard, the third effort to reduce GHG emissions from transportation is the reduction in the demand for personal vehicle travel (i.e., vehicle miles traveled [VMT]). This measure was addressed in September 2008 through the Sustainable Communities and Climate Protection Act of 2008, or SB 375. The enactment of SB 375 initiated an important new regional land use planning process to mitigate GHG emissions by integrating and aligning planning for housing, land use, and transportation for California's 18 MPOs. The bill directed the ARB to set regional GHG emission reduction targets for most areas of the State. SB 375 also contained important elements related to federally mandated regional transportation plans and the alignment of State transportation and housing planning processes.

Also codified in 2008, SB 97 required the Governor's Office of Planning and Research (OPR) to develop GHG emissions criteria for use in determining project impacts under the California Environmental Quality Act (CEQA). These criteria were developed in 2009 and went into effect in 2010.

EO S-13-08 launched a major initiative for improving the State's adaptation to climate impacts from sea level rise, increased temperatures, shifting precipitation, and extreme weather events. EO S-13-08 ordered a California Sea Level Rise Assessment Report request from the National Academy of Sciences. The order also ordered the development of a Climate Adaptation Strategy. The strategy, published in December 2009, assesses the State's vulnerability to climate change impacts, and outlines possible solutions that can be implemented within and across State agencies to promote resiliency. The Strategy focused on seven areas: public health, biodiversity and habitat, ocean and coastal resources, water management, agriculture, forestry, and transportation and energy infrastructure.

The initiatives, EOs, and statutes outlined above comprise the major milestones in California's efforts to address climate change through coordinated action on climate research, GHG mitigation, and climate change adaptation. Numerous other related efforts have been undertaken by State agencies and departments to address specific questions and programmatic needs. The Climate Action Team coordinates these efforts and others, which comprise the State's climate program.¹

Regional Air Quality Planning Framework

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air quality districts throughout the State. The CAA Amendments of 1977 required that each state adopt an implementation plan outlining pollution control measures to attain the federal standards in nonattainment areas of the State.

¹ State of California. 2017. Highlights of the California Climate Change Program. Website: <http://www.climatechange.ca.gov/state/highlights.html>, accessed January 2020.

The ARB is responsible for incorporating air quality management plans for local air basins into an SIP for EPA approval. Significant authority for air quality control within them has been given to local air quality districts that regulate stationary-source emissions and develop local nonattainment plans.

SCAQMD Rules

The proposed project would be required to comply with regional rules that assist in reducing short-term air pollutant emissions. SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to project construction or operation. For example, SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures (BACMs) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM₁₀ component). Compliance with these rules would reduce impacts on nearby sensitive receptors.

The following SCAQMD rules and regulations would be applicable to the proposed project:

1. SCAQMD Rule 403 requires projects to incorporate fugitive dust control measures.
2. SCAQMD Rule 1113 limits the volatile organic compound (VOC) content of architectural coatings.

Regional Air Quality Management Plan

The SCAQMD is responsible for formulating and implementing the Air Quality Management Plan (AQMP) for the Basin. The main purpose of an AQMP is to bring the area into compliance with federal and State air quality standards. The SCAQMD prepares a new AQMP every three years, updating the previous plan and 20-year horizon.

The latest plan is the 2016 AQMP, which incorporates the latest scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories. The 2016 AQMP included the integrated strategies and measures needed to meet the NAAQS, implementation of new technology measures, and demonstrations of attainment of the 1-hour and 8-hour ozone NAAQS as well as the latest 24-hour and annual PM_{2.5} standards. Key elements of the 2016 AQMP include:

- Calculation and credit for co-benefits from other planning efforts (e.g., climate, energy, and transportation);
- A strategy with fair-share emission reductions at the federal, State, and local levels;
- Investment in strategies and technologies meeting multiple air quality objectives;
- Identification of new partnerships and significant funding for incentives to accelerate deployment of zero and near-zero technologies;

- Enhanced socioeconomic assessment, including an expanded environmental justice analysis;
- Attainment of the 24-hour PM_{2.5} standard in 2019 with no additional measures;
- Attainment of the annual PM_{2.5} standard by 2025 with implementation of a portion of the ozone strategy; and
- Attainment of the 1-hour ozone standard by 2022 with no reliance on “black box” future technology (CAA Section 182(e)(5) measures).

Local Policies

City of Redlands General Plan

The City’s General Plan 2035 was adopted in December 2017¹ in an effort to comply with State regulations and to improve air quality in the City and Basin. The City has the authority and responsibility to reduce air pollution through its police power and decision-making authority. The project site is designated as Industrial/Commercial land by the City of Redlands General Plan 2035. The project site is zoned as East Valley Commercial Industrial (EV/IC), within the East Valley Corridor Specific Plan, and land uses surrounding the site to the south, east, and west have the same zoning. The proposed project would comply with the current General Plan designation and zoning, and therefore, no changes to land use designations or zoning would be needed.

The City is responsible for the assessments and mitigation of air quality and GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality and GHG impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation. The City’s General Plan 2035 contains the following air quality-related goals and policies that are applicable to the proposed project:

- Protect air quality within the City and support efforts for enhanced regional air quality.
- Aim for a diverse and efficiently operated ground transportation system that generates the minimum amount of pollutants feasible.
- Increase average vehicle ridership during peak commute hours as a way of reducing vehicle miles traveled and peak period auto travel.
- Protect sensitive receptors from exposure to hazardous concentrations of air pollutants.
- Ensure that construction and grading projects minimize short-term impacts to air quality.
- Enforce regulations to prevent trucks from excessive idling in residential areas.
- Require applicants for sensitive land uses (e.g., residences, schools, daycare centers, playgrounds, and medical facilities) to incorporate design features (e.g., pollution prevention, pollution reduction, barriers, landscaping, or ventilation systems) to minimize the potential impacts of air pollution on sensitive receptors.

¹ City of Redlands. 2017. General Plan 2035. December. Website: <https://gis.cityofredlands.org/generalplan/gp2035.pdf> (accessed May 2020).

- Promote energy efficiency and conservation technologies and practices that reduce the use and dependency of nonrenewable resources of energy.
- Implement and enforce CCR Title 24 building standards (Parts 6 and 11) to improve energy efficiency in new or substantially remodeled construction. Consider implementing incentives for builders that exceed the standards included in Title 24, and recognize their achievements over the minimum standards.
- Encourage the use of construction, roofing materials, and paving surfaces with solar-reflectance and thermal-emittance values per CALGreen (Title 24, Part 11 of the CCR) to minimize heat island effects.
- Promote residential and commercial water conservation using multiple strategies.
- Promote design in new development that incorporates space for recycling containers and other waste diversion facilities.
- Promote sustainability by reducing the community's GHG emissions and fostering green development patterns, including buildings, sites, and landscapes.

City of Redlands Climate Action Plan

The City adopted its Climate Action Plan (CAP) on December 5, 2017.¹ The CAP presents the GHG inventories, identifies the effectiveness of California initiatives to reduce GHG emissions, and identifies local measures that the City selected to reduce GHG emissions under its jurisdictional control to achieve its identified GHG reduction target. The City participated in the San Bernardino County Regional GHG Reduction Plan, which presents the collective results of all local efforts to reduce GHG emissions consistent with statewide GHG targets expressed in AB 32, the Global Warming Solutions Act of 2006, and SB 375. The CAP builds on the regional work and refines it to provide City-specific information and to develop the local implementation plan for City-selected GHG reduction measures. The CAP's GHG emission targets and goals are based on meeting the goals in AB 32 and SB 32 and following the CAP guidelines established in the 2017 Scoping Plan. The CAP includes emissions targets of 6.0 MT CO₂e per capita per year for 2030 and 5.0 MT CO₂e per capita per year for 2035.

In addition, the City adopted the Redlands Community Sustainability Plan in March 2011, which details goals and policies to reduce overall City energy consumption and increase the use of renewable energy. The goals and policies in the strategies include the following:

- EE1.** Promote energy efficiency and conservation technologies and practices that reduce the use of nonrenewable resources by both City government and the community.
- GB1.** Adopt broadly accepted standards for green building.
- GB5.** Provide assistance to the development community in adopting economically viable and ecologically responsible green-building strategies.

¹ City of Redlands. 2017. Climate Action Plan. December. Website: https://www.cityofredlands.org/sites/main/files/file-attachments/final_redlands_cap_with_appendices_011718.pdf?1554321276 (accessed May 2020).

CF1. Commit to purchasing products and services that are climate friendly.

LU4. Create pedestrian-friendly neighborhoods.

AIR QUALITY IMPACT ANALYSIS

(a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact.

Discussion of Effects: The proposed project site is within the South Coast Air Basin, which is managed by the SCAQMD. The EPA has designated the status of the Basin as nonattainment for O₃, PM₁₀, and PM_{2.5} under the CAAQS. Under the NAAQS, the EPA has designated the status of the Basin as nonattainment for O₃ and PM_{2.5}.

The SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. The applicable AQMP is the SCAQMD Final 2016 AQMP. The 2016 AQMP incorporates local General Plan land use assumptions and regional growth projections developed by SCAG to estimate stationary and mobile source emissions associated with projected population and planned land uses. If a new land use is consistent with the local General Plan and the regional growth projections adopted in the 2016 AQMP, then the added emissions are considered to have been evaluated, are contained in the 2016 AQMP, and would not conflict with or obstruct implementation of the regional 2016 AQMP.

The proposed project is not considered a project of statewide, regional, or area-wide significance (e.g., large-scale projects such as airports, electrical generating facilities, petroleum and gas refineries, residential development of more than 500 dwelling units, or shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space) as defined in the California Code of Regulations (Title 14, Division 6, Chapter 3, Article 13, §15206(b)).

As previously noted, the residential development will construct 30 new single-family homes and a community park on currently occupied orchard. The project is located on an approximately 8.81-acre parcel at the corner of Palm Avenue and Alvarado Street in the City of Redlands, San Bernardino County. The existing parcel hosts three single-family residential units. The project applicant is proposing to retain the large home fronting Palm Avenue (Palm House), the smaller home facing Alvarado Street (Alvarado House), and the Carriage House immediately behind the Palm House. The orange groves within the southwest quarter of the site will also be retained between the two homes. Along the remaining portion of the project site abutting the northeastern and southeastern edges of the property, the project applicant proposes to create a community of 30 single-family homes in a gated neighborhood.¹ Since the proposed project is consistent with the City's General Plan land use and zoning designation for single-family residential use² and would not generate any increase in population beyond that which has

¹ Diversified Pacific Communities (Project Applicant) Project Narrative. 2020.

² City of Redlands. 2020. Land Use Zoning. Website: <https://www.cityofredlands.org/zoning> (accessed in May 2020).

already been planned for by SCAG and the City, the proposed project is consistent with the 2016 AQMP. Impacts would be less than significant and no mitigation is required.

- (b) Would the project result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or State ambient air quality standard?

Less than Significant Impact.

Discussion of Effects: The Basin is currently designated nonattainment for the federal and State standards for O₃ and PM_{2.5}. In addition, the Basin is in nonattainment for the State PM₁₀ standard. The Basin's nonattainment status is attributed to the region's development history. Past, present, and future development projects contribute to the region's adverse air quality impacts on a cumulative basis. By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size to, by itself, result in nonattainment of AAQS. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's contribution to the cumulative impact is considerable, then the project's impact on air quality would be considered significant.

In developing thresholds of significance for air pollutants, the SCAQMD considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. Therefore, additional analysis to assess cumulative impacts is not necessary. The following analysis assesses the potential project-level air quality impacts associated with construction and operation of the proposed project.

The SCAQMD's CEQA *Air Quality Handbook* establishes suggested significance thresholds based on the volume of pollution emitted. According to the *Handbook*, any project in the Basin with daily emissions that exceed any of the following thresholds should be considered as having an individually and cumulatively significant air quality impact:

- 55 lbs. per day of VOC (75 lbs./day during construction);
- 55 lbs. per day of NOx (100 lbs./day during construction);
- 550 lbs. per day of CO (550 lbs./day during construction);
- 150 lbs. per day of PM₁₀ (particulate matter with a diameter of 10 microns or smaller, i.e., coarse particulate matter) (150 lbs./day during construction);
- 55 lbs. per day of PM_{2.5} (particulate matter with a diameter of 2.5 microns or smaller, i.e., fine particulate matter) (55 lbs./day during construction); and
- 150 lbs. per day of SOx (oxides of sulfur) (150 lbs./day during construction).

The most recent version of the CalEEMod (Version 2016.3.2) was used to calculate construction and operation emissions from development of the proposed project (Attachment B).

No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively

significant adverse air quality impacts. The SCAQMD developed the thresholds of significance based on the level above which a project's individual emissions would result in a cumulatively considerable contribution to the Basin's existing air quality conditions. Therefore, a project that exceeds the SCAQMD project-specific thresholds would also have a cumulatively considerable contribution to a significant cumulative impact.

Construction Emissions: During construction, short-term degradation of air quality may occur due to the release of particulate matter emissions (i.e., fugitive dust) generated by site leveling, trenching, paving, and other activities. Emissions from construction equipment are also anticipated and would include CO, NOx, VOC, directly-emitted PM_{2.5} or PM₁₀, and toxic air contaminants (TACs) such as diesel exhaust particulate matter. Construction emissions were estimated for the project using CalEEMod Version 2016.3.2, consistent with SCAQMD recommendations for the proposed project. For purposes of air quality analysis, it is assumed that construction would happen in phases, and would include the following construction activities: demolition, site preparation, grading, building construction, paving, and architectural coatings (painting). Tentative Parcel Map (TPM 20185) will subdivide the 8.81-acre project site into four parcels: Parcel 1 consisting of 1.54 acres for the Palm House and Carriage House, Parcel 2 consisting of 0.43 acre for the Alvarado House, Parcel 3 consisting of 0.86 acre for the community park, and Parcel 4 consisting of 5.99 acres for the single-family home community. The maximum daily disturbance on any day during construction is 3.00 acres during the grading phase. The net project build area is 6.82 acres for the community park and proposed homes from the 8.81-acre property site. CalEEMod defaults are assumed for the construction activities, off-road equipment, on-road construction fleet mix and trip lengths. All off-road equipment over 50 horsepower rating will utilize EPA Tier 2 engines as required under the Nonroad Compression-Ignition Engines: Exhaust Emission Standards.¹ Fugitive dust emission control measure such as watering the exposed surface area will occur at least three times daily in accordance with the SCAQMD Rule 403. The proposed project phases will begin construction in separate months to meet the proposed goal of operational use in early 2022. During the first phase of demolition, the 392 orange trees the northeastern and southeastern sides of the project site will be removed. A small area at the western corner of the project site will also remove approximately 80 existing orange trees to construct the community park. An estimated 93 truck trips will be associated with debris removal from the project site, which was included in CalEEMod.

