

# **Air Quality and Greenhouse Gas Appendix**

# Air Quality and Greenhouse Gas Background and Modeling Data

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## AIR QUALITY

### Climate/Meteorology

#### SOUTH COAST AIR BASIN

The Project Site lies in the South Coast Air Basin (SoCAB), which includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is in a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean in the southwest quadrant, with high mountains forming the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds (South Coast AQMD 2005).

#### Temperature and Precipitation

The annual average temperature varies little throughout the SoCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station nearest to the Project Site with temperature data is the Pasadena Monitoring Station (ID 046719). The average low is reported at 42.6 °F in January, and the average high is 89.2 °F in August (WRCC 2021).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from October through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains. Rainfall averages 20.24 inches per year in the vicinity of the area (WRCC 2021).

#### Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent. Low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the (South Coast AQMD 2005).

## **Wind**

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season.

Between periods of wind, periods of air stagnation may occur, both in the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the transport and diffusion of pollutants by inhibiting their eastward transport. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (South Coast AQMD 2005).

## **Inversions**

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed. These are the marine/subsidence inversion and the radiation inversion. The combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter in the project area (South Coast AQMD 2005).

## **Air Quality Regulations**

The Project has the potential to release gaseous emissions of criteria pollutants and dust into the ambient air; therefore, it falls under the ambient air quality standards promulgated at the local, state, and federal levels. The Project Site is in the SoCAB and is subject to the rules and regulations imposed by the South Coast Air Quality Management District (South Coast AQMD). However, South Coast AQMD reports to California Air Resources board (CARB), and all criteria emissions are also governed by the California and national Ambient Air Quality Standards (AAQS). Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the Project are summarized below.

## **AMBIENT AIR QUALITY STANDARDS**

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1970 Clean Air Act amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting National AAQS and the Prevention of Significant Deterioration program. The 1990 amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the United States. The CAA allows states to adopt more stringent standards or to include other pollution species. The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve

and maintain the California AAQS by the earliest practical date. The California AAQS tend to be more restrictive than the National AAQS, based on even greater health and welfare concerns.

These National AAQS and California AAQS are the levels of air quality considered to provide a margin of safety in the protection of the public health and welfare. They are designed to protect “sensitive receptors” most susceptible to further respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

Both California and the federal government have established health-based AAQS for seven air pollutants. As shown in Table 1, these pollutants include ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), coarse inhalable particulate matter (PM<sub>10</sub>), fine inhalable particulate matter (PM<sub>2.5</sub>), and lead (Pb). In addition, the state has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety.

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Ozone (O <sub>3</sub> ) <sup>3</sup>	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM <sub>10</sub> )	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	
Respirable Fine Particulate Matter (PM <sub>2.5</sub> ) <sup>4</sup>	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m <sup>3</sup>	

**Table 1 Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Time	California Standard <sup>1</sup>	Federal Primary Standard <sup>2</sup>	Major Pollutant Sources
Lead (Pb)	30-Day Average	1.5 µg/m <sup>3</sup>	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m <sup>3</sup>	
	Rolling 3-Month Average	*	0.15 µg/m <sup>3</sup>	
Sulfates (SO <sub>4</sub> ) <sup>5</sup>	24 hours	25 µg/m <sup>3</sup>	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H <sub>2</sub> S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hours	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter

\* Standard has not been established for this pollutant/duration by this entity.

1 California standards for O<sub>3</sub>, CO (except 8-hour Lake Tahoe), SO<sub>2</sub> (1 and 24 hour), NO<sub>2</sub>, and particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than O<sub>3</sub>, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m<sup>3</sup> is equal to or less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

4 On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

5 On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

California has also adopted a host of other regulations that reduce criteria pollutant emissions, including:

- AB 1493: Pavley Fuel Efficiency Standards
- Title 20 California Code of Regulations (CCR): Appliance Energy Efficiency Standards
- Title 24, Part 6, CCR: Building and Energy Efficiency Standards
- Title 24, Part 11, CCR: Green Building Standards Code

## CRITERIA AIR POLLUTANTS

The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by federal and state law. Air pollutants are categorized as primary or secondary pollutants. Primary air pollutants are those that are emitted directly from sources and include CO, VOC, NO<sub>2</sub>, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and Pb. Of these, CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are “criteria air pollutants,” which means that ambient air quality standards (AAQS) have been established for them. VOC and oxides of nitrogen (NO<sub>x</sub>) are air pollutant precursors that form secondary criteria pollutants through chemical and photochemical reactions in the atmosphere. Ozone (O<sub>3</sub>) and NO<sub>2</sub> are the principal secondary pollutants. A description of each of the primary and secondary criteria air pollutants and their known health effects is presented below.

**Carbon Monoxide (CO)** is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. CO is a primary criteria air pollutant. CO concentrations tend to be the highest during winter mornings with little to no wind, when surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion, engines and motor vehicles operating at slow speeds are the primary source of CO in the SoCAB. The highest ambient CO concentrations are generally found near traffic-congested corridors and intersections. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation (South Coast AQMD 2005, USEPA 2021). The SoCAB is designated as being in attainment under the California AAQS and attainment (serious maintenance) under the National AAQS (CARB 2023a).

**Volatile Organic Compounds (VOC)** are compounds composed primarily of atoms of hydrogen and carbon. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of VOCs include evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. There are no ambient air quality standards established for VOCs. However, because they contribute to the formation of ozone (O<sub>3</sub>), South Coast AQMD has established a significance threshold for this pollutant (South Coast AQMD 2005).

**Nitrogen Oxides (NO<sub>x</sub>)** are a byproduct of fuel combustion and contribute to the formation of O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. The two major forms of NO<sub>x</sub> are nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>). The principal form of NO<sub>2</sub> produced by combustion is NO, but NO reacts with oxygen to form NO<sub>2</sub>, creating the mixture of NO and NO<sub>2</sub> commonly called NO<sub>x</sub>. NO<sub>2</sub> acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO<sub>2</sub> is only potentially irritating. There is some indication of a relationship between NO<sub>2</sub> and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 part per million (ppm). NO<sub>2</sub> absorbs blue light; the result is a brownish-red cast to the atmosphere and reduced visibility. NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure (South Coast AQMD 2005, USEPA 2021). The SoCAB is designated as an attainment (maintenance) area under the National AAQS and attainment area under the California AAQS (CARB 2023a).

**Sulfur Dioxide (SO<sub>2</sub>)** is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. It enters the atmosphere as a result of burning high-sulfur-content fuel oils and coal and from chemical

processes at chemical plants and refineries. Gasoline and natural gas have very low sulfur content and do not release significant quantities of SO<sub>2</sub> (South Coast AQMD 2005, USEPA 2021). When sulfur dioxide forms sulfates (SO<sub>4</sub>) in the atmosphere, together these pollutants are referred to as sulfur oxides (SO<sub>x</sub>). Thus, SO<sub>2</sub> is both a primary and secondary criteria air pollutant. At sufficiently high concentrations, SO<sub>2</sub> may irritate the upper respiratory tract. At lower concentrations and when combined with particulates, SO<sub>2</sub> may do greater harm by injuring lung tissue. The SoCAB is designated as attainment under the California and National AAQS (CARB 2023a).

**Suspended Particulate Matter (PM<sub>10</sub> and PM<sub>2.5</sub>)** consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized and regulated. Inhalable coarse particles, or PM<sub>10</sub>, include the particulate matter with an aerodynamic diameter of 10 microns (i.e., 10 millionths of a meter or 0.0004 inch) or less. Inhalable fine particles, or PM<sub>2.5</sub>, have an aerodynamic diameter of 2.5 microns (i.e., 2.5 millionths of a meter or 0.0001 inch) or less. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind action on arid landscapes also contributes substantially to local particulate loading (i.e., fugitive dust). Both PM<sub>10</sub> and PM<sub>2.5</sub> may adversely affect the human respiratory system, especially in people who are naturally sensitive or susceptible to breathing problems (South Coast AQMD 2005).

The US Environmental Protection Agency's (EPA) scientific review concluded that PM<sub>2.5</sub>, which penetrates deeply into the lungs, is more likely than PM<sub>10</sub> to contribute to health effects and at concentrations that extend well below those allowed by the current PM<sub>10</sub> standards. These health effects include premature death and increased hospital admissions and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms (South Coast AQMD 2005). There has been emerging evidence that even smaller particulates with an aerodynamic diameter of <0.1 microns or less (i.e., ≤0.1 millionths of a meter or <0.000004 inch), known as ultrafine particulates (UFPs), have human health implications, because UFPs toxic components may initiate or facilitate biological processes that may lead to adverse effects to the heart, lungs, and other organs (South Coast AQMD 2013). However, the EPA or CARB have yet to adopt AAQS to regulate these particulates. Diesel particulate matter (DPM) is classified by the CARB as a carcinogen (CARB 1998). Particulate matter can also cause environmental effects such as visibility impairment,<sup>1</sup> environmental damage,<sup>2</sup> and aesthetic damage<sup>3</sup> (South Coast AQMD 2005; USEPA 2021). The SoCAB is in nonattainment and serious nonattainment for PM<sub>2.5</sub> under the California

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<sup>1</sup> PM<sub>2.5</sub> is the main cause of reduced visibility (haze) in parts of the United States.

<sup>2</sup> Particulate matter can be carried over long distances by wind and then settle on ground or water, making lakes and streams acidic; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

<sup>3</sup> Particulate matter can stain and damage stone and other materials, including culturally important objects such as statues and monuments.

and National AAQS, respectively. For PM<sub>10</sub>, the SoCAB is nonattainment under the California AAQS and in attainment (serious maintenance) under the National AAQS (CARB 2023a).<sup>4</sup>

**Ozone (O<sub>3</sub>)** is commonly referred to as “smog” and is a gas that is formed when VOCs and NO<sub>x</sub>, both by-products of internal combustion engine exhaust, undergo photochemical reactions in the presence of sunlight. O<sub>3</sub> is a secondary criteria air pollutant. O<sub>3</sub> concentrations are generally highest during the summer months when direct sunlight, light winds, and warm temperatures create favorable conditions for the formation of this pollutant. O<sub>3</sub> poses a health threat to those who already suffer from respiratory diseases as well as to healthy people. Breathing O<sub>3</sub> can trigger a variety of health problems, including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema, and asthma. Ground-level O<sub>3</sub> also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. O<sub>3</sub> also affects sensitive vegetation and ecosystems, including forests, parks, wildlife refuges, and wilderness areas. In particular, O<sub>3</sub> harms sensitive vegetation during the growing season (South Coast AQMD 2005; USEPA 2021). The SoCAB is designated as extreme nonattainment under the National AAQS (8-hour) and as nonattainment under the California AAQS (1-hour and 8-hour). (CARB 2023a).

**Lead (Pb)** is a metal found naturally in the environment as well as in manufactured products. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood. The effects of lead most commonly encountered in current populations are neurological effects in children and cardiovascular effects in adults (e.g., high blood pressure and heart disease). Infants and young children are especially sensitive to even low levels of lead, which may contribute to behavioral problems, learning deficits, and lowered IQ (South Coast AQMD 2005; USEPA 2021). The major sources of lead emissions have historically been mobile and industrial sources. As a result of the EPA’s regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector dramatically declined by 95 percent between 1980 and 1999, and levels of lead in the air decreased by 94 percent between 1980 and 1999. Today, the highest levels of lead in air are usually found near lead smelters. The major sources of lead emissions today are ore and metals processing and piston-engine aircraft operating on leaded aviation gasoline. However, in 2008 the EPA and CARB adopted stricter lead standards, and special monitoring sites immediately downwind of lead sources recorded very localized violations of the new state and federal standards.<sup>5</sup> As a result of these violations, the Los Angeles County portion of the SoCAB is designated nonattainment under the National AAQS for lead (South Coast AQMD 2012; CARB 2023a). Because emissions of lead are found only in projects that are permitted by South Coast AQMD, lead is not a pollutant of concern for the project.

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<sup>4</sup> CARB approved the South Coast AQMD’s request to redesignate the SoCAB from serious nonattainment for PM<sub>10</sub> to attainment for PM<sub>10</sub> under the National AAQS on March 25, 2010, because the SoCAB did not violate federal 24-hour PM<sub>10</sub> standards from 2004 to 2007. The EPA approved the State of California’s request to redesignate the South Coast PM<sub>10</sub> nonattainment area to attainment of the PM<sub>10</sub> National AAQS, effective on July 26, 2013.

<sup>5</sup> Source-oriented monitors record concentrations of lead at lead-related industrial facilities in the SoCAB, which include Exide Technologies in the City of Commerce; Quemetco, Inc., in the City of Industry; Trojan Battery Company in Santa Fe Springs; and Exide Technologies in Vernon. Monitoring conducted between 2004 through 2007 showed that the Trojan Battery Company and Exide Technologies exceed the federal standards (South Coast AQMD 2012).



## **TOXIC AIR CONTAMINANTS**

The public's exposure to air pollutants classified as toxic air contaminants (TACs) is a significant environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The California Health and Safety Code defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP) pursuant to Section 112(b) of the federal Clean Air Act (42 United States Code §7412[b]) is a toxic air contaminant. Under state law, the California Environmental Protection Agency (Cal/EPA), acting through CARB, is authorized to identify a substance as a TAC if it determines that the substance is an air pollutant that may cause or contribute to an increase in mortality or to an increase in serious illness, or may pose a present or potential hazard to human health.

California regulates TACs primarily through Assembly Bill (AB) 1807 (Tanner Air Toxics Act) and AB 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance (i.e., a point below which there is no toxic effect), the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology to minimize emissions. To date, CARB has established formal control measures for 11 TACs, all of which are identified as having no safe threshold.

Air toxics from stationary sources are also regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, toxic air contaminant emissions from individual facilities are quantified and prioritized by the air quality management district or air pollution control district. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

By the last update to the TAC list in December 1999, CARB had designated 244 compounds as TACs (CARB 1999). Additionally, CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines.

### **Diesel Particulate Matter**

In 1998, CARB identified particulate emissions from diesel-fueled engines (diesel PM) as a TAC. Previously, the individual chemical compounds in diesel exhaust were considered TACs. Almost all diesel exhaust particle mass is 10 microns or less in diameter. Because of their extremely small size, these particles can be inhaled and eventually trapped in the bronchial and alveolar regions of the lung.

CARB has promulgated the following specific rules to limit TAC emissions:

- 13 CCR Chapter 10, Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

- 13 CCR Chapter 10, Section 2480, Airborne Toxic Control Measure to Limit School Bus Idling and Idling at Schools
- 13 CCR Section 2477 and Article 8, Airborne Toxic Control Measure for In-Use Diesel-Fueled Transport Refrigeration Units (TRU) and TRU Generator Sets and Facilities Where TRUs Operate

## **Community Risk**

In addition, to reduce exposure to TACs, CARB developed and approved the *Air Quality and Land Use Handbook: A Community Health Perspective* (2005) to provide guidance regarding the siting of sensitive land uses in the vicinity of freeways, distribution centers, rail yards, ports, refineries, chrome-plating facilities, dry cleaners, and gasoline-dispensing facilities. This guidance document was developed to assess compatibility and associated health risks when placing sensitive receptors near existing pollution sources. CARB's recommendations on the siting of new sensitive land uses were based on a compilation of recent studies that evaluated data on the adverse health effects from proximity to air pollution sources. The key observation in these studies is that proximity to air pollution sources substantially increases exposure and the potential for adverse health effects. There are three carcinogenic toxic air contaminants that constitute the majority of the known health risks from motor vehicle traffic, DPM from trucks, and benzene and 1,3-butadiene from passenger vehicles. CARB recommendations are based on data that show that localized air pollution exposures can be reduced by as much as 80 percent by following CARB minimum distance separations.

## **Multiple Airborne Toxics Exposure Study (MATES)**

The Multiple Air Toxics Exposure Study (MATES) is a monitoring and evaluation study on ambient concentrations of TACs and estimated the potential health risks from air toxics in the SoCAB. In 2008, South Coast AQMD conducted its third update to the MATES study (MATES III). The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,200 in a million. The largest contributor to this risk was diesel exhaust, accounting for 84 percent of the cancer risk (South Coast AQMD 2008b).

South Coast AQMD recently released the fourth update (MATES IV). The results showed that the overall monitored risk for excess cancer from a lifetime exposure to ambient levels of air toxics decreased to approximately 418 in one million. Compared to the 2008 MATES III, monitored excess cancer risks decreased by approximately 65 percent. Approximately 90 percent of the risk is attributed to mobile sources while 10 percent is attributed to TACs from stationary sources, such as refineries, metal processing facilities, gas stations, and chrome plating facilities. The largest contributor to this risk was diesel exhaust, accounting for approximately 68 percent of the air toxics risk. Compared to MATES III, MATES IV found substantial improvement in air quality and associated decrease in air toxics exposure. As a result, the estimated basin-wide population-weighted risk decreased by approximately 57 percent compared to the analysis done for the MATES III time period (South Coast AQMD 2015a).

The Office of Environmental Health Hazard Assessment (OEHHA) updated the guidelines for estimating cancer risks on March 6, 2015. The new method utilizes higher estimates of cancer potency during early life exposures, which result in a higher calculation of risk. There are also differences in the assumptions on breathing rates and length of residential exposures. When combined together, South Coast AQMD estimates

that risks for a given inhalation exposure level will be about 2.7 times higher using the proposed updated methods identified in MATES IV (e.g., 2.7 times higher than 418 in one million overall excess cancer risk) (South Coast AQMD 2015a).

## Air Quality Management Planning

The South Coast AQMD is the agency responsible for preparing the air quality management plan (AQMP) for the SoCAB in coordination with the Southern California Association of Governments (SCAG). Since 1979, a number of AQMPs have been prepared.

### 2016 AQMP

On March 3, 2017, the South Coast AQMD adopted the 2016 AQMP as an update to the 2012 AQMP. The 2016 AQMP addresses strategies and measures to attain the following National AAQS:

- 2008 National 8-hour ozone standard by 2031,
- 2012 National annual PM<sub>2.5</sub> standard by 2025<sup>6</sup>,
- 2006 National 24-hour PM<sub>2.5</sub> standard by 2019,
- 1997 National 8-hour ozone standard by 2023, and the
- 1979 National 1-hour ozone standard by year 2022.

It is projected that total NO<sub>x</sub> emissions in the SoCAB would need to be reduced to 150 tons per day (tpd) by year 2023 and to 100 tpd in year 2031 to meet the 1997 and 2008 federal 8-hour ozone standards. The strategy to meet the 1997 federal 8-hour ozone standard would also lead to attaining the 1979 federal 1-hour ozone standard by year 2022 (South Coast AQMD 2017), which requires reducing NO<sub>x</sub> emissions in the SoCAB to 250 tpd. This is approximately 45 percent additional reductions above existing regulations for the 2023 ozone standard and 55 percent additional reductions above existing regulations to meet the 2031 ozone standard.