Table D identifies the maximum daily emissions associated with construction activities during each phase, and indicate no criteria pollutant emission thresholds would be exceeded from construction of the proposed project.

Table D: Short-Term Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs./day)							
	VOCs	NOx	CO	SOx	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Demolition	1.37	34.00	25.54	0.04	0.64	0.92	0.13	0.92

¹ U.S. Environmental Protection Agency. 2016. Nonroad Compression-Ignition Engines: Exhaust Emission Standards.

Table D: Short-Term Regional Construction Emissions

Construction Phase	Maximum Daily Regional Pollutant Emissions (lbs./day)							
	VOCs	NOx	CO	SOx	Fugitive PM ₁₀	Exhaust PM ₁₀	Fugitive PM _{2.5}	Exhaust PM _{2.5}
Site Preparation	1.30	33.78	23.70	0.04	7.25	0.95	3.93	0.95
Grading	1.47	38.11	27.75	0.05	2.76	1.05	1.37	1.05
Building Construction	1.42	24.31	19.28	0.03	0.35	0.88	0.09	0.88
Paving	1.00	20.16	17.86	0.02	0.17	0.67	0.04	0.67
Architectural Coating	24.55	2.37	2.01	0.00	0.06	0.10	0.01	0.10
Peak Daily Emissions	24.55	38.11	27.75	0.05	8.19		4.87	
SCAQMD Thresholds	75.00	100.00	550.00	150.00	150.00		55.00	
Significant?	No	No	No	No	No		No	

Source: Compiled by LSA (May 2020).

Note: Numbers may appear to not sum correctly due to rounding.

CO = carbon monoxide

NOx = nitrogen oxides

PM₁₀ = coarse particulate matter

SOx = sulfur oxides

lbs./day = pounds per day

PM_{2.5} = fine particulate matter

SCAQMD = South Coast Air Quality Management District

VOCs = volatile organic compounds

As shown in Table D, construction emissions associated with the project would not exceed the SCAQMD's thresholds for VOC, NOx, CO, SOx, PM_{2.5}, and PM₁₀ emissions. Therefore, construction of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State AAQS. Impacts would be less than significant and no mitigation is required.

Operational Emissions: Long-term air pollutant emissions associated with operation of the proposed project include emissions from area, energy, and mobile sources. Area sources include architectural coatings, consumer products, and landscaping. Energy source emissions result from activities in buildings for which electricity and natural gas are used. Mobile-source emissions are from vehicle trips associated with operation of the project.

LSA compiled long-term operational emissions associated with the proposed project. Trip generation rates used in CalEEMod for the proposed project were based on the project's trip generation estimates (LSA 2020). The proposed project would generate approximately 283 average daily trips (ADT). Table E shows the project's projected operational emissions of criteria pollutants from Area, Energy, and Mobile sources.

Table E: Project Operational Emissions

Source	Pollutant Emissions (lbs./day)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
Project Area Sources	1.81	0.45	2.66	<0.01	0.05	0.05
Project Energy Sources	0.02	0.13	0.06	<0.01	0.01	0.01
Project Mobile Sources	0.49	2.57	6.59	0.03	2.08	0.57
Total Project Emissions	2.31	3.16	9.31	0.03	2.14	0.63

Table E: Project Operational Emissions

Source	Pollutant Emissions (lbs./day)					
	VOC	NOx	CO	SOx	PM ₁₀	PM _{2.5}
SCAQMD Thresholds	55.0	55.0	550.0	150.0	150.0	55.0
Exceeds?	No	No	No	No	No	No

Source: Compiled by LSA (May 2020).

CO = carbon monoxide

lbs./day = pounds per day

NOx = nitrogen oxides

PM_{2.5} = particulate matter less than 2.5 microns in size

PM₁₀ = particulate matter less than 10 microns in size

SCAQMD = South Coast Air Quality Management District

SOx = sulfur oxides

VOC = volatile organic compounds

The results shown in Table E indicate the proposed project would not exceed the significance criteria for daily VOC, NOx, CO, SOx, PM₁₀, or PM_{2.5} emissions. The table also shows the net increase in criteria pollutants is minimal and does not exceed SCAQMD the significance criteria. In addition, the proposed project would be consistent with regulatory measures such as Title 13-Section 2449 of the California Code of Regulations; and the proposed project would also implement CalRecycle/Green Building Program regulations. Through compliance with these regulations as part of applicable policy designed to reduce emissions, the proposed project would not exceed any SCAQMD threshold or contribute to a substantial increase in regional air pollutant emissions. Therefore, operation of the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or State AAQS and impacts would be less than significant. No mitigation is required.

- (c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact.

Discussion of Effects: Localized Significance Thresholds (LSTs) are developed based upon the size or total area of the emissions source from the construction equipment activities, the ambient air quality levels in each Source Receptor Area (SRA) in which the emission source is located, and the distance to the sensitive receptor. The nearest residential homes (i.e., single-family residences) are located approximately 25 feet east from the project site. LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each SRA. As identified above, for the proposed project, the appropriate SRA for the LST is SRA 35 (East San Bernardino Valley).

LSTs only apply to CO, nitrogen dioxide (NO₂), PM₁₀, and PM_{2.5} emissions during construction and operation at the discretion of the lead agency. Screening-level analysis of LSTs is only recommended for construction activities at project sites that are approximately 5 acres or less. The proposed project site has a construction surface area of 6.82 acres, however; the maximum daily disturbance to the proposed project site on any given day is 3 acres, during the grading phase. Therefore, screening-level analysis of LSTs for 3 acres was used for construction and operational activities.

Localized significance is determined by comparing the on-site-only portion of the construction and operational emissions with emissions thresholds derived by the SCAQMD to ensure pollutant concentrations at nearby sensitive receptors would be below the LST threshold established by the SCAQMD. Tables F and G indicate the construction and operational LST analyses of the CalEEMod results.

Table F: Project Localized Construction Emissions

Source	Pollutant Emissions			
	NO ₂ (lbs./day)	CO (lbs./day)	PM ₁₀ (lbs./day)	PM _{2.5} (lbs./day)
On-Site Emissions	38.00	27.00	8.00	4.80
LST Thresholds	203.00	1,474.00	9.30	6.30
Significant?	No	No	No	No

Source: Compiled by LSA (May 2020).

SRA 35, based on 3-acre construction disturbance daily area.

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = localized significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO₂ = nitrogen dioxide

Table G: Project Localized Operational Emissions

Source	Pollutant Emissions			
	NO ₂ (lbs/day)	CO (lbs/day)	PM ₁₀ (lbs/day)	PM _{2.5} (lbs/day)
On-Site Emissions	0.58	3.00	0.15	0.08
LST Thresholds	270.00	2,075.00	4.00	3.00
Significant?	No	No	No	No

Source: Compiled by LSA (May 2020).

SRA 35, based on 3-acre operational daily area

CO = carbon monoxide

PM_{2.5} = particulate matter less than 2.5 microns in size

LST = localized significance threshold

PM₁₀ = particulate matter less than 10 microns in size

NO₂ = nitrogen dioxide

As detailed in Tables F and G, emissions would not exceed LST thresholds. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations.

Although project-level NO₂ emissions would generate ozone precursor emissions, as identified in Tables F and G, these levels would not exceed any established SCAQMD daily emission thresholds. The project's peak construction NO₂ emissions amount to approximately 38 pounds per day. Due to the incremental size of the proposed project, the level of emissions is not sufficiently high to use a regional modeling program to correlate health effects on a basin-wide level. On a regional scale, the quantity of emissions from the project is incrementally minor. Because the SCAQMD has not identified an accurate method to quantify health impacts from small projects and, due to the size of the project, it is speculative to assign any specific health effects to small project-related emissions. Therefore, impacts related to substantial pollutant concentrations for construction and operation would be less than significant. No mitigation is required.

- (d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact.

Discussion of Effects: Other emissions, including nuisance odors, may occur during the operation of diesel-fueled equipment during construction and operation of the proposed project. Heavy-duty equipment on the project site during construction would emit odors, primarily from equipment exhaust. However, the construction activity would cease to occur after construction is completed. No other sources of objectionable odors have been identified for the proposed project and no mitigation measures are required.

SCAQMD Rules 402, 403, and 431.2, as well as Title 13, Section 2449(d)(d) of the California Code of Regulations (CCR), require the project applicant to include implementation of standard control measures for fugitive dust and diesel equipment emissions. Additionally, operators of off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) are required to limit vehicle idling to five minutes or less; register and label vehicles in accordance with the ARB Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Additionally, SCAQMD Rule 402 regarding nuisances states: “A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause injury or damage to business or property.” Adherence to these rules is standard regulatory policy for all development and would reduce impacts from other emissions such as nuisance odors to less than significant levels. No mitigation is required.

ENERGY IMPACT ANALYSIS

- (a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less than Significant Impact.

Discussion of Effects: The project’s consumption of energy during construction and operation is calculated via CalEEMod, as detailed in Attachment A.

Construction-Period Energy Use: Based on CalEEMod defaults, the anticipated construction schedule assumes that the proposed project would be built in approximately 14 months. The proposed project would require demolition, site preparation, grading, building construction, paving, and architectural coating activities during construction.

Construction of the proposed project would require energy for the manufacture and transportation of construction materials, preparation of the site for grading and building activities, and construction of the building. All or most of this energy would be derived from nonrenewable resources. Petroleum fuels (e.g., diesel and gasoline) would be the primary

sources of energy for these activities. However, construction activities are not anticipated to result in an inefficient use of energy as gasoline and diesel fuel would be supplied by construction contractors who would conserve the use of their supplies to minimize their costs on the project. Energy (i.e., fuel) usage on the project site during construction would be temporary in nature and would be relatively small in comparison to the State's available energy sources. Construction of the proposed project would not result in the wasteful, inefficient, or unnecessary consumption of energy resources and construction-related would be less than significant. No mitigation is required.

Construction of the project would not involve the consumption of natural gas. The construction-related equipment would not be powered by natural gas and no natural gas demand is anticipated during construction.

Transportation energy represents the largest energy use during construction and would occur from the transport and use of construction equipment, delivery vehicles and haul trucks, and construction worker vehicles that would use petroleum fuels (e.g., diesel fuel and/or gasoline). Therefore, the analysis of energy use during construction focuses on fuel consumption. The use of energy resources would fluctuate according to the phase of construction. The majority of construction equipment during grading would be gasoline-powered or diesel-powered, and the later construction phases would be electricity-powered. Construction trucks and vendor trucks hauling materials to and from the project site would be anticipated to use diesel fuel, whereas construction workers traveling to and from the project site would be anticipated to use gasoline-powered vehicles. Fuel consumption from transportation uses depends on the type and number of trips, vehicles miles traveled, fuel efficiency of vehicles, and travel modes.

Diesel fuel usage from construction off-road equipment was calculated using the CalEEMod assumptions used in the *Air Quality and Greenhouse Gas Analysis*. The CalEEMod utilized the construction equipment shown in Table H. Average brake-specific fuel consumption and diesel fuel properties (heating value and density) from the EPA AP-42 were used to obtain a fuel per horsepower-hour factor. These factors and other calculations are shown in Table I, which shows total fuel usage from construction off-road equipment is estimated to be 70,277 gallons, the consumption of which would occur over the 14 months of construction. As also shown in Table I, the greatest amount of fuel (22,568 gallons) would be consumed by off-road equipment during the building construction.

Table H: Construction Off-Road Equipment

Phase	Off-road Equipment Type	Amount	Usage Hour/Day	Total Usage Days	Total Usage Hours/Equipment
Demolition	Excavators	3	8	20	480
	Concrete/Industrial Saw	1	8	20	160
	Rubber Tired Dozers	2	8	20	320
Site Preparation	Rubber-Tired Dozers	3	8	10	240
	Tractors/Loaders/Backhoes	4	8	10	320
Grading	Excavators	1	8	20	160

Table H: Construction Off-Road Equipment

Phase	Off-road Equipment Type	Amount	Usage Hour/Day	Total Usage Days	Total Usage Hours/Equipment
	Graders	1	8	20	160
	Rubber-Tired Dozers	1	8	20	160
	Tractors/Loaders/Backhoes	3	8	20	480
	Scrapers	1	8	20	160
Building Construction	Cranes	1	7	230	1,610
	Forklifts	3	8	230	5,520
	Generator Sets	1	8	230	1,840
	Tractors/Loaders/Backhoes	3	7	230	4,830
	Welders	1	8	230	1,840
Paving	Pavers	2	8	20	320
	Paving Equipment	2	8	20	320
	Rollers	2	8	20	320
Architectural Coating	Air Compressors	1	6	20	120

Source: CalEEMod Model compiled by LSA, May 2020

Table I: Off-Road Construction Equipment Diesel Fuel Usage

Phase	Off-road Equipment Type	Horsepower ¹	Load Factor ¹	Total Usage Hours/Equipment	Horsepower-Hour ²	Fuel Usage (gallons) ³
Demolition	Excavators	158	0.38	480	28,819	1,476
	Concrete/Industrial Saw	81	0.73	160	9,461	484
	Rubber Tired Dozers	247	0.4	320	31,616	1,619
Total Fuel Use: Demolition (gallons)						3,579
Site Prep	Rubber-Tired Dozers	247	0.4	240	23,712	1,214
	Tractors/Loaders/Backhoes	97	0.37	320	11,485	588
Total Fuel Use: Infrastructure (gallons)						1,802
Grading	Excavators	158	0.38	160	9,606	615
	Graders	187	0.41	160	12,267	785
	Rubber-Tired Dozers	247	0.4	160	15,808	1,012
	Tractors/Loaders/Backhoes	97	0.37	480	17,227	1,103
	Scrapers	367	0.48	160	28,186	1,443
Total Fuel Use: Grading (gallons)						4,958
Building Construction	Cranes	231	0.29	1,610	107,854	5,522
	Forklifts	89	0.20	5,520	98,256	5,031
	Generator Sets	84	0.74	1,840	114,374	5,856

Table I: Off-Road Construction Equipment Diesel Fuel Usage

Phase	Off-road Equipment Type	Horsepower ¹	Load Factor ¹	Total Usage Hours/ Equipment	Horsepower-Hour ²	Fuel Usage (gallons) ³
	Tractors/Loaders/ Backhoes	97	0.37	4,830	82,207	4,209
	Welders	46	0.45	1,840	38,088	1,950
Total Fuel Use: Building Construction (gallons)						22,568
Paving	Pavers	130	0.42	320	17,472	895
	Paving Equipment	132	0.36	320	15,206	779
	Rollers	80	0.38	320	9,728	498
Total Fuel Use: Paving (gallons)						2,172
Architectural Coating	Air Compressors	78	0.48	120	4,493	230
Total Fuel Use: Building Construction and Architectural Coating (gallons)						230
Total Fuel Usage (gallons)						35,309

Source: CalEEMod Model compiled by LSA, May 2020

- ¹ Load factor and horsepower are CalEEMod defaults for the equipment type and were obtained from the *Air Quality Impact Analysis*.
- ² Horsepower-Hour is the basis for the fuel calculation. HP-Hour is calculated using the following formula: HP-Hour = Total Hours × LF × HP.
- ³ Off-road mobile source fuel usage is calculated using a fuel usage rate of 0.0512 gallon of diesel per horsepower (HP)-hour. This is calculated based on diesel.

Total fuel consumption in San Bernardino County totaled 2.19 billion gallons in 2018. Vehicle consumption accounts for the majority of the total fuel consumption in California. In 2018, 1,241 million gallons of diesel fuel and 94.9 million gallons of gasoline were consumed from vehicle trips in San Bernardino based on EMFAC2017. Compared to the annual fuel consumption from vehicle trips in San Bernardino County, the peak annual fuel consumption of 35,309 gallons from off-road construction equipment during construction would be small fraction of the annual fuel consumption in San Bernardino County.

Fuel use from construction trucks and construction worker vehicles traveling to the project site was based on the estimated number of trips that project construction would generate and the average trip distance using the CalEEMod assumptions *Air Quality and GHG Analysis*. Fuel efficiencies were estimated for the first full year of construction (2021) using the ARB EMFAC2017 model as shown in Table J. It should be noted that calculating the fuel efficiency of vehicles for the year 2021 is a conservative approach because fuel efficiency is expected to continue to increase and improve during construction as new fuel economy standards are established. Tables K and L show construction on-road vehicle fuel consumption calculations for construction trucks and construction worker vehicles.

Table J: Construction Truck and Construction Worker Vehicle Fuel Efficiency

Vehicle Type	Vehicle Class ¹	EMFAC2017 Outputs ²		Diesel Fuel Efficiency ³ (miles/gallon)
		Diesel Fuel Consumption (1,000 gallons/day)	VMT (miles/day)	
Construction Truck	MHDT	727.46	7,535,147.50	10.36

Table J: Construction Truck and Construction Worker Vehicle Fuel Efficiency

Vehicle Type	Vehicle Class ¹	EMFAC2017 Outputs ²		Diesel Fuel Efficiency ³ (miles/gallon)
		Diesel Fuel Consumption (1,000 gallons/day)	VMT (miles/day)	
Construction Worker Vehicle	HHDT	1,774.20	11,545,819.98	6.51
	LDA	46.12	2,185,238.84	47.38
	LDT1	0.43	9,520.38	22.14
	LDT2	15.84	548,393.87	34.62

Source: EMFAC2017 (CARB 2020)

¹ For construction trucks, assumes 50 percent HHDT and 50 percent MHDT vehicles, consistent with assumptions in CalEEMod for hauling trucks. For construction worker, vehicles assumes 50 percent LDA, 25 percent LDT1, and 25 percent LDT2 vehicles, consistent with assumptions in CalEEMod for worker vehicles.

² EMFAC2017 was run for South Coast Air Basin for the construction year 2021. Data were aggregated over all vehicle model years and speed bins.

³ The fuel efficiency was calculated by dividing the VMT (miles/day) by the fuel consumption (gallons/day).

HHDT = Heavy Heavy Duty Trucks MHDT = Medium Heavy Duty Trucks VMT = vehicle miles traveled

Table K: Construction Truck Fuel Use (Diesel Fuel Use)

Phase	Total Trips	Total Days	Trip Length (miles)	Total Vehicle Miles Traveled (VMT)	Diesel Fuel Efficiency (miles/gallon)	Fuel Usage (gallons/year)
Demolition	93	20	6.90	642	10.36	62
Building Construction	9	230	6.90	14,283	6.51	2,194
Total Diesel Fuel Usage						2,256

Sources: CalEEMod 2016.3.2 and EMFAC2017 (CARB 2019)

Table L: Construction Worker Vehicle Gasoline Fuel Use

Phase	Total One-Way Trips/Day	Total Days	Trip Length (miles)	Total Vehicle Miles Traveled (VMT)	Gasoline Fuel Efficiency (miles/gallon)	Fuel Usage (gallons/year)
Demolition	15	20	14.70	4,410	22.0	200
Site Prep	18	10	14.70	2,646	22.0	120
Grading	18	20	14.70	5,292	22.0	241
Building Construction	26	230	14.70	87,906	22.0	3,996
Paving	15	20	14.70	4,410	22.0	200
Architectural Coating	5	20	14.70	1,470	22.0	67
Total Gasoline Fuel Usage						4,824

Sources: CalEEMod 2016.3.2 and EMFAC2017 (CARB 2019)

As shown in Table K, total diesel fuel consumption would be 2,256 gallons from construction truck trips. As shown in Table L, total gasoline consumption would be 4,824 gallons from construction worker vehicle trips. During the construction period, an estimated 7,080 gallons of fuel would be consumed. In 2018, 1,241 million gallons of diesel fuel and 94.9 million gallons of gasoline were consumed from vehicle trips in San Bernardino County based on EMFAC2017.

Therefore, peak annual gasoline demand generated by on-road trips during construction would be less than 0.001 percent of the total annual gasoline and diesel fuel consumption in San Bernardino County.

Impacts related to energy use during construction would be temporary and would be relatively small in comparison to the San Bernardino County's overall usage and the State's available energy sources. For these reasons, project construction would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be less than significant and no mitigation is required.

Operation Energy Use: Energy consumed by the proposed project would be associated with natural gas use, electricity consumption, and fuel used for vehicle trips associated with the project.

Energy and natural gas consumption was estimated for the project using the CalEEMod results in the *Air Quality and Greenhouse Gas Analysis* prepared for the proposed project. The proposed buildings would be constructed to CALGreen standards, which were included in CalEEMod inputs. Table M shows electricity, natural gas, and gasoline usage estimates associated with the operation of the proposed project.

Table M: Estimated Annual Energy Use of Proposed Project

Land Use	Electricity Use (kWh/year)	Natural Gas (kBTU/year)	Residences Gasoline Vehicles (gallons/year)
Single-Family Residential	246,363	527,283	43,988
Park	0	0	N/A

Source: California Emissions Estimator Model (CalEEMod). Compiled by LSA. May 2020.

kWh = kilowatt hours

kBTU = Thousand British Thermal Units

As shown in Table M, proposed uses on the site would generate a total of 246,363 kilowatt-hours (kWh) of electricity per year. In addition, the project would result in energy usage associated with motor vehicle gasoline to fuel project-related trips. The proposed project would result in an increase of 283 net new daily trips and would have an annual VMT of 967,737. Using the 2015 fuel economy estimate of 22 mpg, the proposed project would result in the consumption of approximately 43,988 gallons of gasoline per year.¹

Electricity is provided in the State through a complex grid of power plants and transmission lines. In 2018, California's in-state electric generation totaled 194,842 gigawatt-hours (GWh); the State's total system electric generation, which includes imported electricity, totaled 285,488 GWh.² Population growth is the primary source of increased energy consumption in the State; due to population projections, annual electricity use is anticipated to increase by approximately

¹ 967,737 VMT per year ÷ 22 mpg = 43,988 gallons of gasoline per year.

² California Energy Commission. Total System Electric Generation. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html, accessed May 2020.

1 percent per year through 2027.¹ The project's net electricity usage would total less than 0.01 percent² of electricity generated in the State in 2018, which would not represent a substantial demand on available electricity resources.

As shown in Table M, the estimated potential increased natural gas demand associated with the proposed project is 572,283 thousand British Thermal Units (kBtu) per year compared to the existing orange trees at the project site. Total natural gas consumption in San Bernardino County in 2018 was 500 billion kBtus. Therefore, natural gas demand associated with the proposed project would be less than 0.001 percent of San Bernardino County.

The average fuel economy for light-duty vehicles (autos, pickups, vans, and SUVs) in the United States has steadily increased from about 14.9 mpg in 1980 to 22.0 mpg in 2015.³ Federal fuel economy standards have changed substantially since the Energy Independence and Security Act was passed in 2007, which originally mandated a national fuel economy standard of 35 mpg by the year 2020, and would be applicable to cars and light trucks of Model Years 2011 through 2020.⁴ In early August 2018, the EPA and Department of Transportation issued a new ruling, *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule*, which would freeze the fuel economy goals to the 2021 target of 37 mpg for model years 2021 through 2026.⁵

As stated previously, implementation of the proposed project would increase the project-related annual gasoline demand by 43,988 gallons. However, new automobiles purchased by residents and visitors driving to and from the project site would be subject to fuel economy and efficiency standards applied throughout the State. As such, the fuel efficiency of vehicles associated with the project site would increase throughout the life of the project. Therefore, implementation of the proposed project would not result in a substantial increase in transportation-related energy uses.

In summary, construction and operation of the proposed project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. Consumption of energy resources as a result of implementation of the proposed project would be comparable to other similar uses in the City. Impacts would be less than significant and no mitigation would be required.

¹ California Energy Commission. California Energy Demand 2018-2030 Revised Forecast. https://efiling.energy.ca.gov/URLRedirectPage.aspx?TN=TN222287_20180120T141708_The_California_Energy_Demand_20182030_Revised_Forecast.pdf, accessed May 2020.

² Calculation: 0.29 GWh (proposed project) / 194,842 GWh (generated in State in 2018) = < 0.01 percent.

³ U.S. Department of Transportation. "Table 4-23: Average Fuel Efficiency of U.S. Light Duty Vehicles." https://www.bts.gov/archive/publications/national_transportation_statistics/table_04_23/, accessed April 13, 2020.

⁴ U.S. Department of Energy. "Energy Independence & Security Act of 2007." <https://www.afdc.energy.gov/laws/eisa>, accessed May 2020.

⁵ U.S. Department of Transportation. Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule. <https://www.nhtsa.gov/corporate-average-fuel-economy/safe>.

- (b) Would the project conflict with or obstruct a State or local plan for renewable energy or energy efficiency?

Less Than Significant Impact.

Discussion of Effects: In 2002, the State Legislature passed Senate Bill (SB) 1389, which required the CEC to develop an integrated energy plan every two years for electricity, natural gas, and transportation fuels, for the California Energy Policy Report. The plan calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators in implementing incentive programs for zero-emission vehicles and their infrastructure needs, and encouragement of urban designs that reduce VMT and accommodate pedestrian and bicycle access.

The CEC recently adopted the 2017 Integrated Energy Policy Report.¹ The 2017 Integrated Energy Policy Report provides the results of the CEC's assessments of a variety of energy issues facing California. Many of these issues will require action if the State is to meet its climate, energy, air quality, and other environmental goals while maintaining energy reliability and controlling costs. The 2017 Integrated Energy Policy Report covers a broad range of topics, including implementation of SB 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to SB 1383), updates on Southern California electricity reliability, the natural gas outlook, and climate adaptation and resiliency.

As indicated above, energy usage on the project site during construction would be temporary in nature. In addition, energy usage associated with operation of the proposed project would be relatively small in comparison to the State's available energy sources, and energy impacts would be negligible at the regional level. Because California's energy conservation planning actions are conducted at a regional level, and because the project's total impact on regional energy supplies would be minor, the proposed project would not conflict with or obstruct California's energy conservation plans as described in the CEC's 2017 Integrated Energy Policy Report.

The proposed project would be required to comply with the California Building Code (CBC) and California Green Building Standards Code (CALGreen Code) pertaining to energy and water conservation standards in effect at the time of construction. Therefore, the proposed project would be consistent with applicable plans related to renewable energy and energy efficiency. Impacts would be less than significant and no mitigation is required.

¹ California Energy Commission. 2017. *2017 Integrated Energy Policy Report*. Publication Number: CEC-100-2017-001-CMF.

GREENHOUSE GAS IMPACT ANALYSIS

- (a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact.

State CEQA Guidelines Section 15064(b) provides that the “determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data,” and further states that an “ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting.” Climate change is a global issue and is described in the context of the cumulative environment. Therefore, the project is considered in the context of multiple sectors and the combined efforts of many industries, including development. The primary GHG emissions generated by the project would be CO₂. This analysis represents an estimate of the project’s GHG emissions through the quantification of CO₂ emissions (Attachment B). The following project activities were analyzed for their contribution to global CO₂ emissions.

To provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents, the SCAQMD has convened a GHG CEQA Significance Threshold Working Group (Working Group). Based on the last Working Group meeting held in September 2010 (Meeting No. 15), the SCAQMD is proposing to adopt a tiered approach for evaluating GHG emissions for development projects where it is not the lead agency:

- **Tier 1: Exemptions.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2: Consistency with a Locally Adopted GHG Reduction Plan.** If the project complies with a climate action plan, GHG emissions reduction plan, or mitigation program that avoids or substantially reduces GHG emissions in the project’s geographic area (i.e., city or county), project-level and cumulative GHG emissions are less than significant.
- **Tier 3: Numerical Screening-Level Threshold.** If GHG emissions are less than the numerical screening-level threshold, project-level and cumulative GHG emissions are less than significant. For projects that are not exempt or where no qualifying GHG reduction plans are directly applicable, the SCAQMD requires an assessment of GHG emissions. The SCAQMD, under Option 1, is proposing a “bright-line” screening-level threshold of 3,000 MT CO₂e/yr for all land use types or, under Option 2, the following land-use-specific thresholds: 1,400 MT CO₂e for commercial projects, 3,500 MT CO₂e for residential projects, or 3,000 MT CO₂e for mixed-use projects. This bright-line threshold is based on a review of the OPR database of CEQA projects. Based on SCAQMD’s review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore, projects that do not exceed the bright-line threshold would have a nominal and therefore less than cumulatively considerable impact related to GHG emissions.
- **Tier 4: Performance Standards.** If emissions exceed the numerical screening threshold, a more detailed review of the project’s GHG emissions is warranted. The SCAQMD has

proposed an efficiency target for projects that exceed the bright-line threshold. The current recommended approach is per capita efficiency targets.

City CAP CO₂e per Capita Threshold. This section evaluates potential significant impacts related to GHG using the Tier 2 approach in compliance with the City of Redlands CAP for implementation of the proposed project. Therefore, in order to demonstrate consistency with the City's CAP, the project must meet the GHG emissions targets of 6.0 MT CO₂e per capita per year. As such, those projects that garner a GHG emissions targets of 6.0 MT CO₂e per capita per year would not require mitigation of project-specific GHG emissions. Consistent with *CEQA Guidelines*, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Construction and operation of project development would generate GHG emissions. The following activities associated with the proposed project could contribute directly or indirectly to the generation of GHG emissions:

- **Construction Activities:** During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and vendor vehicles, which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs (e.g., CO₂, CH₄, and N₂O). Furthermore, CH₄ is emitted during the fueling of heavy equipment. The project will satisfy green building measures by installing daylighting rooms such that all of the conditioned space will have daylight using windows, solar tubes, skylights, or equivalents.
- **Motor Vehicle Use:** Transportation associated with the proposed project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. The project will satisfy green building measures by installing electrical outlets for electric vehicle chargers. The electric vehicle charging station would provide residences the option to purchase or lease electric vehicles, which would help reduce vehicle emissions.
- **Gas, Electricity, and Water Use:** Natural gas use results in the emission of two GHGs: CH₄ (the major component of natural gas) and CO₂ (from the combustion of natural gas). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. California's water conveyance system is energy-intensive. CalEEMod defaults were used to estimate these emissions from the project. The proposed project would also install low-flow water fixtures in consistent with 2019 CALGreen, and efficient irrigation systems in compliance with the modern water efficient landscape ordinance.
- **Solid Waste Disposal:** Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Landfilling and other methods of disposal use energy for transporting and managing the waste, and produce additional GHGs to varying degrees. Landfilling, the most common waste management practice, results in the release of CH₄ from the anaerobic decomposition of organic materials. CH₄ is 25 times more potent a GHG than CO₂. However, landfill CH₄ can also be a source of energy. In addition, many materials in landfills do not decompose fully and the carbon that remains is sequestered in the landfill.

and not released into the atmosphere. The proposed project would implement the statewide goal of meeting the 75 percent recycling program on site.¹

GHG emissions associated with project construction would occur over the short term from construction activities and would consist primarily of emissions from equipment exhaust. Long-term regional emissions would also be associated with project-related new vehicular trips and stationary-source emissions (e.g., natural gas used for heating and electricity usage for lighting). The GHG emissions presented in Tables N and O include construction emissions in terms of CO₂ and annual CO₂e GHG emissions from increased energy consumption, water usage, solid waste disposal, and estimated GHG emissions from vehicular traffic that would result from implementation of the proposed project.

Construction Emissions: Construction activities produce combustion emissions from various sources, such as site grading, utility engines, on-site heavy-duty construction vehicles, equipment hauling materials to and from the site, asphalt paving, and motor vehicles transporting the construction crew. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change. The construction GHG emission estimates were calculated using CalEEMod Version 2016.3.2, which indicates the project's GHG emissions during the anticipated 14 months construction period between December 2020 and January 2022 (Table N).

Table N: Estimated Construction Greenhouse Gas Emissions

Construction Phase	Greenhouse Gas Emissions, CO ₂ e (Metric Tons per Year)
Demolition 2020	39.24
Site Preparation 2020	5.32
Site Preparation 2021	12.40
Grading 2021	41.41
Paving 2021	321.89
Paving 2022	4.32
Architectural Coating 2022	17.26
Total Project Emissions	444.86
Total Construction Emissions Amortized over 30 years	14.83

Source: Compiled by LSA (May 2020).

Note: Numbers may appear to not sum correctly due to rounding.

CO₂e = carbon dioxide equivalent

As indicated in Table N, project construction would result in total emissions of 444.86 MT of CO₂e, which would be amortized to 14.83 MT of CO₂e over 30 years.

Operational Emissions: The operational GHG emissions estimates were also calculated using CalEEMod. Activities such as natural gas, electricity, water use, solid waste disposal, and motor vehicle use are expected to contribute directly and/or indirectly to the generation of GHG

¹ CalRecycle 2017. Website: <https://www2.calrecycle.ca.gov/Publications/Details/1612> (accessed May 5, 2020).

emissions from operation of the proposed project. Table O details the new operational GHG emissions associated with the proposed project.

Table O: Estimated Operational GHG Emissions (Metric Tons per Year)

Emissions Source	Operational Emissions			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Project Area Sources	6.63	<0.01	<0.01	6.68
Project Energy Sources	84.31	<0.01	<0.01	84.76
Project Mobile Sources	404.84	0.02	0	405.32
Project Waste Sources	1.79	0.11	0	4.44
Project Water Sources	10.42	0.05	<0.01	12.10
Total Project Operational Emissions				513.30
Amortized Construction Emissions				14.83
Loss of Sequestration (from Orange trees)				42.47
Total Net Annual Emissions				555.77
Project Population (number of residences)				96
CO₂e per capita				5.79
GHG per Capita Threshold				6.00
Exceed?				No

Source: Compiled by LSA (May 2020).

CH₄ = methane

CO₂e = carbon dioxide equivalent

CO₂ = carbon dioxide

N₂O = nitrogen dioxide

As discussed above, a project would have less than significant GHG emissions if it would result in operations-related GHG emissions of less than 6.00 MT CO₂e per capita per year. As indicated in Table O, the proposed project would have approximately 5.79 MT CO₂e per capita per year, which is below the City's CAP threshold of 6.00 MT CO₂e per capita per year. Therefore, impacts related to the generation of GHG emissions, either directly, indirectly or cumulatively, that may have a significant impact on the environment would be less than significant. No mitigation is required.

- (b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact.

Discussion of Effects: The ARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for the coordination and administration of both federal and State air pollution control and climate change programs within California. In this capacity, the ARB conducts research, sets CAAQS, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. The ARB establishes emissions standards for motor vehicles sold in California, consumer products, and various types of commercial equipment. In March 2020, the City of Chino updated its CAP to focus on adaptive GHG measures in the CAP Screening Table that reduce GHG emissions and help the City to meet the State compliance requirements for climate change. On December 5, 2017, the City of Redlands adopted a Climate Action Plan to focus on adaptive GHG measures that reduce emissions

through standard practice measures and help prepare the City for the impacts of climate change.

The City's CAP outlines tentative improvements to community accessibility for transportation alternatives, further reducing GHG emissions leading into the 2035 reduction goals. The Redlands CAP was prepared concurrently with the General Plan (2017) and provides an analysis of GHG emissions through 2035. The CAP reinforces the City's commitment to reducing GHG emissions and demonstrates how the City will comply with State of California's GHG emission reduction standards. The CAP's GHG emission targets are based on ARB guidelines established in the 2017 Scoping Plan for local jurisdictions. The proposed project will not generate an amount of GHGs that will have a significant impact on the environment and it will not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

The City CAP contains an inventory of the City's GHG emissions, forecast of GHG emissions through 2035, offers monitoring and reporting processes to ensure targets are met, and provides options for reducing GHG emissions beyond State requirements. The proposed project is required to comply with Title 13-Section 2449 of the CCR and the CalRecycle Sustainable (Green) Building Program regulations, which include implementation of standard control measures for equipment emissions. Adherence to these regulations, including the implementation of Best Available Control Measures (BACMs) is a standard requirement for any construction or ground-disturbance activity occurring within the South Coast Air Basin.

BACMs include, but are not limited to, requirements that the project proponent utilize only low-sulfur fuel (i.e., having a sulfur content of 15 ppm by weight or less); ensure off-road vehicles (i.e., self-propelled diesel-fueled vehicles 25 horsepower and up that were not designed to be driven on road) limit vehicle idling to five minutes or less; register and label vehicles in accordance with the ARB Diesel Off-Road Online Reporting System; restrict the inclusion of older vehicles into fleets; and retire, replace, or repower older engines or install Verified Diesel Emission Control Strategies (i.e., exhaust retrofits). Additionally, the construction contractor will recycle/reuse at least 50 percent of the construction material (including, but not limited to, proposed aggregate base, soil, mulch, vegetation, concrete, lumber, metal, and cardboard) and use "Green Building Materials," such as those materials that are rapidly renewable or resource efficient, and recycled and manufactured in an environmentally friendly way, for at least 10 percent of the project, in accordance with CalRecycle regulations.

Long-term operational emissions typically include emissions from use of consumer products, energy and water usage, vehicles, and residential land use emissions.

As stated previously, the proposed project is required to comply with the City's CAP. The GHG evaluation demonstrates that the proposed project is consistent with the City's CAP Update. Consistent with *CEQA Guidelines*, the proposed project would be determined to have a less than significant individual and cumulative impact related to GHG emissions. Therefore, the proposed project will not generate GHG that will have a significant impact on the environment, nor will the project conflict with an applicable plan, policy, or regulation adopted for the purpose of

reducing the emissions of greenhouse gases. Associated impacts will be less than significant and no mitigation is required.

ATTACHMENTS

- Attachment A: Figures
- Attachment B: CalEEMod Output Files

ATTACHMENT A:

FIGURES

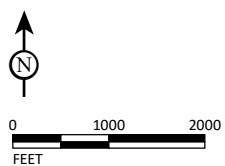
Figure 1: Project Location

Figure 2: Site Plan



FIGURE 1

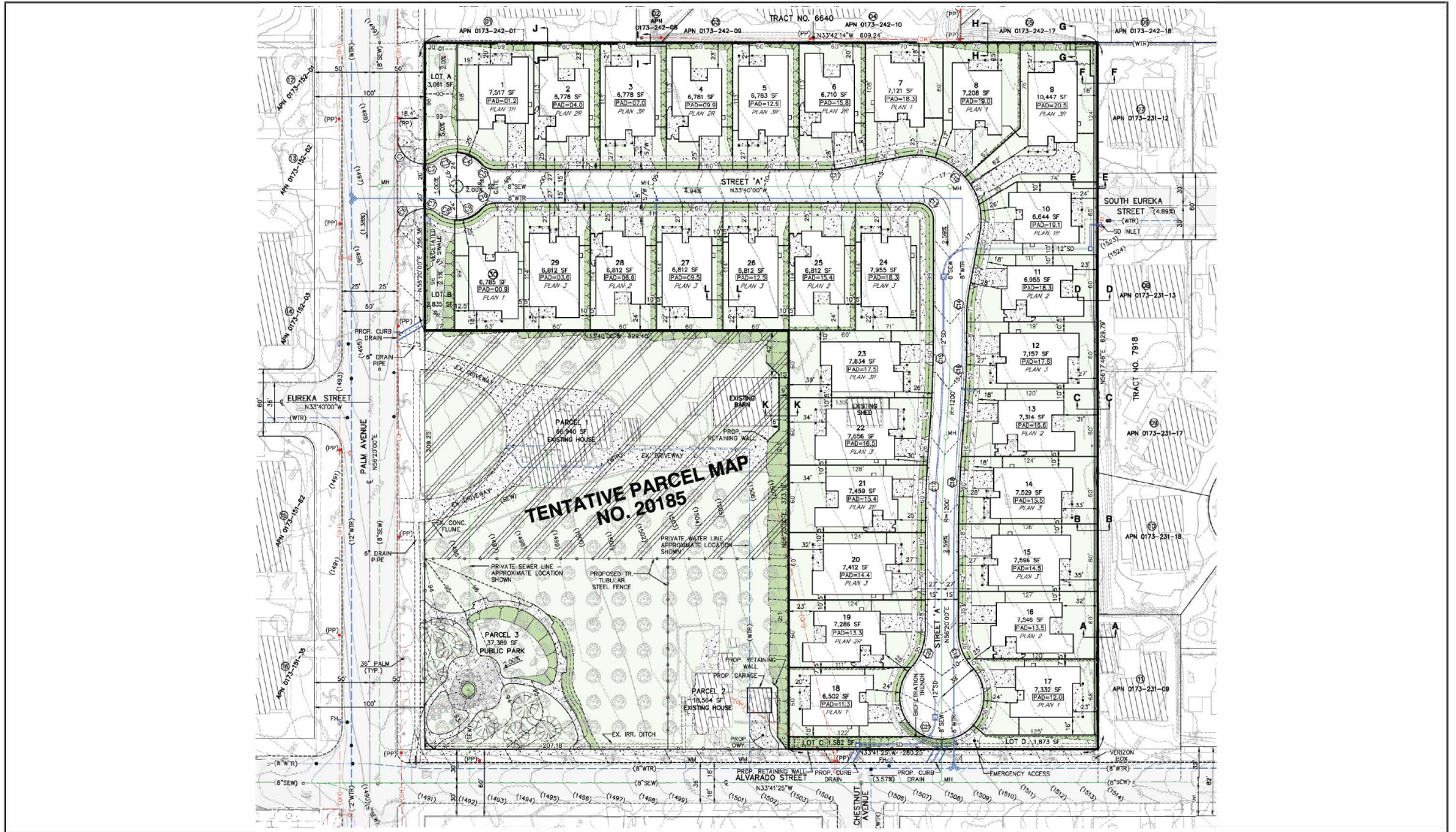
LSA



SOURCE: Bing Aerial, 2018; ESRI Streetmap, 2013.