Reducing NO<sub>x</sub> emissions would also reduce PM<sub>2.5</sub> concentrations in the SoCAB. However, as the goal is to meet the 2012 federal annual PM<sub>2.5</sub> standard no later than year 2025, South Coast AQMD is seeking to reclassify the SoCAB from “moderate” to “serious” nonattainment under this federal standard. A “moderate” nonattainment would require meeting the 2012 federal standard by no later than 2021.

Overall, the 2016 AQMP is composed of stationary and mobile-source emission reductions from regulatory control measures, incentive-based programs, co-benefits from climate programs, mobile-source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. Strategies outlined in the 2016 AQMP would be implemented in collaboration between CARB and the EPA (South Coast AQMD 2017).

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<sup>6</sup> The 2016 AQMP requests a reclassification from moderate to serious non-attainment for the 2012 National PM<sub>2.5</sub> standard.

## 2022 AQMP

On October 1, 2015, the EPA strengthened the National AAQS for ground-level ozone, lowering the primary and secondary ozone standard levels to 70 parts per billion (ppb) from 75 ppb. The SoCAB is classified as an “extreme” nonattainment area for the 2015 National AAQS for ozone. Consequently, South Coast AQMD Governing Board adopted the 2022 AQMP in December 2022 to address the requirements for meeting this standard. The 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emission technologies, when cost-effective and feasible, and low NO<sub>x</sub> technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other CAA measures to achieve the 2015 8-hour ozone standard. The 2015 8-hour ozone standard is the most stringent standard to date. Because current ozone levels in the SoCAB are so high, meeting the standard will require substantial emission reductions above and beyond current programs. South Coast AQMD forecasts that emissions of NO<sub>x</sub>—the key pollutant controlling formation of ozone—must be reduced by 67 percent beyond what we would achieve through current programs by 2037 to meet the standard. By year 2037, 46 percent of NO<sub>x</sub> emissions will come from federal sources, 33 percent will come from State-regulated sources, and only 20 percent will come from sources regulated by the South Coast AQMD (South Coast AQMD 2022).

## LEAD STATE IMPLEMENTATION PLAN

In 2008, EPA designated the Los Angeles County portion of the SoCAB nonattainment under the federal lead (Pb) classification due to the addition of source-specific monitoring under the new federal regulation. This designation was based on two source-specific monitors in Vernon and the City of Industry exceeding the new standard. The rest of the SoCAB, outside the Los Angeles County nonattainment area remains in attainment of the new standard. On May 24, 2012, CARB approved the SIP revision for the federal lead standard, which the EPA revised in 2008. Lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011. The SIP revision was submitted to EPA for approval.

## AREA DESIGNATIONS

The AQMP provides the framework for air quality basins to achieve attainment of the state and federal ambient air quality standards through the State Implementation Plan (SIP). Areas are classified as attainment or nonattainment areas for particular pollutants, depending on whether they meet ambient air quality standards. Severity classifications for ozone nonattainment range in magnitude from marginal, moderate, and serious to severe and extreme.

- **Unclassified:** a pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or nonattainment.
- **Attainment:** a pollutant is in attainment if the CAAQS for that pollutant was not violated at any site in the area during a three-year period.
- **Nonattainment:** a pollutant is in nonattainment if there was at least one violation of a state AAQS for that pollutant in the area.

- **Nonattainment/Transitional:** a subcategory of the nonattainment designation. An area is designated nonattainment/transitional to signify that the area is close to attaining the AAQS for that pollutant.

The attainment status for the SoCAB is shown in Table 2, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*.

**Table 2 Attainment Status of Criteria Pollutants in the South Coast Air Basin**

Pollutant	State	Federal
Ozone – 1-hour	Extreme Nonattainment	No Federal Standard
Ozone – 8-hour	Extreme Nonattainment	Extreme Nonattainment
PM <sub>10</sub>	Serious Nonattainment	Attainment
PM <sub>2.5</sub>	Nonattainment	Nonattainment <sup>2</sup>
CO	Attainment	Attainment
NO <sub>2</sub>	Nonattainment (SR-60 Near Road only) <sup>1</sup>	Attainment (Maintenance)
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only) <sup>3</sup>
All others	Attainment/Unclassified	Attainment/Unclassified

Source: CARB 2023a.

<sup>1</sup> On February 21, 2019, CARB's Board approved the separation of the area that runs along State Route 60 corridor through portions of Riverside, San Bernardino, and Los Angeles counties from the remainder of the SoCAB for state nonattainment designation purposes. The Board designated this corridor as nonattainment. The remainder of the SoCAB remains in attainment for NO<sub>2</sub> (CARB 2019a). CARB is proposing to redesignate SR-60 Near-Road Portion of San Bernardino, Riverside, and Los Angeles Counties in the SoCAB as attainment for NO<sub>2</sub> at the February 24, 2022 Board Hearing (CARB 2023b). This redesignation will not be official until the Office of Administrative Law (OAL) approves the rulemaking filed with the Secretary of State, expected in the fall of 2022 (South Coast AQMD 2022).

<sup>2</sup> The SoCAB is pending a resignation request from nonattainment to attainment for the 24-hour federal PM<sub>2.5</sub> standards. The 2021 PM<sub>2.5</sub> Redesignation Request and Maintenance Plan demonstrates that the South Coast meets the requirements of the CAA to allow US EPA to redesignate the SoCAB to attainment for the 65 µg/m<sup>3</sup> and 35 µg/m<sup>3</sup> 24-hour PM<sub>2.5</sub> standards. CARB has reviewed and adopted submit the 2021 PM<sub>2.5</sub> Redesignation Request and Maintenance Plan to the US EPA as a revision to the California State Implementation Plan (SIP) (CARB 2021b).

<sup>3</sup> In 2010, the Los Angeles portion of the SoCAB was designated nonattainment for lead under the new 2008 federal AAQS as a result of large industrial emitters. Remaining areas for lead in the SoCAB are unclassified. However, lead concentrations in this nonattainment area have been below the level of the federal standard since December 2011 (South Coast AQMD 2012). CARB's SIP revision was submitted to the EPA for approval.

## Existing Ambient Air Quality

Existing levels of ambient air quality and historical trends and projections in the vicinity of the Project Site are best documented by measurements taken by the South Coast AQMD. The Project Site is located within Source Receptor Area (SRA) 8 – West San Gabriel Valley. The air quality monitoring station closest to the Project is the Pasadena – S Wilson Avenue Monitoring Station, which is one of 31 monitoring stations South Coast AQMD operates and maintains in the SoCAB.<sup>7</sup> Data from this station includes O<sub>3</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub> and is summarized in Table 3, *Ambient Air Quality Monitoring Summary*. Data for PM<sub>10</sub> is supplemented by the Los Angeles – North Main Street Monitoring Station. The most current five years of data from these monitoring stations are included in Table 3 and show regular violations of the state and federal O<sub>3</sub>, state PM<sub>10</sub> standards, and federal PM<sub>2.5</sub> standards in the last five years.

<sup>7</sup> Locations of the SRAs and monitoring stations are shown here: <http://www.aqmd.gov/docs/default-source/default-document-library/map-of-monitoring-areas.pdf>.

**Table 3 Ambient Air Quality Monitoring Summary**

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels during Such Violations				
	2016	2017	2018	2019	2020
<b>Ozone (O<sub>3</sub>)<sup>1</sup></b>					
State 1-Hour ≥ 0.09 ppm (days exceed threshold)	12	18	8	11	41
State & Federal 8-hour ≥ 0.070 ppm (days exceed threshold)	18	36	19	24	60
Max. 1-Hour Conc. (ppm)	0.126	0.139	0.112	0.120	0.163
Max. 8-Hour Conc. (ppm)	0.090	0.100	0.090	0.098	0.115
<b>Nitrogen Dioxide (NO<sub>2</sub>)<sup>1</sup></b>					
State 1-Hour ≥ 0.18 ppm (days exceed threshold)	0	0	0	0	0
Federal 1-Hour ≥ 0.100 ppm (days exceed threshold)	0	0	0	0	0
Max. 1-Hour Conc. (ppb)	0.0719	0.0723	0.0682	0.0591	0.0612
<b>Coarse Particulates (PM<sub>10</sub>)<sup>2</sup></b>					
State 24-Hour > 50 µg/m <sup>3</sup> (days exceed threshold)	21	40	31	15	34
Federal 24-Hour > 150 µg/m <sup>3</sup> (days exceed threshold)	0	0	0	0	0
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	74.6	96.2	81.2	93.9	185.2
<b>Fine Particulates (PM<sub>2.5</sub>)<sup>1</sup></b>					
Federal 24-Hour > 35 µg/m <sup>3</sup> (days exceed threshold)	0	0	0	1	2
Max. 24-Hour Conc. (µg/m <sup>3</sup> )	29.2	22.8	32.5	41.8	67.7

Source: CARB 2021a.

Notes: ppm = parts per million; ppb = parts per billion; µg/m<sup>3</sup> = micrograms per cubic meter; \* = Data not available

<sup>1</sup> Data obtained from the Pasadena – S Wilson Avenue Monitoring Station for O<sub>3</sub>, NO<sub>x</sub>, and PM<sub>2.5</sub>.

<sup>2</sup> Data obtained from the Los Angeles – North Main Street Monitoring Station for PM<sub>10</sub>.

<sup>3</sup> Most recent data available as of September 2021.

## Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are also considered to be sensitive receptors to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered sensitive receptors, as children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public. The nearest sensitive receptors to the proposed Project Site are the residences along the residences along Wotkyns Drive to the east of the Project Site.