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301 West Palm Avenue
Air Quality, Energy, and Greenhouse Gas Memorandum
Regional and Project Location



LSA

0 65 130
FEET

FIGURE 2

301 West Palm Avenue

Air Quality, Energy, and Greenhouse Gas Memorandum

Conceptual Site Plan

SOURCE: Hicks & Hartwick, December 2019
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ATTACHMENT B:
CALEEMOD OUTPUT FILES

Palm Development Project - South Coast AQMD Air District, Winter

Palm Development Project
South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.86	Acre	0.86	37,461.60	0
Single Family Housing	30.00	Dwelling Unit	5.99	78,030.00	96

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	502.65	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Palm Development Project - South Coast AQMD Air District, Winter

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in San Bernardino County.

Land Use - New single family housing development with 30 DU on 5.99 ac. Public Park being installed 0.86 ac. Population value increase due to Redlands CAP average household size is 3.21.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Scraper added to grading phase.

Off-road Equipment -

Off-road Equipment -

Demolition - Approximately 472 orange trees will be removed, assumed each tree weight was 2 tons.

Vehicle Trips - LSA Trip generation memo estimates 283 ADT. The park is not expected to generation vehicle trips, but rather walking from the local residence.

Woodstoves - The County of San Bernardino does not permit wood burning stoves or fireplaces inside new residence.

Energy Use -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize Tier 2 engines. Water exposed areas at least three times daily during construction.

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implementation of PV cells is mandatory for energy generation under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implemented to meet state water reduction measures.

Waste Mitigation - The Project is consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Land Use Change - Removal of 6.85 acres of orange grove for proposed project. Negative impact for removal of vegetation added to -42.47 Tonnes of GHG emission factors.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Palm Development Project - South Coast AQMD Air District, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	1.50	0.00
tblGrading	AcresOfGrading	30.00	10.00
tblLandUse	LandUseSquareFeet	54,000.00	78,030.00
tblLandUse	LotAcreage	9.74	5.99
tblLandUse	Population	86.00	96.00
tblLandUseChange	CO2peracre	6.20	-42.47
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblVehicleTrips	ST_TR	22.75	0.00

Palm Development Project - South Coast AQMD Air District, Winter

tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00

2.0 Emissions Summary

Palm Development Project - South Coast AQMD Air District, Winter

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	4.1653	42.4773	22.5764	0.0440	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	4,290.907 3	4,290.907 3	1.1974	0.0000	4,318.153 4
2021	3.9712	40.5510	23.4716	0.0467	18.2675	2.0459	20.3134	9.9840	1.8823	11.8663	0.0000	4,526.260 2	4,526.260 2	1.4086	0.0000	4,561.475 0
2022	24.6389	11.1655	15.0492	0.0243	0.1677	0.5691	0.7368	0.0445	0.5236	0.5680	0.0000	2,357.440 8	2,357.440 8	0.7178	0.0000	2,375.384 8
Maximum	24.6389	42.4773	23.4716	0.0467	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	4,526.260 2	4,526.260 2	1.4086	0.0000	4,561.475 0

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	1.3720	33.9955	25.4971	0.0440	7.2470	0.9477	8.1947	3.9263	0.9476	4.8739	0.0000	4,290.907 3	4,290.907 3	1.1974	0.0000	4,318.153 4
2021	1.4652	38.1083	27.6780	0.0467	7.2470	1.0474	8.1947	3.9263	1.0473	4.8739	0.0000	4,526.260 2	4,526.260 2	1.4086	0.0000	4,561.474 9
2022	24.5483	20.1552	17.7644	0.0243	0.1677	0.6682	0.8358	0.0445	0.6681	0.7125	0.0000	2,357.440 8	2,357.440 8	0.7178	0.0000	2,375.384 8
Maximum	24.5483	38.1083	27.6780	0.0467	7.2470	1.0474	8.1947	3.9263	1.0473	4.8739	0.0000	4,526.260 2	4,526.260 2	1.4086	0.0000	4,561.474 9

Palm Development Project - South Coast AQMD Air District, Winter

	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
Percent Reduction	16.45	2.05	-16.11	0.00	60.05	44.68	58.51	60.54	39.87	57.20	0.00	0.00	0.00	0.00	0.00	0.00

Palm Development Project - South Coast AQMD Air District, Winter

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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Energy	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113
Mobile	0.4684	2.5727	6.1531	0.0237	2.0578	0.0191	2.0769	0.5506	0.0179	0.5684		2,416.6152	2,416.6152	0.1173		2,419.5465
Total	2.3005	3.2560	8.9095	0.0280	2.0578	0.0858	2.1435	0.5506	0.0845	0.6351	0.0000	3,256.9251	3,256.9251	0.1376	0.0153	3,264.9310

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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Energy	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
Mobile	0.4684	2.5727	6.1531	0.0237	2.0578	0.0191	2.0769	0.5506	0.0179	0.5684		2,416.6152	2,416.6152	0.1173		2,419.5465
Total	2.2890	3.1574	8.8676	0.0274	2.0578	0.0778	2.1355	0.5506	0.0765	0.6271	0.0000	3,131.0261	3,131.0261	0.1352	0.0130	3,138.2838

Palm Development Project - South Coast AQMD Air District, Winter

	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
Percent Reduction	0.50	3.03	0.47	2.25	0.00	9.31	0.37	0.00	9.44	1.26	0.00	3.87	3.87	1.75	15.01	3.88

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2020	12/28/2020	5	20	
2	Site Preparation	Site Preparation	12/29/2020	1/11/2021	5	10	
3	Grading	Grading	1/12/2021	2/8/2021	5	20	
4	Building Construction	Building Construction	2/9/2021	12/27/2021	5	230	
5	Paving	Paving	12/28/2021	1/24/2022	5	20	
6	Architectural Coating	Architectural Coating	1/25/2022	2/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 158,011; Residential Outdoor: 52,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0
(Architectural Coating – sqft)

OffRoad Equipment

Palm Development Project - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Palm Development Project - South Coast AQMD Air District, Winter

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	93.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	26.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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					1.0100	0.0000	1.0100	0.1529	0.0000	0.1529			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388	1.0100	1.6587	2.6687	0.1529	1.5419	1.6948		3,747.7049	3,747.7049	1.0580		3,774.1536

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0363	1.2817	0.2711	3.5400e-003	0.0813	4.1400e-003	0.0854	0.0223	3.9600e-003	0.0262		382.6476	382.6476	0.0273		383.3300
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	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	0.1104	1.3317	0.8232	5.1500e-003	0.2489	5.4100e-003	0.2543	0.0667	5.1300e-003	0.0719		543.2023	543.2023	0.0319		543.9998

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					0.3939	0.0000	0.3939	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	1.2617	32.6638	24.6739	0.0388	0.3939	0.9135	1.3075	0.0596	0.9135	0.9732	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0363	1.2817	0.2711	3.5400e-003	0.0813	4.1400e-003	0.0854	0.0223	3.9600e-003	0.0262		382.6476	382.6476	0.0273		383.3300
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	0.0740	0.0500	0.5521	1.6100e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		160.5547	160.5547	4.6000e-003		160.6699
Total	0.1104	1.3317	0.8232	5.1500e-003	0.2489	5.4100e-003	0.2543	0.0667	5.1300e-003	0.0719		543.2023	543.2023	0.0319		543.9998

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	1.2097	33.7214	22.9600	0.0380	7.0458	0.9462	7.9920	3.8730	0.9462	4.8191	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038
Total	0.0888	0.0599	0.6626	1.9300e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		192.6657	192.6657	5.5300e-003		192.8038

3.3 Site Preparation - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Palm Development Project - South Coast AQMD Air District, Winter

3.3 Site Preparation - 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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	1.2097	33.7214	22.9600	0.0380	7.0458	0.9462	7.9920	3.8730	0.9462	4.8191	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Palm Development Project - South Coast AQMD Air District, Winter

3.3 Site Preparation - 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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451

3.4 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.2198	35.4395	22.8622	0.0448		1.5763	1.5763		1.4502	1.4502		4,339.8400	4,339.8400	1.4036		4,374.9298
Total	3.2198	35.4395	22.8622	0.0448	6.5523	1.5763	8.1286	3.3675	1.4502	4.8177		4,339.8400	4,339.8400	1.4036		4,374.9298

Palm Development Project - South Coast AQMD Air District, Winter

3.4 Grading - 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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.3822	38.0544	27.0686	0.0448		1.0459	1.0459		1.0459	1.0459	0.0000	4,339.8400	4,339.8400	1.4036		4,374.9298
Total	1.3822	38.0544	27.0686	0.0448	2.5554	1.0459	3.6013	1.3133	1.0459	2.3592	0.0000	4,339.8400	4,339.8400	1.4036		4,374.9298

Palm Development Project - South Coast AQMD Air District, Winter

3.4 Grading - 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	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451
Total	0.0830	0.0539	0.6094	1.8700e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		186.4202	186.4202	5.0000e-003		186.5451

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0264	0.8557	0.2279	2.2300e-003	0.0576	1.7800e-003	0.0594	0.0166	1.7100e-003	0.0183		238.0952	238.0952	0.0159		238.4934
Worker	0.1199	0.0779	0.8802	2.7000e-003	0.2906	2.1400e-003	0.2928	0.0771	1.9700e-003	0.0790		269.2737	269.2737	7.2200e-003		269.4541
Total	0.1463	0.9336	1.1082	4.9300e-003	0.3482	3.9200e-003	0.3522	0.0937	3.6800e-003	0.0973		507.3688	507.3688	0.0232		507.9475

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	1.2777	23.3730	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.2777	23.3730	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0264	0.8557	0.2279	2.2300e-003	0.0576	1.7800e-003	0.0594	0.0166	1.7100e-003	0.0183		238.0952	238.0952	0.0159		238.4934
Worker	0.1199	0.0779	0.8802	2.7000e-003	0.2906	2.1400e-003	0.2928	0.0771	1.9700e-003	0.0790		269.2737	269.2737	7.2200e-003		269.4541
Total	0.1463	0.9336	1.1082	4.9300e-003	0.3482	3.9200e-003	0.3522	0.0937	3.6800e-003	0.0973		507.3688	507.3688	0.0232		507.9475

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573

Palm Development Project - South Coast AQMD Air District, Winter

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	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543
Total	0.0692	0.0450	0.5078	1.5600e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		155.3502	155.3502	4.1600e-003		155.4543

3.6 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104

Palm Development Project - South Coast AQMD Air District, Winter

3.6 Paving - 2022**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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

Palm Development Project - South Coast AQMD Air District, Winter

3.6 Paving - 2022**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	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745
Total	0.0651	0.0406	0.4687	1.5000e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		149.7805	149.7805	3.7600e-003		149.8745

3.7 Architectural Coating - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	24.6172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

Palm Development Project - South Coast AQMD Air District, Winter

3.7 Architectural Coating - 2022**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	0.0217	0.0135	0.1562	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		49.9268	49.9268	1.2500e-003		49.9582
Total	0.0217	0.0135	0.1562	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		49.9268	49.9268	1.2500e-003		49.9582

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	24.4127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0183		281.9062
Total	24.5266	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0183		281.9062

Palm Development Project - South Coast AQMD Air District, Winter

3.7 Architectural Coating - 2022**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	0.0217	0.0135	0.1562	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		49.9268	49.9268	1.2500e-003		49.9582
Total	0.0217	0.0135	0.1562	5.0000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		49.9268	49.9268	1.2500e-003		49.9582

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Palm Development Project - South Coast AQMD Air District, Winter

	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	0.4684	2.5727	6.1531	0.0237	2.0578	0.0191	2.0769	0.5506	0.0179	0.5684		2,416.615 2	2,416.615 2	0.1173		2,419.546 5
Unmitigated	0.4684	2.5727	6.1531	0.0237	2.0578	0.0191	2.0769	0.5506	0.0179	0.5684		2,416.615 2	2,416.615 2	0.1173		2,419.546 5

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	283.20	283.20	283.20	967,737	967,737
Total	283.20	283.20	283.20	967,737	967,737

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Single Family Housing	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

Palm Development Project - South Coast AQMD Air District, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
NaturalGas Unmitigated	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113

Palm Development Project - South Coast AQMD Air District, Winter

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					
City Park	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
Single Family Housing	2514.75	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113
Total		0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113

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					
City Park	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
Single Family Housing	1.44461	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
Total		0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641

6.0 Area Detail**6.1 Mitigation Measures Area**

Palm Development Project - South Coast AQMD Air District, Winter

	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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Unmitigated	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

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	0.1338					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0495	0.4230	0.1800	2.7000e-003		0.0342	0.0342		0.0342	0.0342	0.0000	540.0000	540.0000	0.0104	9.9000e-003	543.2090
Landscaping	0.0749	0.0286	2.4778	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4568	4.4568	4.3000e-003		4.5643
Total	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

Palm Development Project - South Coast AQMD Air District, Winter

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	0.1338					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0495	0.4230	0.1800	2.7000e-003		0.0342	0.0342		0.0342	0.0342	0.0000	540.0000	540.0000	0.0104	9.9000e-003	543.2090
Landscaping	0.0749	0.0286	2.4778	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4568	4.4568	4.3000e-003		4.5643
Total	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Palm Development Project - South Coast AQMD Air District, Winter

Institute Recycling and Composting Services

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
----------------	--------

11.0 Vegetation

Palm Development Project - South Coast AQMD Air District, Summer

Palm Development Project

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.86	Acre	0.86	37,461.60	0
Single Family Housing	30.00	Dwelling Unit	5.99	78,030.00	96

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	502.65	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Palm Development Project - South Coast AQMD Air District, Summer

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in San Bernardino County.