## Methodology

Projected construction-related air pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2020.4. CalEEMod compiles an emissions inventory of construction (fugitive dust, off-gas emissions, on-road emissions, and off-road emissions), area sources, indirect emissions from energy use, mobile sources, indirect emissions from waste disposal (annual only), and indirect emissions from water/wastewater (annual only) use. The calculated emissions of the project are compared to thresholds of significance for individual projects using the South Coast AQMD’s *CEQA Air Quality Analysis Guidance Handbook*.

## Thresholds of Significance

The analysis of the proposed project’s air quality impacts follows the guidance and methodologies recommended in South Coast AQMD’s *CEQA Air Quality Handbook* and the significance thresholds on South Coast AQMD’s website (South Coast AQMD 1993). CEQA allows the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. South Coast AQMD has established thresholds of significance for regional air quality emissions for construction activities and project operation. In addition to the daily thresholds listed above, projects are also subject to the AAQS. These are addressed through an analysis of localized CO impacts and localized significance thresholds (LSTs).

### REGIONAL SIGNIFICANCE THRESHOLDS

The South Coast AQMD has adopted regional construction and operational emissions thresholds to determine a project’s cumulative impact on air quality in the SoCAB. Table 4, *South Coast AQMD Significance Thresholds*, lists South Coast AQMD’s regional significance thresholds that are applicable for all projects uniformly regardless of size or scope. There is growing evidence that although ultrafine particulates contribute a very small portion of the overall atmospheric mass concentration, they represent a greater proportion of the health risk from PM. However, the EPA or CARB have not yet adopted AAQS to regulate ultrafine particulates; therefore, South Coast AQMD has not developed thresholds for them.

**Table 4 South Coast AQMD Significance Thresholds**

Air Pollutant	Construction Phase	Operational Phase
Reactive Organic Gases (ROGs)/ Volatile Organic Compounds (VOCs)	75 lbs/day	55 lbs/day
Nitrogen Oxides (NO <sub>x</sub> )	100 lbs/day	55 lbs/day
Carbon Monoxide (CO)	550 lbs/day	550 lbs/day
Sulfur Oxides (SO <sub>x</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>10</sub> )	150 lbs/day	150 lbs/day
Particulates (PM <sub>2.5</sub> )	55 lbs/day	55 lbs/day

Source: South Coast AQMD 2019.

Projects that exceed the regional significance threshold contribute to the nonattainment designation of the SoCAB. The attainment designations are based on the AAQS, which are set at levels of exposure that are determined to not result in adverse health. Exposure to fine particulate pollution and ozone causes myriad health impacts, particularly to the respiratory and cardiovascular systems:

- Linked to increased cancer risk (PM<sub>2.5</sub>, TACs)
- Aggravates respiratory disease (O<sub>3</sub>, PM<sub>2.5</sub>)
- Increases bronchitis (O<sub>3</sub>, PM<sub>2.5</sub>)
- Causes chest discomfort, throat irritation, and increased effort to take a deep breath (O<sub>3</sub>)
- Reduces resistance to infections and increases fatigue (O<sub>3</sub>)
- Reduces lung growth in children (PM<sub>2.5</sub>)
- Contributes to heart disease and heart attacks (PM<sub>2.5</sub>)
- Contributes to premature death (O<sub>3</sub>, PM<sub>2.5</sub>)
- Linked to lower birth weight in newborns (PM<sub>2.5</sub>) (South Coast AQMD 2015b)

Exposure to fine particulates and ozone aggravates asthma attacks and can amplify other lung ailments such as emphysema and chronic obstructive pulmonary disease. Exposure to current levels of PM<sub>2.5</sub> is responsible for an estimated 4,300 cardiopulmonary-related deaths per year in the SoCAB. In addition, University of Southern California scientists responsible for a landmark children's health study found that lung growth improved as air pollution declined for children aged 11 to 15 in five communities in the SoCAB (South Coast AQMD 2015c).

Mass emissions in Table 4 are not correlated with concentrations of air pollutants but contribute to the cumulative air quality impacts in the SoCAB. Therefore, regional emissions from a single project do not single-handedly trigger a regional health impact. South Coast AQMD is the primary agency responsible for ensuring the health and welfare of sensitive individuals to elevated concentrations of air quality in the SoCAB. To achieve the health-based standards established by the EPA, South Coast AQMD prepares an AQMP that details regional programs to attain the AAQS.

## **CO HOTSPOTS**

Areas of vehicle congestion have the potential to create pockets of CO called hot spots. These pockets have the potential to exceed the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm. Because CO is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, adherence to ambient air quality standards is typically demonstrated through an analysis of localized CO concentrations. Hot spots are typically produced at intersections, where traffic congestion is highest because vehicles queue for longer periods and are subject to reduced speeds. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the SoCAB and in the state have steadily declined.

In 2007, the SoCAB was designated in attainment for CO under both the California AAQS and National AAQS. The CO hotspot analysis conducted for the attainment by the South Coast AQMD for busiest intersections in



Los Angeles during the peak morning and afternoon periods plan did not predict a violation of CO standards.<sup>8</sup> As identified in the South Coast AQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SoCAB in previous years, prior to redesignation, were a result of unusual meteorological and topographical conditions and not a result of congestion at a particular intersection. Under existing and future vehicle emission rates, a project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (BAAQMD 2017).

### LOCALIZED SIGNIFICANCE THRESHOLDS

The South Coast AQMD developed LSTs for emissions of NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> generated at the project site (offsite mobile-source emissions are not included in the LST analysis). LSTs represent the maximum emissions at a project site that are not expected to cause or contribute to an exceedance of the most stringent federal or state AAQS and are shown in Table 5, *South Coast AQMD Localized Significance Thresholds*.

**Table 5 South Coast AQMD Localized Significance Thresholds**

Air Pollutant (Relevant AAQS)	Concentration
1-Hour CO Standard (CAAQS)	20 ppm
8-Hour CO Standard (CAAQS)	9.0 ppm
1-Hour NO <sub>2</sub> Standard (CAAQS)	0.18 ppm
Annual NO <sub>2</sub> Standard (CAAQS)	0.03 ppm
24-Hour PM <sub>10</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Construction (South Coast AQMD) <sup>1</sup>	10.4 µg/m <sup>3</sup>
24-Hour PM <sub>10</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>
24-Hour PM <sub>2.5</sub> Standard – Operation (South Coast AQMD) <sup>1</sup>	2.5 µg/m <sup>3</sup>

Source: South Coast AQMD 2019.

ppm – parts per million; µg/m<sup>3</sup> – micrograms per cubic meter

<sup>1</sup> Threshold is based on South Coast AQMD Rule 403. Since the SoCAB is in nonattainment for PM<sub>10</sub> and PM<sub>2.5</sub>, the threshold is established as an allowable change in concentration. Therefore, background concentration is irrelevant.

To assist lead agencies, South Coast AQMD developed screening-level LSTs to back-calculate the mass amount (lbs. per day) of emissions generated onsite that would trigger the levels shown in Table 5 for projects under 5-acres. These “screening-level” LSTs tables are the localized significance thresholds for all projects of five acres and less; however, it can be used as screening criteria for larger projects to determine whether or not dispersion modeling may be required to compare concentrations of air pollutants generated by the project to the localized concentrations shown in Table 5.

<sup>8</sup> The four intersections were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning peak hour and LOS F in the evening peak hour.

In accordance with South Coast AQMD’s LST methodology, the screening-level construction LSTs are based on the acreage disturbed per day based on equipment use. The screening-level construction LSTs for the Project Site in SRA 8 are shown in Table 6, *Screening-Level Construction Localized Significance Thresholds*, for sensitive receptors within 82 feet (25 meters) of the Project Site for NO<sub>x</sub> and CO emissions and 250 feet (76 meters) for PM<sub>10</sub> and PM<sub>2.5</sub>.

**Table 6 Screening-Level Construction Localized Significance Thresholds (Driving Range)**

Acreage Disturbed	Threshold (lbs/day) <sup>1</sup>			
	Nitrogen Oxides (NO <sub>x</sub> )	Carbon Monoxide (CO)	Coarse Particulates (PM <sub>10</sub> )	Fine Particulates (PM <sub>2.5</sub> )
≤1.00 Acres Disturbed Per Day	69	535	19.38	5.57
3.50 Acres Disturbed Per Day	123	1,176	36.12	9.36
4.00 Acres Disturbed Per Day	131	1,297	39.21	10.11

Source: South Coast AQMD 2008a and 2011.

<sup>1</sup> LSTs are based on sensitive receptors within 82 feet (25 meters) of the Project Site in Source Receptor Area (SRA) 8 for NO<sub>x</sub> and CO emissions and 250 feet (76 meters) for PM<sub>10</sub> and PM<sub>2.5</sub>.

Because the Project is not an industrial project that has the potential to emit substantial sources of stationary emissions, operational LSTs are not an air quality impact of concern associated with the Project.

**Health Risk**

Whenever a project would require use of chemical compounds that have been identified in South Coast AQMD Rule 1401, placed on CARB’s air toxics list pursuant to AB 1807, or placed on the EPA’s National Emissions Standards for Hazardous Air Pollutants, a health risk assessment is required by the South Coast AQMD. Table 7, *Toxic Air Contaminants Incremental Risk Thresholds*, lists the TAC incremental risk thresholds for operation of a project. The purpose of this environmental evaluation is to identify the significant effects of the proposed project on the environment. CEQA does not require CEQA-level environmental document to analyze the environmental effects of attracting development and people to an area (*California Building Industry Association v. Bay Area Air Quality Management District (2015) 62 Cal.4th 369 (Case No. S213478)*). However, the environmental document must analyze the impacts of environmental hazards on future users, when a proposed project exacerbates an existing environmental hazard or condition. Residential, commercial, and office uses do not use substantial quantities of TACs and typically do not exacerbate existing hazards, so these thresholds are typically applied to new industrial projects.