Land Use - New single family housing development with 30 DU on 5.99 ac. Public Park being installed 0.86 ac. Population value increase due to Redlands CAP average household size is 3.21.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Scraper added to grading phase.

Off-road Equipment -

Off-road Equipment -

Demolition - Approximately 472 orange trees will be removed, assumed each tree weight was 2 tons.

Vehicle Trips - LSA Trip generation memo estimates 283 ADT. The park is not expected to generation vehicle trips, but rather walking from the local residence.

Woodstoves - The County of San Bernardino does not permit wood burning stoves or fireplaces inside new residence.

Energy Use -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize Tier 2 engines. Water exposed areas at least three times daily during construction.

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implementation of PV cells is mandatory for energy generation under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implemented to meet state water reduction measures.

Waste Mitigation - The Project is consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Land Use Change - Removal of 6.85 acres of orange grove for proposed project. Negative impact for removal of vegetation added to -42.47 Tonnes of GHG emission factors.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Palm Development Project - South Coast AQMD Air District, Summer

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	1.50	0.00
tblGrading	AcresOfGrading	30.00	10.00
tblLandUse	LandUseSquareFeet	54,000.00	78,030.00
tblLandUse	LotAcreage	9.74	5.99
tblLandUse	Population	86.00	96.00
tblLandUseChange	CO2peracre	6.20	-42.47
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblVehicleTrips	ST_TR	22.75	0.00

Palm Development Project - South Coast AQMD Air District, Summer

tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00

2.0 Emissions Summary

Palm Development Project - South Coast AQMD Air District, Summer

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	4.1579	42.4721	22.6182	0.0441	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	4,309.190 6	4,309.190 6	1.1978	0.0000	4,336.416 7
2021	3.9642	40.5464	23.5403	0.0468	18.2675	2.0459	20.3134	9.9840	1.8823	11.8663	0.0000	4,539.172 6	4,539.172 6	1.4090	0.0000	4,574.396 4
2022	24.6370	11.1620	15.1030	0.0244	0.1677	0.5691	0.7368	0.0445	0.5236	0.5680	0.0000	2,367.818 9	2,367.818 9	0.7180	0.0000	2,385.769 9
Maximum	24.6370	42.4721	23.5403	0.0468	18.2675	2.1989	20.4664	9.9840	2.0230	12.0071	0.0000	4,539.172 6	4,539.172 6	1.4090	0.0000	4,574.396 4

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	1.3649	33.9749	25.5389	0.0441	7.2470	0.9477	8.1947	3.9263	0.9476	4.8739	0.0000	4,309.190 6	4,309.190 6	1.1978	0.0000	4,336.416 7
2021	1.4581	38.1036	27.7467	0.0468	7.2470	1.0474	8.1947	3.9263	1.0473	4.8739	0.0000	4,539.172 6	4,539.172 6	1.4090	0.0000	4,574.396 4
2022	24.5464	20.1517	17.8182	0.0244	0.1677	0.6682	0.8358	0.0445	0.6681	0.7125	0.0000	2,367.818 9	2,367.818 9	0.7180	0.0000	2,385.769 9
Maximum	24.5464	38.1036	27.7467	0.0468	7.2470	1.0474	8.1947	3.9263	1.0473	4.8739	0.0000	4,539.172 6	4,539.172 6	1.4090	0.0000	4,574.396 4

Palm Development Project - South Coast AQMD Air District, Summer

	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
Percent Reduction	16.45	2.07	-16.07	0.00	60.05	44.68	58.51	60.54	39.87	57.20	0.00	0.00	0.00	0.00	0.00	0.00

Palm Development Project - South Coast AQMD Air District, Summer

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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Energy	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113
Mobile	0.4930	2.5232	6.5910	0.0251	2.0578	0.0190	2.0768	0.5506	0.0178	0.5683		2,551.2659	2,551.2659	0.1174		2,554.1996
Total	2.3251	3.2065	9.3474	0.0294	2.0578	0.0857	2.1434	0.5506	0.0844	0.6350	0.0000	3,391.5759	3,391.5759	0.1377	0.0153	3,399.5841

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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Energy	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
Mobile	0.4930	2.5232	6.5910	0.0251	2.0578	0.0190	2.0768	0.5506	0.0178	0.5683		2,551.2659	2,551.2659	0.1174		2,554.1996
Total	2.3136	3.1079	9.3054	0.0287	2.0578	0.0777	2.1354	0.5506	0.0764	0.6270	0.0000	3,265.6768	3,265.6768	0.1353	0.0130	3,272.9369

Palm Development Project - South Coast AQMD Air District, Summer

	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
Percent Reduction	0.50	3.08	0.45	2.15	0.00	9.32	0.37	0.00	9.46	1.26	0.00	3.71	3.71	1.75	15.01	3.73

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2020	12/28/2020	5	20	
2	Site Preparation	Site Preparation	12/29/2020	1/11/2021	5	10	
3	Grading	Grading	1/12/2021	2/8/2021	5	20	
4	Building Construction	Building Construction	2/9/2021	12/27/2021	5	230	
5	Paving	Paving	12/28/2021	1/24/2022	5	20	
6	Architectural Coating	Architectural Coating	1/25/2022	2/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 158,011; Residential Outdoor: 52,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0
(Architectural Coating – sqft)

OffRoad Equipment

Palm Development Project - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Palm Development Project - South Coast AQMD Air District, Summer

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	93.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	26.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

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					1.0100	0.0000	1.0100	0.1529	0.0000	0.1529			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	3.3121	33.2010	21.7532	0.0388	1.0100	1.6587	2.6687	0.1529	1.5419	1.6948		3,747.7049	3,747.7049	1.0580		3,774.1536

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0353	1.2655	0.2518	3.6100e-003	0.0813	4.0800e-003	0.0853	0.0223	3.9000e-003	0.0262		389.8231	389.8231	0.0262		390.4771
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	0.0679	0.0456	0.6132	1.7200e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		171.6626	171.6626	4.9400e-003		171.7860
Total	0.1032	1.3111	0.8650	5.3300e-003	0.2489	5.3500e-003	0.2543	0.0667	5.0700e-003	0.0718		561.4857	561.4857	0.0311		562.2631

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					0.3939	0.0000	0.3939	0.0596	0.0000	0.0596			0.0000			0.0000
Off-Road	1.2617	32.6638	24.6739	0.0388		0.9135	0.9135		0.9135	0.9135	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	1.2617	32.6638	24.6739	0.0388	0.3939	0.9135	1.3075	0.0596	0.9135	0.9732	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0353	1.2655	0.2518	3.6100e-003	0.0813	4.0800e-003	0.0853	0.0223	3.9000e-003	0.0262		389.8231	389.8231	0.0262		390.4771
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	0.0679	0.0456	0.6132	1.7200e-003	0.1677	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0456		171.6626	171.6626	4.9400e-003		171.7860
Total	0.1032	1.3111	0.8650	5.3300e-003	0.2489	5.3500e-003	0.2543	0.0667	5.0700e-003	0.0718		561.4857	561.4857	0.0311		562.2631

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	4.0765	42.4173	21.5136	0.0380	18.0663	2.1974	20.2637	9.9307	2.0216	11.9523		3,685.1016	3,685.1016	1.1918		3,714.8975

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	1.2097	33.7214	22.9600	0.0380	7.0458	0.9462	7.9920	3.8730	0.9462	4.8191	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432
Total	0.0814	0.0547	0.7359	2.0700e-003	0.2012	1.5300e-003	0.2027	0.0534	1.4100e-003	0.0548		205.9951	205.9951	5.9200e-003		206.1432

3.3 Site Preparation - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	3.8882	40.4971	21.1543	0.0380		2.0445	2.0445		1.8809	1.8809		3,685.6569	3,685.6569	1.1920		3,715.4573
Total	3.8882	40.4971	21.1543	0.0380	18.0663	2.0445	20.1107	9.9307	1.8809	11.8116		3,685.6569	3,685.6569	1.1920		3,715.4573

Palm Development Project - South Coast AQMD Air District, Summer

3.3 Site Preparation - 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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666

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					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	1.2097	33.7214	22.9600	0.0380		0.9462	0.9462		0.9462	0.9462	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573
Total	1.2097	33.7214	22.9600	0.0380	7.0458	0.9462	7.9920	3.8730	0.9462	4.8191	0.0000	3,685.6569	3,685.6569	1.1920		3,715.4573

Palm Development Project - South Coast AQMD Air District, Summer

3.3 Site Preparation - 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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666

3.4 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	3.2198	35.4395	22.8622	0.0448		1.5763	1.5763		1.4502	1.4502		4,339.8400	4,339.8400	1.4036		4,374.9298
Total	3.2198	35.4395	22.8622	0.0448	6.5523	1.5763	8.1286	3.3675	1.4502	4.8177		4,339.8400	4,339.8400	1.4036		4,374.9298

Palm Development Project - South Coast AQMD Air District, Summer

3.4 Grading - 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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133			0.0000			0.0000
Off-Road	1.3822	38.0544	27.0686	0.0448		1.0459	1.0459		1.0459	1.0459	0.0000	4,339.8400	4,339.8400	1.4036		4,374.9298
Total	1.3822	38.0544	27.0686	0.0448	2.5554	1.0459	3.6013	1.3133	1.0459	2.3592	0.0000	4,339.8400	4,339.8400	1.4036		4,374.9298

Palm Development Project - South Coast AQMD Air District, Summer

3.4 Grading - 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	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666
Total	0.0760	0.0493	0.6781	2.0000e-003	0.2012	1.4800e-003	0.2027	0.0534	1.3600e-003	0.0547		199.3326	199.3326	5.3600e-003		199.4666

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	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0250	0.8584	0.2037	2.3000e-003	0.0576	1.7300e-003	0.0593	0.0166	1.6500e-003	0.0182		245.1946	245.1946	0.0148		245.5654
Worker	0.1098	0.0712	0.9795	2.8900e-003	0.2906	2.1400e-003	0.2928	0.0771	1.9700e-003	0.0790		287.9249	287.9249	7.7400e-003		288.1184
Total	0.1348	0.9296	1.1832	5.1900e-003	0.3482	3.8700e-003	0.3521	0.0937	3.6200e-003	0.0973		533.1195	533.1195	0.0226		533.6839

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	1.2777	23.3730	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	1.2777	23.3730	18.0957	0.0269		0.8754	0.8754		0.8754	0.8754	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0250	0.8584	0.2037	2.3000e-003	0.0576	1.7300e-003	0.0593	0.0166	1.6500e-003	0.0182		245.1946	245.1946	0.0148		245.5654
Worker	0.1098	0.0712	0.9795	2.8900e-003	0.2906	2.1400e-003	0.2928	0.0771	1.9700e-003	0.0790		287.9249	287.9249	7.7400e-003		288.1184
Total	0.1348	0.9296	1.1832	5.1900e-003	0.3482	3.8700e-003	0.3521	0.0937	3.6200e-003	0.0973		533.1195	533.1195	0.0226		533.6839

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573

Palm Development Project - South Coast AQMD Air District, Summer

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	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222
Total	0.0633	0.0411	0.5651	1.6700e-003	0.1677	1.2300e-003	0.1689	0.0445	1.1400e-003	0.0456		166.1105	166.1105	4.4700e-003		166.2222

3.6 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104

Palm Development Project - South Coast AQMD Air District, Summer

3.6 Paving - 2022**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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595

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	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	0.9311	20.1146	17.2957	0.0228		0.6670	0.6670		0.6670	0.6670	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104

Palm Development Project - South Coast AQMD Air District, Summer

3.6 Paving - 2022**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	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595
Total	0.0594	0.0371	0.5225	1.6100e-003	0.1677	1.2000e-003	0.1689	0.0445	1.1000e-003	0.0456		160.1586	160.1586	4.0400e-003		160.2595

3.7 Architectural Coating - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	24.6172	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062

Palm Development Project - South Coast AQMD Air District, Summer

3.7 Architectural Coating - 2022**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	0.0198	0.0124	0.1742	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3862	53.3862	1.3500e-003		53.4198
Total	0.0198	0.0124	0.1742	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3862	53.3862	1.3500e-003		53.4198

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	24.4127					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0183		281.9062
Total	24.5266	2.3524	1.8324	2.9700e-003		0.0951	0.0951		0.0951	0.0951	0.0000	281.4481	281.4481	0.0183		281.9062

Palm Development Project - South Coast AQMD Air District, Summer

3.7 Architectural Coating - 2022**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	0.0198	0.0124	0.1742	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3862	53.3862	1.3500e-003		53.4198
Total	0.0198	0.0124	0.1742	5.4000e-004	0.0559	4.0000e-004	0.0563	0.0148	3.7000e-004	0.0152		53.3862	53.3862	1.3500e-003		53.4198

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Palm Development Project - South Coast AQMD Air District, Summer

	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	0.4930	2.5232	6.5910	0.0251	2.0578	0.0190	2.0768	0.5506	0.0178	0.5683		2,551.2659	2,551.2659	0.1174		2,554.1996
Unmitigated	0.4930	2.5232	6.5910	0.0251	2.0578	0.0190	2.0768	0.5506	0.0178	0.5683		2,551.2659	2,551.2659	0.1174		2,554.1996