**Table 7 South Coast AQMD Toxic Air Contaminants Incremental Risk Thresholds**

Maximum Incremental Cancer Risk	≥ 10 in 1 million
Hazard Index (project increment)	≥ 1.0
Cancer Burden in areas ≥ 1 in 1 million	> 0.5 excess cancer cases

Source: South Coast AQMD 2019.

## GREENHOUSE GAS EMISSIONS

Scientists have concluded that human activities are contributing to global climate change by adding large amounts of heat-trapping gases, known as GHG, to the atmosphere. Climate change is the variation of Earth's climate over time, whether due to natural variability or as a result of human activities. The primary source of these GHG is fossil fuel use. The Intergovernmental Panel on Climate Change (IPCC) has identified four major GHG—water vapor,<sup>9</sup> carbon (CO<sub>2</sub>), methane (CH<sub>4</sub>), and ozone (O<sub>3</sub>)—that are the likely cause of an increase in global average temperatures observed within the 20th and 21st centuries. Other GHG identified by the IPCC that contribute to global warming to a lesser extent include nitrous oxide (N<sub>2</sub>O), sulfur hexafluoride (SF<sub>6</sub>), hydrofluorocarbons, perfluorocarbons, and chlorofluorocarbons (IPCC 2001).<sup>10</sup> The major GHG are briefly described below.

- **Carbon dioxide (CO<sub>2</sub>)** enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and respiration, and also as a result of other chemical reactions (e.g. manufacture of cement). Carbon dioxide is removed from the atmosphere (sequestered) when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH<sub>4</sub>)** is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and from the decay of organic waste in municipal landfills and water treatment facilities.
- **Nitrous oxide (N<sub>2</sub>O)** is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated gases** are synthetic, strong GHGs that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances. These gases are typically emitted in smaller quantities, but because they are potent GHGs, they are sometimes referred to as high global-warming-potential (GWP) gases.
  - **Chlorofluorocarbons (CFCs)** are GHGs covered under the 1987 Montreal Protocol and used for refrigeration, air conditioning, packaging, insulation, solvents, or aerosol propellants. Since they are not destroyed in the lower atmosphere (troposphere, stratosphere), CFCs drift into the upper atmosphere where, given suitable conditions, they break down ozone. These gases are also ozone-depleting gases

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<sup>9</sup> Water vapor (H<sub>2</sub>O) is the strongest GHG and the most variable in its phases (vapor, cloud droplets, ice crystals). However, water vapor is not considered a pollutant, but part of the feedback loop rather than a primary cause of change.

<sup>10</sup> Black carbon contributes to climate change both directly, by absorbing sunlight, and indirectly, by depositing on snow (making it melt faster) and by interacting with clouds and affecting cloud formation. Black carbon is the most strongly light-absorbing component of particulate matter (PM) emitted from burning fuels such as coal, diesel, and biomass. Reducing black carbon emissions globally can have immediate economic, climate, and public health benefits. California has been an international leader in reducing emissions of black carbon, with close to 95 percent control expected by 2020 due to existing programs that target reducing PM from diesel engines and burning activities (CARB 2017a). However, state and national GHG inventories do not yet include black carbon due to ongoing work resolving the precise global warming potential of black carbon. Guidance for CEQA documents does not yet include black carbon.

and are therefore being replaced by other compounds that are GHGs covered under the Kyoto Protocol.

- **Perfluorocarbons (PFCs)** are a group of human-made chemicals composed of carbon and fluorine only. These chemicals (predominantly perfluoromethane [CF<sub>4</sub>] and perfluoroethane [C<sub>2</sub>F<sub>6</sub>]) were introduced as alternatives, along with HFCs, to the ozone-depleting substances. In addition, PFCs are emitted as by-products of industrial processes and are used in manufacturing. PFCs do not harm the stratospheric ozone layer, but they have a high global warming potential.
- **Sulfur Hexafluoride (SF<sub>6</sub>)** is a colorless gas soluble in alcohol and ether, slightly soluble in water. SF<sub>6</sub> is a strong GHG used primarily in electrical transmission and distribution systems as an insulator.
- **Hydrochlorofluorocarbons (HCFCs)** contain hydrogen, fluorine, chlorine, and carbon atoms. Although ozone-depleting substances, they are less potent at destroying stratospheric ozone than CFCs. They have been introduced as temporary replacements for CFCs and are also GHGs.
- **Hydrofluorocarbons (HFCs)** contain only hydrogen, fluorine, and carbon atoms. They were introduced as alternatives to ozone-depleting substances to serve many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are also used in manufacturing. They do not significantly deplete the stratospheric ozone layer, but they are strong GHGs (IPCC 2001; USEPA 2020).

GHGs are dependent on the lifetime or persistence of the gas molecule in the atmosphere. Some GHGs have stronger greenhouse effects than others. These are referred to as high GWP gases. The GWP of GHG emissions are shown in Table 8, *GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>*. The GWP is used to convert GHGs to CO<sub>2</sub>-equivalence (CO<sub>2</sub>e) to show the relative potential that different GHGs have to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. For example, under IPCC’s Fourth Assessment Report (AR4) GWP values for CH<sub>4</sub>, a project that generates 10 metric tons (MT) of CH<sub>4</sub> would be equivalent to 250 MT of CO<sub>2</sub> (IPCC 2007).

**Table 8 GHG Emissions and Their Relative Global Warming Potential Compared to CO<sub>2</sub>**

GHGs	Second Assessment Report (SAR) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>	Fourth Assessment Report (AR4) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>	Fifth Assessment Report (AR5) Global Warming Potential Relative to CO <sub>2</sub> <sup>1</sup>
Carbon Dioxide (CO <sub>2</sub> )	1	1	1
Methane <sup>2</sup> (CH <sub>4</sub> )	21	25	28
Nitrous Oxide (N <sub>2</sub> O)	310	298	265

Source: IPCC 1995, 2007, 2013.

Notes:

<sup>1</sup> The methane GWP includes direct effects and indirect effects due to the production of tropospheric ozone and stratospheric water vapor. The indirect effect due to the production of CO<sub>2</sub> is not included.

<sup>2</sup> Based on 100-year time horizon of the GWP of the air pollutant compared to CO<sub>2</sub>.

<sup>3</sup> The GWP values in the IPCC’s Fifth Assessment Report (2013) reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO<sub>2</sub>. However, South Coast AQMD uses the AR4 GWP values to maintain consistency in statewide GHG emissions modeling. In addition, the 2017 Scoping Plan Update was based on the AR4 GWP values.

## California's Greenhouse Gas Sources and Relative Contribution

In 2020, the statewide GHG emissions inventory was updated for 2000 to 2018 emissions using the GWPs in IPCC's AR4.<sup>11</sup> Based on these GWPs, California produced 425.3 MMTCO<sub>2e</sub> GHG emissions in 2018. California's transportation sector was the single largest generator of GHG emissions, producing 39.9 percent of the state's total emissions. Industrial sector emissions made up 21.0 percent, and electric power generation made up 14.8 percent of the state's emissions inventory. Other major sectors of GHG emissions include commercial and residential (9.7 percent), agriculture and forestry (7.7 percent) high GWP (4.8 percent), and recycling and waste (2.1 percent) (CARB 2020).

Since the peak level in 2004, California statewide GHG emissions dropped below the 2020 GHG limit of 431 MMTCO<sub>2e</sub> in 2016 and have remained below the 2020 GHG limit since then. In 2018, emissions from routine GHG emitting activities statewide were 6 MMTCO<sub>2e</sub> lower than the 2020 GHG limit. Per capita GHG emissions in California have dropped from a 2001 peak of 14.0 MTCO<sub>2e</sub> per person to 10.7 MTCO<sub>2e</sub> per person in 2018, a 24 percent decrease. Transportation emissions decreased in 2018 compared to the previous year, which is the first year over year decrease since 2013. Since 2008, California's electricity sector has followed an overall downward trend in emissions. In 2018, solar power generation has continued its rapid growth since 2013. Emissions from high-GWP gases increased 2.3 percent in 2018 (2000-2018 average year-over-year increase is 6.8 percent), continuing the increasing trend as they replace Ozone Depleting Substances (ODS) being phased out under the 1987 Montreal Protocol. Overall trends in the inventory also demonstrate that the carbon intensity of California's economy (the amount of carbon pollution per million dollars of gross domestic product (GDP)) is declining, representing a 43 percent decline since the 2001 peak, while the state's GDP has grown 59 percent during this period (CARB 2020).

## Regulatory Settings

### REGULATION OF GHG EMISSIONS ON A NATIONAL LEVEL

The US Environmental Protection Agency (EPA) announced on December 7, 2009, that GHG emissions threaten the public health and welfare of the American people and that GHG emissions from on-road vehicles contribute to that threat. The EPA's final findings respond to the 2007 U.S. Supreme Court decision that GHG emissions fit within the Clean Air Act definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but allow the EPA to finalize the GHG standards proposed in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation (USEPA 2009).

To regulate GHGs from passenger vehicles, EPA was required to issue an endangerment finding. The finding identifies emissions of six key GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, hydrofluorocarbons, perfluorocarbons, and SF<sub>6</sub>—that have been the subject of scrutiny and intense analysis for decades by scientists in the United States and around the world. The first three are applicable to the project's GHG emissions inventory because they constitute the

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<sup>11</sup> Methodology for determining the statewide GHG inventory is not the same as the methodology used to determine statewide GHG emissions under Assembly Bill 32 (2006).

majority of GHG emissions and, per South Coast AQMD guidance, are the GHG emissions that should be evaluated as part of a project's GHG emissions inventory.

### **US Mandatory Report Rule for GHGs (2009)**

In response to the endangerment finding, the EPA issued the Mandatory Reporting of GHG Rule that requires substantial emitters of GHG emissions (large stationary sources, etc.) to report GHG emissions data. Facilities that emit 25,000 MT or more of CO<sub>2</sub> per year are required to submit an annual report.

### **Update to Corporate Average Fuel Economy Standards (2017 to 2026)**

The federal government issued new Corporate Average Fuel Economy (CAFE) standards in 2012 for model years 2017 to 2025, which required a fleet average of 54.5 miles per gallon in 2025. On March 30, 2020, the EPA finalized an updated CAFE and GHG emissions standards for passenger cars and light trucks and established new standards covering model years 2021 through 2026, known as the Safer Affordable Fuel Efficient (SAFE) Vehicles Final Rule for Model Years 2021 to 2026. However, in May 2020, California and 22 other states; the District of Columbia; the cities of Los Angeles, Denver, and New York; and the counties of San Francisco and Denver filed a lawsuit with the U.S. Court of Appeals for the District of Columbia Circuit, challenging the SAFE Rule. To date, a ruling has not been made on the lawsuit. In addition, a consortium of automakers and California have agreed on a voluntary framework to reduce emissions that can serve as an alternative path forward for clean vehicle standards nationwide. Automakers who agreed to the framework are Ford, Honda, BMW of North America, and Volkswagen Group of America. The framework supports continued annual reductions of vehicle GHG emissions through the 2026 model year, encourages innovation to accelerate the transition to electric vehicles, and gives industry the certainty needed to make investments and create jobs. This commitment means that the auto companies which are party to the voluntary agreement will only sell cars in the United States that meet these standards (CARB 2019b). Additionally, the Biden Administration issued an Executive Order on January 21, 2021 to review and suspend the SAFE rule and for the USEPA to present a proposal for more stringent fuel economy and emissions standards by July 2021. On August 5, 2021, the Biden Administration proposed new standards that would replace the SAFE Rule, effectively reversing the previous Trump Administration's roll-back of the CAFE standards.

### **EPA Regulation of Stationary Sources under the Clean Air Act (Ongoing)**

Pursuant to its authority under the Clean Air Act, the EPA has been developing regulations for new, large, stationary sources of emissions, such as power plants and refineries. Under former President Obama's 2013 Climate Action Plan, the EPA was directed to develop regulations for existing stationary sources as well. On June 19, 2019, the EPA issued the final Affordable Clean Energy (ACE) rule which became effective on August 19, 2019. The ACE rule was crafted under the direction of President Trump's Energy Independence Executive Order. It officially rescinded the Clean Power Plan (CPP) rule issued during the Obama Administration and sets emissions guidelines for states in developing plans to limit CO<sub>2</sub> emissions from coal-fired power plants. However, on January 19, 2021, the US Court of Appeals for the District of Columbia Circuit (DC Circuit) struck down the ACE rule in its ruling under *American Lung Association v. Environmental Protection Agency*, No. 19-1140, (*D.C. Cir. 2021*). The DC Circuit court held that the ACE rule was inconsistent with Section 111 of the Clean Air Act in that Section 111 does not limit emissions control measures to be performed at the source only. The ruling also vacated the repeal of CCP rule that resulted from issuance of the ACE rule.

## **REGULATION OF GHG EMISSIONS ON A STATE LEVEL**

Current State of California guidance and goals for reductions in GHG emissions are generally embodied in EO S-03-05 and EO B-30-15, Assembly Bill 32 (AB 32), AB 1279, Senate Bill 32 (SB 32), and SB 375.

### **Executive Order S-3-05**

Executive Order S-3-05, signed June 1, 2005. Executive Order S-3-05 set the following GHG reduction targets for the State:

- 2000 levels by 2010
- 1990 levels by 2020
- 80 percent below 1990 levels by 2050

### **Assembly Bill 32, the Global Warming Solutions Act (2006)**

AB 32 was passed by the California state legislature on August 31, 2006, to place the state on a course toward reducing its contribution of GHG emissions. AB 32 follows the 2020 tier of emissions reduction targets established in Executive Order S-03-05. CARB prepared the 2008 Scoping Plan to outline a plan to achieve the GHG emissions reduction targets of AB 32.

### **Executive Order B-30-15**

Executive Order B-30-15, signed April 29, 2015, set a goal of reducing GHG emissions in the state to 40 percent of 1990 levels by year 2030. Executive Order B-30-15 also directed CARB to update the Scoping Plan to quantify the 2030 GHG reduction goal for the state and requires state agencies to implement measures to meet the interim 2030 goal as well as the long-term goal for 2050 in Executive Order S-03-05. It also requires the Natural Resources Agency to conduct triennial updates of the California adaptation strategy, Safeguarding California, in order to ensure climate change is accounted for in state planning and investment decisions.

### **Senate Bill 32 and Assembly Bill 197**

In September 2016, Governor Brown signed SB 32 and AB 197 into law, making the Executive Order goal for year 2030 into a statewide mandated legislative target. AB 197 established a joint legislative committee on climate change policies and requires the CARB to prioritize direction emissions reductions rather than the market-based cap-and-trade program for large stationary, mobile, and other sources.

### ***2017 Climate Change Scoping Plan Update***

Executive Order B-30-15 and SB 32 required CARB to prepare another update to the Scoping Plan to address the 2030 target for the state. On December 24, 2017, CARB adopted the 2017 Climate Change Scoping Plan Update, which outlined potential regulations and programs, including strategies consistent with AB 197 requirements, to achieve the 2030 target. The 2017 Scoping Plan established a new emissions limit of 260 MMTCO<sub>2e</sub> for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030 (CARB 2017b).

California's climate strategy will require contributions from all sectors of the economy, including enhanced focus on zero- and near-zero emission (ZE/NZE) vehicle technologies; continued investment in renewables, such as solar roofs, wind, and other types of distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning, to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for GHG reductions at stationary sources complement local air pollution control efforts by the local air districts to tighten criteria air pollutants and TACs emissions limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks;
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementation of SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydrofluorocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- Continued implementation of SB 375.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Climate Change Scoping Plan also identified local governments as essential partners in achieving the State's long-term GHG reduction goals and identified local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends statewide targets of no more than 6 MTCO<sub>2e</sub> or less per capita by 2030 and 2 MTCO<sub>2e</sub> or less per capita by 2050. CARB recommends that local governments evaluate and adopt robust and quantitative locally-appropriate goals that align with the statewide per capita targets and the State's sustainable development objectives and develop plans to achieve the local goals. The statewide per capita goals were developed by applying the percent reductions necessary to reach the 2030 and 2050 climate goals (i.e., 40 percent and 80 percent, respectively) to the State's 1990 emissions limit established under AB 32. For CEQA projects, CARB states that lead agencies have discretion to develop evidenced-based numeric thresholds (mass emissions, per capita, or per service population)—consistent with the Scoping Plan and the state's long-term GHG goals. To the degree a project



relies on GHG mitigation measures, CARB recommends that lead agencies prioritize on-site design features that reduce emissions, especially from VMT, and direct investments in GHG reductions within the project’s region that contribute potential air quality, health, and economic co-benefits. Where further project design or regional investments are infeasible or not proven to be effective, CARB recommends mitigating potential GHG impacts through purchasing and retiring carbon credits.

The 2017 Scoping Plan scenario is set against what is called the business-as-usual (BAU) yardstick—that is, what would the GHG emissions look like if the State did nothing at all beyond the existing policies that are required and already in place to achieve the 2020 limit, as shown in Table 9, *2017 Climate Change Scoping Plan Emissions Reductions Gap*. It includes the existing renewables requirements, advanced clean cars, the “10 percent” Low Carbon Fuel Standard (LCFS), and the SB 375 program for more vibrant communities, among others. However, it does not include a range of new policies or measures that have been developed or put into statute over the past two years. Also shown in the table, the known commitments are expected to result in emissions that are 60 MMTCO<sub>2</sub>e above the target in 2030. If the estimated GHG reductions from the known commitments are not realized due to delays in implementation or technology deployment, the post-2020 Cap-and-Trade Program would deliver the additional GHG reductions in the sectors it covers to ensure the 2030 target is achieved.

**Table 9 2017 Climate Change Scoping Plan Emissions Reductions Gap**

Modeling Scenario	2030 GHG Emissions MMTCO <sub>2</sub> e
Reference Scenario (Business-as-Usual)	389
With Known Commitments	320
2030 GHG Target	<b>260</b>
Gap to 2030 Target	<b>60</b>

Source: CARB 2017b.

Table 10, *2017 Climate Change Scoping Plan Emissions Change by Sector*, provides estimated GHG emissions by sector, compared to 1990 levels, and the range of GHG emissions for each sector estimated for 2030.

**Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector**

Scoping Plan Sector	1990 MMTCO <sub>2</sub> e	2030 Proposed Plan Ranges MMTCO <sub>2</sub> e	% Change from 1990
Agricultural	26	24-25	-8% to -4%
Residential and Commercial	44	38-40	-14% to -9%
Electric Power	108	30-53	-72% to -51%
High GWP	3	8-11	267% to 367%
Industrial	98	83-90	-15% to -8%
Recycling and Waste	7	8-9	14% to 29%
Transportation (including TCU)	152	103-111	-32% to -27%
Net Sink <sup>1</sup>	-7	TBD	TBD
Sub Total	431	294-339	-32% to -21%
Cap-and-Trade Program	NA	24-79	NA
<b>Total</b>	<b>431</b>	<b>260</b>	<b>-40%</b>

**Table 10 2017 Climate Change Scoping Plan Emissions Change by Sector**

Scoping Plan Sector	1990 MMTCO <sub>2e</sub>	2030 Proposed Plan Ranges MMTCO <sub>2e</sub>	% Change from 1990
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Source: CARB 2017b.  
Notes: TCU = Transportation, Communications, and Utilities; TBD: To Be Determined.  
<sup>1</sup> Work is underway through 2017 to estimate the range of potential sequestration benefits from the natural and working lands sector.

### Executive Order B-55-18

Executive Order B-55-18, signed September 10, 2018, sets a goal “to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter.” Executive Order B-55-18 directs CARB to work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal. The goal of carbon neutrality by 2045 is in addition to other statewide goals, meaning not only should emissions be reduced to 80 percent below 1990 levels by 2050, but that, by no later than 2045, the remaining emissions be offset by equivalent net removals of CO<sub>2e</sub> from the atmosphere, including through sequestration in forests, soils, and other natural landscapes.

### 2022 Climate Change Scoping Plan

CARB adopted the 2022 Scoping Plan for Achieving Carbon Neutrality (2022 Scoping Plan) on December 15, 2022, which lays out a path to achieve carbon neutrality by 2045 or earlier and to reduce the State’s anthropogenic GHG emissions (CARB 2022). The Scoping Plan was updated to address the carbon neutrality goals of EO B-55-18 (discussed below) and the ambitious GHG reduction target as directed by AB 1279. Previous Scoping Plans focused on specific GHG reduction targets for our industrial, energy, and transportation sectors—to meet 1990 levels by 2020, and then the more aggressive 40 percent below that for the 2030 target. This plan expands upon earlier Scoping Plans with a target of reducing anthropogenic emissions to 85 percent below 1990 levels by 2045. Carbon neutrality takes it one step further by expanding actions to capture and store carbon including through natural and working lands and mechanical technologies, while drastically reducing anthropogenic sources of carbon pollution at the same time.

The path forward was informed by the recent Sixth Assessment Report (AR6) of the IPCC and the measures would achieve 85 percent below 1990 levels by 2045 in accordance AB 1279. CARB’s 2022 Scoping Plan identifies strategies as shown in Table 11, *Priority Strategies for Local Government Climate Action Plans*, that would be most impactful at the local level for ensuring substantial process towards the State’s carbon neutrality goals (see Table 4.8-4, *Priority Strategies for Local Government Climate Action Plans*).

**Table 11 Priority Strategies for Local Government Climate Action Plans**

Priority Area	Priority Strategies
Transportation Electrification	Convert local government fleets to zero-emission vehicles (ZEV) and provide EV charging at public sites.
	Create a jurisdiction-specific ZEV ecosystem to support deployment of ZEVs statewide (such as building standards that exceed state building codes, permit streamlining, infrastructure siting, consumer education, preferential parking policies, and ZEV readiness plans).
VMT Reduction	Reduce or eliminate minimum parking standards.

**Table 11 Priority Strategies for Local Government Climate Action Plans**

Priority Area	Priority Strategies
	Implement Complete Streets policies and investments, consistent with general plan circulation element requirements.
	Increase access to public transit by increasing density of development near transit, improving transit service by increasing service frequency, creating bus priority lanes, reducing or eliminating fares, microtransit, etc.
	Increase public access to clean mobility options by planning for and investing in electric shuttles, bike share, car share, and walking.
	Implement parking pricing or transportation demand management pricing strategies.
	Amend zoning or development codes to enable mixed-use, walkable, transit-oriented, and compact infill development (such as increasing allowable density of the neighborhood).
	Preserve natural and working lands by implementing land use policies that guide development toward infill areas and do not convert “greenfield” land to urban uses (e.g., green belts, strategic conservation easements)
Building Decarbonization	Adopt all-electric new construction reach codes for residential and commercial uses.
	Adopt policies and incentive programs to implement energy efficiency retrofits for existing buildings, such as weatherization, lighting upgrades, and replacing energy-intensive appliances and equipment with more efficient systems (such as Energy Star-rated equipment and equipment controllers).
	Adopt policies and incentive programs to electrify all appliances and equipment in existing buildings such as appliance rebates, existing building reach codes, or time of sale electrification ordinances
	Facilitate deployment of renewable energy production and distribution and energy storage on privately owned land uses (e.g., permit streamlining, information sharing)
	Deploy renewable energy production and energy storage directly in new public projects and on existing public facilities (e.g., solar photovoltaic systems on rooftops of municipal buildings and on canopies in public parking lots, battery storage systems in municipal buildings).

Source: CARB 2022

For residential and mixed-use development projects, CARB recommends this first approach to demonstrate that these land use development projects are aligned with State climate goals based on the attributes of land use development that reduce operational GHG emissions while simultaneously advancing fair housing. Attributes that accommodate growth in a manner consistent with the GHG and equity goals of SB 32 have all the following attributes:

Transportation Electrification

- Provide EV charging infrastructure that, at a minimum, meets the most ambitious voluntary standards in the California Green Building Standards Code at the time of project approval.

VMT Reduction

- Is located on infill sites that are surrounded by existing urban uses and reuses or redevelops previously undeveloped or underutilized land that is presently served by existing utilities and essential public services (e.g., transit, streets, water, sewer).
- Does not result in the loss or conversion of the State’s natural and working lands;

- Consists of transit-supportive densities (minimum of 20 residential dwelling units/acre), or is in proximity to existing transit stops (within a half mile), or satisfies more detailed and stringent criteria specified in the region's Sustainable Communities Strategy (SCS);
- Reduces parking requirements by:
  - Eliminating parking requirements or including maximum allowable parking ratios (i.e., the ratio of parking spaces to residential units or square feet); or
  - Providing residential parking supply at a ratio of <1 parking space per dwelling unit; or
  - For multifamily residential development, requiring parking costs to be unbundled from costs to rent or own a residential unit.
- At least 20 percent of the units are affordable to lower-income residents;
- Result in no net loss of existing affordable units.

#### Building Decarbonization

- Use all electric appliances without any natural gas connections and does not use propane or other fossil fuels for space heating, water heating, or indoor cooking.

The second approach to project-level alignment with State climate goals is net zero GHG emissions, especially for new residential development. The third approach to demonstrating project-level alignment with State climate goals is to align with GHG thresholds of significance, which many local air quality management (AQMDs) and air pollution control districts (APCDs) have developed or adopted (CARB 2022).

#### **Assembly Bill 1279**

On August 31, 2022, the California Legislature passed AB 1279, which requires California to achieve net-zero GHG emissions no later than 2045 and to achieve and maintain negative GHG emissions thereafter. Additionally, AB 1279 also establishes a GHG emissions reduction goal of 85 percent below 1990 levels by 2045. CARB will be required to update the scoping plan to identify and recommend measures to achieve the net-zero and GHG emissions-reduction goals.

#### **Senate Bill 375**

In 2008, SB 375, the Sustainable Communities and Climate Protection Act, was adopted to connect the GHG emissions reductions targets established in the 2008 Scoping Plan for the transportation sector to local land use decisions that affect travel behavior. Its intent is to reduce GHG emissions from light-duty trucks and automobiles (excludes emissions associated with goods movement) by aligning regional long-range transportation plans, investments, and housing allocations to local land use planning to reduce VMT and vehicle trips. Specifically, SB 375 required CARB to establish GHG emissions reduction targets for each of the

18 metropolitan planning organizations (MPO). The Southern California Association of Governments (SCAG) is the MPO for the Southern California region, which includes the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial.

Pursuant to the recommendations of the Regional Transportation Advisory Committee, CARB adopted per capita reduction targets for each of the MPOs rather than a total magnitude reduction target. SCAG's targets are an 8 percent per capita reduction from 2005 GHG emission levels by 2020 and a 13 percent per capita reduction from 2005 GHG emission levels by 2035 (CARB 2010). The 2020 targets are smaller than the 2035 targets because a significant portion of the built environment in 2020 is defined by decisions that have already been made. In general, the 2020 scenarios reflect that more time is needed for large land use and transportation infrastructure changes. Most of the reductions in the interim are anticipated to come from improving the efficiency of the region's transportation network. The targets would result in 3 MMTCO<sub>2e</sub> of reductions by 2020 and 15 MMTCO<sub>2e</sub> of reductions by 2035. Based on these reductions, the passenger vehicle target in CARB's Scoping Plan (for AB 32) would be met (CARB 2010).

### *2017 Update to the SB 375 Targets*

CARB is required to update the targets for the MPOs every eight years. In June 2017, CARB released updated targets and technical methodology and recently released another update in February 2018. The updated targets consider the need to further reduce VMT, as identified in the 2017 Scoping Plan Update, while balancing the need for additional and more flexible revenue sources to incentivize positive planning and action toward sustainable communities. Like the 2010 targets, the updated SB 375 targets are in units of percent per capita reduction in GHG emissions from automobiles and light trucks compared to 2005. This excludes reductions anticipated from implementation of state technology and fuels strategies and any potential future state strategies such as statewide road user pricing. The proposed targets call for greater per capita GHG emission reductions from SB 375 than are currently in place, which for 2035, translates into proposed targets that either match or exceed the emission reduction levels in the MPOs' currently adopted sustainable communities strategies (SCS). As proposed, CARB staff's proposed targets would result in an additional reduction of over 8 MMTCO<sub>2e</sub> in 2035 compared to the current targets. For the next round of SCS updates, CARB's updated targets for the SCAG region are an 8 percent per capita GHG reduction in 2020 from 2005 levels (unchanged from the 2010 target) and a 19 percent per capita GHG reduction in 2035 from 2005 levels (compared to the 2010 target of 13 percent) (CARB 2018). CARB adopted the updated targets and methodology on March 22, 2018. All SCSs adopted after October 1, 2018, are subject to these new targets.