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	283.20	283.20	283.20	967,737	967,737
Total	283.20	283.20	283.20	967,737	967,737

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Single Family Housing	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

Palm Development Project - South Coast AQMD Air District, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	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	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
NaturalGas Unmitigated	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113

Palm Development Project - South Coast AQMD Air District, Summer

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					
City Park	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
Single Family Housing	2514.75	0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113
Total		0.0271	0.2318	0.0986	1.4800e-003		0.0187	0.0187		0.0187	0.0187		295.8532	295.8532	5.6700e-003	5.4200e-003	297.6113

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					
City Park	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
Single Family Housing	1.44461	0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641
Total		0.0156	0.1331	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108		169.9541	169.9541	3.2600e-003	3.1200e-003	170.9641

6.0 Area Detail**6.1 Mitigation Measures Area**

Palm Development Project - South Coast AQMD Air District, Summer

	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	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732
Unmitigated	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

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	0.1338					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0495	0.4230	0.1800	2.7000e-003		0.0342	0.0342		0.0342	0.0342	0.0000	540.0000	540.0000	0.0104	9.9000e-003	543.2090
Landscaping	0.0749	0.0286	2.4778	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4568	4.4568	4.3000e-003		4.5643
Total	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

Palm Development Project - South Coast AQMD Air District, Summer

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	0.1338					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.5469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0495	0.4230	0.1800	2.7000e-003		0.0342	0.0342		0.0342	0.0342	0.0000	540.0000	540.0000	0.0104	9.9000e-003	543.2090
Landscaping	0.0749	0.0286	2.4778	1.3000e-004		0.0137	0.0137		0.0137	0.0137		4.4568	4.4568	4.3000e-003		4.5643
Total	1.8050	0.4516	2.6578	2.8300e-003		0.0479	0.0479		0.0479	0.0479	0.0000	544.4568	544.4568	0.0147	9.9000e-003	547.7732

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail**8.1 Mitigation Measures Waste**

Palm Development Project - South Coast AQMD Air District, Summer

Institute Recycling and Composting Services

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

Palm Development Project - South Coast AQMD Air District, Annual

Palm Development Project

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	0.86	Acre	0.86	37,461.60	0
Single Family Housing	30.00	Dwelling Unit	5.99	78,030.00	96

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	502.65	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Palm Development Project - South Coast AQMD Air District, Annual

Project Characteristics - CO2 Intensity Factor is based on 2020 forecast in San Bernardino County.

Land Use - New single family housing development with 30 DU on 5.99 ac. Public Park being installed 0.86 ac. Population value increase due to Redlands CAP average household size is 3.21.

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - Scraper added to grading phase.

Off-road Equipment -

Off-road Equipment -

Demolition - Approximately 472 orange trees will be removed, assumed each tree weight was 2 tons.

Vehicle Trips - LSA Trip generation memo estimates 283 ADT. The park is not expected to generation vehicle trips, but rather walking from the local residence.

Woodstoves - The County of San Bernardino does not permit wood burning stoves or fireplaces inside new residence.

Energy Use -

Construction Off-road Equipment Mitigation - All off-road equipment over 50 HP will utilize Tier 2 engines. Water exposed areas at least three times daily during construction.

Energy Mitigation - New dwelling units built after January 1st, 2020 will have an energy reduction of 53% as implementation of PV cells is mandatory for energy generation under Title 24.

Water Mitigation - Low-flow water fixtures and irrigation systems will be implemented to meet state water reduction measures.

Waste Mitigation - The Project is consistent with the CalRecycle Waste Diversion and Recycling Mandate which will reduce solid waste production by 75 percent.

Land Use Change - Removal of 6.85 acres of orange grove for proposed project. Negative impact for removal of vegetation added to -42.47 Tonnes of GHG emission factors.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

Palm Development Project - South Coast AQMD Air District, Annual

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblFireplaces	NumberWood	1.50	0.00
tblGrading	AcresOfGrading	30.00	10.00
tblLandUse	LandUseSquareFeet	54,000.00	78,030.00
tblLandUse	LotAcreage	9.74	5.99
tblLandUse	Population	86.00	96.00
tblLandUseChange	CO2peracre	6.20	-42.47
tblProjectCharacteristics	CO2IntensityFactor	702.44	502.65
tblVehicleTrips	ST_TR	22.75	0.00

Palm Development Project - South Coast AQMD Air District, Annual

tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	9.52	9.44
tblWoodstoves	NumberCatalytic	1.50	0.00
tblWoodstoves	NumberNoncatalytic	1.50	0.00

2.0 Emissions Summary

Palm Development Project - South Coast AQMD Air District, Annual

2.1 Overall Construction**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0404	0.4093	0.2591	5.0000e-004	0.0399	0.0199	0.0599	0.0172	0.0185	0.0357	0.0000	44.2705	44.2705	0.0115	0.0000	44.5582
2021	0.2835	2.6369	2.3767	4.3300e-003	0.1711	0.1350	0.3061	0.0798	0.1264	0.2062	0.0000	377.9128	377.9128	0.0845	0.0000	380.0256
2022	0.2557	0.1036	0.1403	2.3000e-004	1.8700e-003	5.3700e-003	7.2400e-003	5.0000e-004	5.0100e-003	5.5000e-003	0.0000	20.1417	20.1417	5.3900e-003	0.0000	20.2764
Maximum	0.2835	2.6369	2.3767	4.3300e-003	0.1711	0.1350	0.3061	0.0798	0.1264	0.2062	0.0000	377.9128	377.9128	0.0845	0.0000	380.0256

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0156	0.3909	0.2905	5.0000e-004	0.0173	0.0106	0.0279	7.1400e-003	0.0106	0.0178	0.0000	44.2704	44.2704	0.0115	0.0000	44.5582
2021	0.1834	3.3369	2.6052	4.3300e-003	0.0925	0.1163	0.2088	0.0381	0.1162	0.1543	0.0000	377.9124	377.9124	0.0845	0.0000	380.0253
2022	0.2534	0.1849	0.1622	2.3000e-004	1.8700e-003	6.3000e-003	8.1700e-003	5.0000e-004	6.3000e-003	6.7900e-003	0.0000	20.1417	20.1417	5.3900e-003	0.0000	20.2763
Maximum	0.2534	3.3369	2.6052	4.3300e-003	0.0925	0.1163	0.2088	0.0381	0.1162	0.1543	0.0000	377.9124	377.9124	0.0845	0.0000	380.0253

Palm Development Project - South Coast AQMD Air District, Annual

	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
Percent Reduction	21.94	-24.22	-10.15	0.00	47.55	16.93	34.40	53.10	11.21	27.71	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	12-1-2020	2-28-2021	1.1382	1.1086
2	3-1-2021	5-31-2021	0.6704	0.8451
3	6-1-2021	8-31-2021	0.6702	0.8449
4	9-1-2021	11-30-2021	0.6633	0.8361
5	12-1-2021	2-28-2022	0.5836	0.7288
		Highest	1.1382	1.1086

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.0000e-004	1.1000e-004	6.6775
Energy	4.9500e-003	0.0423	0.0180	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003	0.0000	108.6021	108.6021	4.3800e-003	1.6100e-003	109.1912
Mobile	0.0835	0.4766	1.1384	4.3800e-003	0.3677	3.4700e-003	0.3712	0.0985	3.2400e-003	0.1018	0.0000	404.8381	404.8381	0.0192	0.0000	405.3188
Waste						0.0000	0.0000		0.0000	0.0000	7.1717	0.0000	7.1717	0.4238	0.0000	17.7675
Water						0.0000	0.0000		0.0000	0.0000	0.6201	11.4292	12.0493	0.0644	1.6400e-003	14.1469
Total	0.4052	0.5278	1.4683	4.7000e-003	0.3677	9.0300e-003	0.3768	0.0985	8.8000e-003	0.1073	7.7918	531.4982	539.2900	0.5124	3.3600e-003	553.1019

Palm Development Project - South Coast AQMD Air District, Annual

2.2 Overall Operational**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.0000e-004	1.1000e-004	6.6775
Energy	2.8400e-003	0.0243	0.0103	1.6000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	84.3081	84.3081	3.7800e-003	1.1900e-003	84.7561
Mobile	0.0835	0.4766	1.1384	4.3800e-003	0.3677	3.4700e-003	0.3712	0.0985	3.2400e-003	0.1018	0.0000	404.8381	404.8381	0.0192	0.0000	405.3188
Waste						0.0000	0.0000		0.0000	0.0000	1.7929	0.0000	1.7929	0.1060	0.0000	4.4419
Water						0.0000	0.0000		0.0000	0.0000	0.4961	9.9255	10.4215	0.0515	1.3200e-003	12.1035
Total	0.4031	0.5098	1.4607	4.5900e-003	0.3677	7.5700e-003	0.3753	0.0985	7.3400e-003	0.1059	2.2890	505.7005	507.9895	0.1811	2.6200e-003	513.2978

	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
Percent Reduction	0.52	3.41	0.52	2.34	0.00	16.17	0.39	0.00	16.59	1.36	70.62	4.85	5.80	64.66	22.02	7.20

Palm Development Project - South Coast AQMD Air District, Annual

2.3 Vegetation**Vegetation**

	CO2e
Category	MT
Vegetation Land Change	290.9195
Total	290.9195

3.0 Construction Detail**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	12/1/2020	12/28/2020	5	20	
2	Site Preparation	Site Preparation	12/29/2020	1/11/2021	5	10	
3	Grading	Grading	1/12/2021	2/8/2021	5	20	
4	Building Construction	Building Construction	2/9/2021	12/27/2021	5	230	
5	Paving	Paving	12/28/2021	1/24/2022	5	20	
6	Architectural Coating	Architectural Coating	1/25/2022	2/21/2022	5	20	

Acres of Grading (Site Preparation Phase): 0**Acres of Grading (Grading Phase): 10****Acres of Paving: 0**

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Residential Indoor: 158,011; Residential Outdoor: 52,670; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	1	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	93.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	26.00	9.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0101	0.0000	0.0101	1.5300e-003	0.0000	1.5300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	0.0331	0.3320	0.2175	3.9000e-004	0.0101	0.0166	0.0267	1.5300e-003	0.0154	0.0170	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386

Palm Development Project - South Coast AQMD Air District, Annual

3.2 Demolition - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6000e-004	0.0131	2.6000e-003	4.0000e-005	8.0000e-004	4.0000e-005	8.4000e-004	2.2000e-004	4.0000e-005	2.6000e-004	0.0000	3.5091	3.5091	2.4000e-004	0.0000	3.5151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.1000e-004	5.6800e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4815	1.4815	4.0000e-005	0.0000	1.4826
Total	1.0300e-003	0.0136	8.2800e-003	6.0000e-005	2.4500e-003	5.0000e-005	2.5000e-003	6.6000e-004	5.0000e-005	7.1000e-004	0.0000	4.9906	4.9906	2.8000e-004	0.0000	4.9977

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9400e-003	0.0000	3.9400e-003	6.0000e-004	0.0000	6.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0126	0.3266	0.2467	3.9000e-004		9.1400e-003	9.1400e-003		9.1400e-003	9.1400e-003	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	0.0126	0.3266	0.2467	3.9000e-004	3.9400e-003	9.1400e-003	0.0131	6.0000e-004	9.1400e-003	9.7400e-003	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385

Palm Development Project - South Coast AQMD Air District, Annual

3.2 Demolition - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6000e-004	0.0131	2.6000e-003	4.0000e-005	8.0000e-004	4.0000e-005	8.4000e-004	2.2000e-004	4.0000e-005	2.6000e-004	0.0000	3.5091	3.5091	2.4000e-004	0.0000	3.5151
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-004	5.1000e-004	5.6800e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.4815	1.4815	4.0000e-005	0.0000	1.4826
Total	1.0300e-003	0.0136	8.2800e-003	6.0000e-005	2.4500e-003	5.0000e-005	2.5000e-003	6.6000e-004	5.0000e-005	7.1000e-004	0.0000	4.9906	4.9906	2.8000e-004	0.0000	4.9977

3.3 Site Preparation - 2020**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0271	0.0000	0.0271	0.0149	0.0000	0.0149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1100e-003	0.0636	0.0323	6.0000e-005		3.3000e-003	3.3000e-003		3.0300e-003	3.0300e-003	0.0000	5.0146	5.0146	1.6200e-003	0.0000	5.0552
Total	6.1100e-003	0.0636	0.0323	6.0000e-005	0.0271	3.3000e-003	0.0304	0.0149	3.0300e-003	0.0179	0.0000	5.0146	5.0146	1.6200e-003	0.0000	5.0552

Palm Development Project - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2020**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669
Total	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0106	0.0000	0.0106	5.8100e-003	0.0000	5.8100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8100e-003	0.0506	0.0344	6.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	5.0146	5.0146	1.6200e-003	0.0000	5.0551
Total	1.8100e-003	0.0506	0.0344	6.0000e-005	0.0106	1.4200e-003	0.0120	5.8100e-003	1.4200e-003	7.2300e-003	0.0000	5.0146	5.0146	1.6200e-003	0.0000	5.0551

Palm Development Project - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2020**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669
Total	1.2000e-004	9.0000e-005	1.0200e-003	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2669

3.3 Site Preparation - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0632	0.0000	0.0632	0.0348	0.0000	0.0348	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0136	0.1417	0.0740	1.3000e-004		7.1600e-003	7.1600e-003		6.5800e-003	6.5800e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	0.0136	0.1417	0.0740	1.3000e-004	0.0632	7.1600e-003	0.0704	0.0348	6.5800e-003	0.0413	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Palm Development Project - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.9000e-004	1.0000e-005	7.0000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6021	0.6021	2.0000e-005	0.0000	0.6025
Total	2.6000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.9000e-004	1.0000e-005	7.0000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6021	0.6021	2.0000e-005	0.0000	0.6025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0247	0.0000	0.0247	0.0136	0.0000	0.0136	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.2300e-003	0.1180	0.0804	1.3000e-004		3.3100e-003	3.3100e-003		3.3100e-003	3.3100e-003	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971
Total	4.2300e-003	0.1180	0.0804	1.3000e-004	0.0247	3.3100e-003	0.0280	0.0136	3.3100e-003	0.0169	0.0000	11.7025	11.7025	3.7800e-003	0.0000	11.7971

Palm Development Project - South Coast AQMD Air District, Annual

3.3 Site Preparation - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.6000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.9000e-004	1.0000e-005	7.0000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6021	0.6021	2.0000e-005	0.0000	0.6025
Total	2.6000e-004	1.9000e-004	2.2000e-003	1.0000e-005	6.9000e-004	1.0000e-005	7.0000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6021	0.6021	2.0000e-005	0.0000	0.6025

3.4 Grading - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3544	0.2286	4.5000e-004		0.0158	0.0158		0.0145	0.0145	0.0000	39.3704	39.3704	0.0127	0.0000	39.6887
Total	0.0322	0.3544	0.2286	4.5000e-004	0.0655	0.0158	0.0813	0.0337	0.0145	0.0482	0.0000	39.3704	39.3704	0.0127	0.0000	39.6887

Palm Development Project - South Coast AQMD Air District, Annual

3.4 Grading - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	5.5000e-004	6.2700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7202	1.7202	5.0000e-005	0.0000	1.7213
Total	7.5000e-004	5.5000e-004	6.2700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7202	1.7202	5.0000e-005	0.0000	1.7213

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0256	0.0000	0.0256	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0138	0.3805	0.2707	4.5000e-004		0.0105	0.0105		0.0105	0.0105	0.0000	39.3703	39.3703	0.0127	0.0000	39.6887
Total	0.0138	0.3805	0.2707	4.5000e-004	0.0256	0.0105	0.0360	0.0131	0.0105	0.0236	0.0000	39.3703	39.3703	0.0127	0.0000	39.6887

Palm Development Project - South Coast AQMD Air District, Annual

3.4 Grading - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.5000e-004	5.5000e-004	6.2700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7202	1.7202	5.0000e-005	0.0000	1.7213
Total	7.5000e-004	5.5000e-004	6.2700e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9900e-003	5.2000e-004	1.0000e-005	5.4000e-004	0.0000	1.7202	1.7202	5.0000e-005	0.0000	1.7213

3.5 Building Construction - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037	0.0000	266.3829	266.3829	0.0643	0.0000	267.9895
Total	0.2186	2.0047	1.9062	3.1000e-003		0.1102	0.1102		0.1037	0.1037	0.0000	266.3829	266.3829	0.0643	0.0000	267.9895

Palm Development Project - South Coast AQMD Air District, Annual

3.5 Building Construction - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9400e-003	0.1002	0.0248	2.6000e-004	6.5200e-003	2.0000e-004	6.7300e-003	1.8800e-003	1.9000e-004	2.0800e-003	0.0000	25.2692	25.2692	1.6000e-003	0.0000	25.3091
Worker	0.0125	9.2100e-003	0.1042	3.2000e-004	0.0328	2.5000e-004	0.0331	8.7100e-003	2.3000e-004	8.9400e-003	0.0000	28.5742	28.5742	7.7000e-004	0.0000	28.5934
Total	0.0154	0.1094	0.1290	5.8000e-004	0.0393	4.5000e-004	0.0398	0.0106	4.2000e-004	0.0110	0.0000	53.8434	53.8434	2.3700e-003	0.0000	53.9025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1469	2.6879	2.0810	3.1000e-003		0.1007	0.1007		0.1007	0.1007	0.0000	266.3826	266.3826	0.0643	0.0000	267.9892
Total	0.1469	2.6879	2.0810	3.1000e-003		0.1007	0.1007		0.1007	0.1007	0.0000	266.3826	266.3826	0.0643	0.0000	267.9892

Palm Development Project - South Coast AQMD Air District, Annual

3.5 Building Construction - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.9400e-003	0.1002	0.0248	2.6000e-004	6.5200e-003	2.0000e-004	6.7300e-003	1.8800e-003	1.9000e-004	2.0800e-003	0.0000	25.2692	25.2692	1.6000e-003	0.0000	25.3091
Worker	0.0125	9.2100e-003	0.1042	3.2000e-004	0.0328	2.5000e-004	0.0331	8.7100e-003	2.3000e-004	8.9400e-003	0.0000	28.5742	28.5742	7.7000e-004	0.0000	28.5934
Total	0.0154	0.1094	0.1290	5.8000e-004	0.0393	4.5000e-004	0.0398	0.0106	4.2000e-004	0.0110	0.0000	53.8434	53.8434	2.3700e-003	0.0000	53.9025

3.6 Paving - 2021**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.5100e-003	0.0258	0.0293	5.0000e-005		1.3600e-003	1.3600e-003		1.2500e-003	1.2500e-003	0.0000	4.0047	4.0047	1.3000e-003	0.0000	4.0371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.5100e-003	0.0258	0.0293	5.0000e-005		1.3600e-003	1.3600e-003		1.2500e-003	1.2500e-003	0.0000	4.0047	4.0047	1.3000e-003	0.0000	4.0371

Palm Development Project - South Coast AQMD Air District, Annual

3.6 Paving - 2021**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2867	0.2867	1.0000e-005	0.0000	0.2869
Total	1.3000e-004	9.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2867	0.2867	1.0000e-005	0.0000	0.2869

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8600e-003	0.0402	0.0346	5.0000e-005		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	4.0047	4.0047	1.3000e-003	0.0000	4.0371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	1.8600e-003	0.0402	0.0346	5.0000e-005		1.3300e-003	1.3300e-003		1.3300e-003	1.3300e-003	0.0000	4.0047	4.0047	1.3000e-003	0.0000	4.0371

Palm Development Project - South Coast AQMD Air District, Annual

3.6 Paving - 2021**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2867	0.2867	1.0000e-005	0.0000	0.2869
Total	1.3000e-004	9.0000e-005	1.0500e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2867	0.2867	1.0000e-005	0.0000	0.2869

3.6 Paving - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8200e-003	0.0890	0.1166	1.8000e-004		4.5400e-003	4.5400e-003		4.1800e-003	4.1800e-003	0.0000	16.0221	16.0221	5.1800e-003	0.0000	16.1516
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	8.8200e-003	0.0890	0.1166	1.8000e-004		4.5400e-003	4.5400e-003		4.1800e-003	4.1800e-003	0.0000	16.0221	16.0221	5.1800e-003	0.0000	16.1516

Palm Development Project - South Coast AQMD Air District, Annual

3.6 Paving - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1057	1.1057	3.0000e-005	0.0000	1.1064
Total	4.7000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1057	1.1057	3.0000e-005	0.0000	1.1064

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.4500e-003	0.1609	0.1384	1.8000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	16.0220	16.0220	5.1800e-003	0.0000	16.1516
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	7.4500e-003	0.1609	0.1384	1.8000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	16.0220	16.0220	5.1800e-003	0.0000	16.1516

Palm Development Project - South Coast AQMD Air District, Annual

3.6 Paving - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1057	1.1057	3.0000e-005	0.0000	1.1064
Total	4.7000e-004	3.3000e-004	3.8600e-003	1.0000e-005	1.3200e-003	1.0000e-005	1.3300e-003	3.5000e-004	1.0000e-005	3.6000e-004	0.0000	1.1057	1.1057	3.0000e-005	0.0000	1.1064

3.7 Architectural Coating - 2022**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.2462	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

Palm Development Project - South Coast AQMD Air District, Annual

3.7 Architectural Coating - 2022**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.6100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4607	0.4607	1.0000e-005	0.0000	0.4610
Total	2.0000e-004	1.4000e-004	1.6100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4607	0.4607	1.0000e-005	0.0000	0.4610

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2441					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	0.2453	0.0235	0.0183	3.0000e-005		9.5000e-004	9.5000e-004		9.5000e-004	9.5000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574

Palm Development Project - South Coast AQMD Air District, Annual

3.7 Architectural Coating - 2022**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.4000e-004	1.6100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4607	0.4607	1.0000e-005	0.0000	0.4610
Total	2.0000e-004	1.4000e-004	1.6100e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4607	0.4607	1.0000e-005	0.0000	0.4610

4.0 Operational Detail - Mobile**4.1 Mitigation Measures Mobile**

Palm Development Project - South Coast AQMD Air District, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0835	0.4766	1.1384	4.3800e-003	0.3677	3.4700e-003	0.3712	0.0985	3.2400e-003	0.1018	0.0000	404.8381	404.8381	0.0192	0.0000	405.3188
Unmitigated	0.0835	0.4766	1.1384	4.3800e-003	0.3677	3.4700e-003	0.3712	0.0985	3.2400e-003	0.1018	0.0000	404.8381	404.8381	0.0192	0.0000	405.3188

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Single Family Housing	283.20	283.20	283.20	967,737	967,737
Total	283.20	283.20	283.20	967,737	967,737

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896
Single Family Housing	0.549559	0.042893	0.201564	0.118533	0.015569	0.005846	0.021394	0.034255	0.002099	0.001828	0.004855	0.000709	0.000896

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	56.1703	56.1703	3.2400e-003	6.7000e-004	56.4511
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	59.6203	59.6203	3.4400e-003	7.1000e-004	59.9183
NaturalGas Mitigated	2.8400e-003	0.0243	0.0103	1.6000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.1378	28.1378	5.4000e-004	5.2000e-004	28.3050
NaturalGas Unmitigated	4.9500e-003	0.0423	0.0180	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003	0.0000	48.9818	48.9818	9.4000e-004	9.0000e-004	49.2729

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5.2 Energy by Land Use - NaturalGas**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	917885	4.9500e-003	0.0423	0.0180	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003	0.0000	48.9818	48.9818	9.4000e-004	9.0000e-004	49.2729
Total		4.9500e-003	0.0423	0.0180	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003	0.0000	48.9818	48.9818	9.4000e-004	9.0000e-004	49.2729

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	527283	2.8400e-003	0.0243	0.0103	1.6000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.1378	28.1378	5.4000e-004	5.2000e-004	28.3050
Total		2.8400e-003	0.0243	0.0103	1.6000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.1378	28.1378	5.4000e-004	5.2000e-004	28.3050

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5.3 Energy by Land Use - Electricity**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	261494	59.6203	3.4400e-003	7.1000e-004	59.9183
Total		59.6203	3.4400e-003	7.1000e-004	59.9183

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	246363	56.1703	3.2400e-003	6.7000e-004	56.4511
Total		56.1703	3.2400e-003	6.7000e-004	56.4511

6.0 Area Detail**6.1 Mitigation Measures Area**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.0000e-004	1.1000e-004	6.6775
Unmitigated	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.0000e-004	1.1000e-004	6.6775

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0244					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2823					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.2000e-004	5.2900e-003	2.2500e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	6.1235	6.1235	1.2000e-004	1.1000e-004	6.1599
Landscaping	9.3600e-003	3.5700e-003	0.3097	2.0000e-005		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	0.5054	0.5054	4.9000e-004	0.0000	0.5176
Total	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.1000e-004	1.1000e-004	6.6775

Palm Development Project - South Coast AQMD Air District, Annual

6.2 Area by SubCategory**Mitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0244					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2823					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	6.2000e-004	5.2900e-003	2.2500e-003	3.0000e-005		4.3000e-004	4.3000e-004		4.3000e-004	4.3000e-004	0.0000	6.1235	6.1235	1.2000e-004	1.1000e-004	6.1599
Landscaping	9.3600e-003	3.5700e-003	0.3097	2.0000e-005		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	0.5054	0.5054	4.9000e-004	0.0000	0.5176
Total	0.3167	8.8600e-003	0.3120	5.0000e-005		2.1400e-003	2.1400e-003		2.1400e-003	2.1400e-003	0.0000	6.6289	6.6289	6.1000e-004	1.1000e-004	6.6775

7.0 Water Detail**7.1 Mitigation Measures Water**

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

Palm Development Project - South Coast AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.4215	0.0515	1.3200e-003	12.1035
Unmitigated	12.0493	0.0644	1.6400e-003	14.1469

7.2 Water by Land Use**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.98893	2.5050	1.4000e-004	3.0000e-005	2.5175
Single Family Housing	1.95462 / 1.23226	9.5443	0.0642	1.6100e-003	11.6294
Total		12.0493	0.0644	1.6400e-003	14.1469

Palm Development Project - South Coast AQMD Air District, Annual

7.2 Water by Land Use**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.928605	2.3522	1.4000e-004	3.0000e-005	2.3640
Single Family Housing	1.5637 / 1.15709	8.0693	0.0514	1.2900e-003	9.7395
Total		10.4215	0.0515	1.3200e-003	12.1035

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Palm Development Project - South Coast AQMD Air District, Annual

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.7929	0.1060	0.0000	4.4419
Unmitigated	7.1717	0.4238	0.0000	17.7675

8.2 Waste by Land Use**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.07	0.0142	8.4000e-004	0.0000	0.0352
Single Family Housing	35.26	7.1575	0.4230	0.0000	17.7323
Total		7.1717	0.4238	0.0000	17.7675

Palm Development Project - South Coast AQMD Air District, Annual

8.2 Waste by Land Use**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.0175	3.5500e-003	2.1000e-004	0.0000	8.8000e-003
Single Family Housing	8.815	1.7894	0.1058	0.0000	4.4331
Total		1.7929	0.1060	0.0000	4.4419

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**Fire Pumps and Emergency Generators**

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

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

Equipment Type	Number
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11.0 Vegetation

Palm Development Project - South Coast AQMD Air District, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	290.9195	0.0000	0.0000	290.9195

11.1 Vegetation Land Change**Vegetation Type**

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Cropland	8.81 / 1.96	290.9195	0.0000	0.0000	290.9195
Total		290.9195	0.0000	0.0000	290.9195