### *SCAG's Regional Transportation Plan / Sustainable Communities Strategy*

SB 375 requires each MPO to prepare a sustainable communities strategy in its regional transportation plan. For the SCAG region, the 2020-2045 RTP/SCS (Connect SoCal) was adopted on September 3, 2020, and is an update to the 2016-2040 RTP/SCS. In general, the SCS outlines a development pattern for the region that, when integrated with the transportation network and other transportation measures and policies, would reduce vehicle miles traveled from automobiles and light duty trucks and thereby reduce GHG emissions from these sources.

Connect SoCal focuses on the continued efforts of the previous RTP/SCSs to integrate transportation and land use strategies in development of the SCAG region through horizon year 2045 (SCAG 2020). Connect SoCal forecasts that the SCAG region will meet its GHG per capita reduction targets of 8 percent by 2020 and 19 percent by 2035. Additionally, Connect SoCal also forecasts that implementation of the plan will reduce VMT per capita in year 2045 by 4.1 percent compared to baseline conditions for that year. Connect SoCal includes a “Core Vision” that centers on maintaining and better managing the transportation network for moving people and goods while expanding mobility choices by locating housing, jobs, and transit closer together and increasing investments in transit and complete streets (SCAG 2020).

## **Transportation Sector Specific Regulations**

### ***Assembly Bill 1493***

California vehicle GHG emission standards were enacted under AB 1493 (Pavley I). Pavley I is a clean-car standard that reduces GHG emissions from new passenger vehicles (light-duty auto to medium-duty vehicles) from 2009 through 2016 and is anticipated to reduce GHG emissions from new passenger vehicles by 30 percent in 2016. California implements the Pavley I standards through a waiver granted to California by the EPA. In 2012, the EPA issued a Final Rulemaking that sets even more stringent fuel economy and GHG emissions standards for model years 2017 through 2025 light-duty vehicles. (See also the discussion on the update to the Corporate Average Fuel Economy standards at the beginning of this Section 5.5.2 under “Federal.”) In January 2012, CARB approved the Advanced Clean Cars program (formerly known as Pavley II) for model years 2017 through 2025. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of ZE vehicles into a single package of standards. Under California’s Advanced Clean Car program, by 2025 new automobiles will emit 34 percent less GHG emissions and 75 percent less smog-forming emissions.

### ***Executive Order S-01-07***

On January 18, 2007, the state set a new LCFS for transportation fuels sold in the state. Executive Order S-01-07 sets a declining standard for GHG emissions measured in CO<sub>2</sub>e gram per unit of fuel energy sold in California. The LCFS required a reduction of 2.5 percent in the carbon intensity of California’s transportation fuels by 2015 and a reduction of at least 10 percent by 2020. The standard applies to refiners, blenders, producers, and importers of transportation fuels, and uses market-based mechanisms to allow these providers to choose how they reduce emissions during the “fuel cycle” using the most economically feasible methods.

### ***Executive Order B-16-2012***

On March 23, 2012, the state identified that CARB, the California Energy Commission (CEC), the Public Utilities Commission, and other relevant agencies worked with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to accommodate ZE vehicles in major metropolitan areas, including infrastructure to support them (e.g., electric vehicle charging stations). The executive order also directed the number of ZE vehicles in California’s state vehicle fleet to increase through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles are

ZE by 2015 and at least 25 percent by 2020. The executive order also establishes a target for the transportation sector of reducing GHG emissions to 80 percent below 1990 levels.

### *Executive Order N-79-20*

On September 23, 2020, Governor Newsom signed Executive Order N-79-20, whose goal is that 100 percent of in-state sales of new passenger cars and trucks will be ZE by 2035. Additionally, the fleet goals for trucks are that 100 percent of drayage trucks are ZE by 2035, and 100 percent of medium- and heavy-duty vehicles in the state are ZE by 2045, where feasible. The Executive Order's goal for the State is to transition to 100 percent ZE off-road vehicles and equipment by 2035, where feasible.

## **Renewables Portfolio: Carbon Neutrality Regulations**

### *Senate Bills 1078, 107, and X1-2 and Executive Order S-14-08*

A major component of California's Renewable Energy Program is the renewables portfolio standard established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity were required to increase the amount of renewable energy each year by at least 1 percent in order to reach at least 20 percent by December 30, 2010. Executive Order S-14-08, signed in November 2008, expanded the state's renewable energy standard to 33 percent renewable power by 2020. This standard was adopted by the legislature in 2011 (SB X1-2). Renewable sources of electricity include wind, small hydropower, solar, geothermal, biomass, and biogas. The increase in renewable sources for electricity production will decrease indirect GHG emissions from development projects because electricity production from renewable sources is generally considered carbon neutral.

### *Senate Bill 350*

Senate Bill 350 (de Leon) was signed into law September 2015 and establishes tiered increases to the RPS—40 percent by 2024, 45 percent by 2027, and 50 percent by 2030. SB 350 also set a new goal to double the energy-efficiency savings in electricity and natural gas through energy efficiency and conservation measures.

### *Senate Bill 100*

On September 10, 2018, Governor Brown signed SB 100. Under SB 100, the RPS for public-owned facilities and retail sellers consist of 44 percent renewable energy by 2024, 52 percent by 2027, and 60 percent by 2030. SB 100 also established a new RPS requirement of 50 percent by 2026. Furthermore, the bill establishes an overall state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

## **Energy Efficiency Regulations**

### *California Building Code: Building Energy Efficiency Standards*

Energy conservation standards for new residential and nonresidential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the CEC) in June 1977 and most recently revised in 2019 (Title 24, Part 6, of the California Code of Regulations [CCR]). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods.

The 2019 Building Energy Efficiency Standards, which were adopted on May 9, 2018, went into effect starting January 1, 2020. The 2019 standards move toward cutting energy use in new homes by more than 50 percent and require installation of solar photovoltaic systems for single-family homes and multifamily buildings of three stories and less. The 2019 standards focus on four key areas: 1) smart residential photovoltaic systems; 2) updated thermal envelope standards (preventing heat transfer from the interior to exterior and vice versa); 3) residential and nonresidential ventilation requirements; 4) and nonresidential lighting requirements (CEC 2018a). Under the 2019 standards, nonresidential buildings are 30 percent more energy efficient compared to the 2016 standards, and single-family homes are 7 percent more energy efficient (CEC 2018b). When accounting for the electricity generated by the solar photovoltaic system, single-family homes would use 53 percent less energy compared to homes built to the 2016 standards (CEC 2018b).

The CEC is currently amending the Building and Energy Efficiency Standards. The 2022 Building and Energy Efficiency Standards are anticipated to be adopted in December 2021 and will go into effect on January 1, 2023.

### *California Building Code: CALGreen*

On July 17, 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (24 CCR, Part 11, known as "CALGreen") was adopted as part of the California Building Standards Code. CALGreen established planning and design standards for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants.<sup>12</sup> The mandatory provisions of CALGreen became effective January 1, 2011, and were last updated in 2019. The 2019 CALGreen standards became effective January 1, 2020.

### *2006 Appliance Efficiency Regulations*

The 2006 Appliance Efficiency Regulations (20 CCR §§ 1601–1608) were adopted by the CEC on October 11, 2006, and approved by the California Office of Administrative Law on December 14, 2006. The regulations include standards for both federally regulated appliances and non–federally regulated appliances. Though these regulations are now often viewed as “business as usual,” they exceed the standards imposed by all other states, and they reduce GHG emissions by reducing energy demand.

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<sup>12</sup> The green building standards became mandatory in the 2010 edition of the code.



## *Solid Waste Diversion Regulations*

### ***AB 939: Integrated Waste Management Act of 1989***

California's Integrated Waste Management Act of 1989 (AB 939, Public Resources Code §§ 40050 et seq.) set a requirement for cities and counties throughout the state to divert 50 percent of all solid waste from landfills by January 1, 2000, through source reduction, recycling, and composting. In 2008, the requirements were modified to reflect a per capita requirement rather than tonnage. To help achieve this, the act requires that each city and county prepare and submit a source reduction and recycling element. AB 939 also established the goal for all California counties to provide at least 15 years of ongoing landfill capacity.

### ***AB 341***

AB 341 (Chapter 476, Statutes of 2011) increased the statewide goal for waste diversion to 75 percent by 2020 and requires recycling of waste from commercial and multifamily residential land uses. Section 5.408 of CALGreen also requires that at least 65 percent of the nonhazardous construction and demolition waste from nonresidential construction operations be recycled and/or salvaged for reuse.

### ***AB 1327***

The California Solid Waste Reuse and Recycling Access Act (AB 1327, Public Resources Code §§ 42900 et seq.) requires areas to be set aside for collecting and loading recyclable materials in development projects. The act required the California Integrated Waste Management Board to develop a model ordinance for adoption by any local agency requiring adequate areas for collection and loading of recyclable materials as part of development projects. Local agencies are required to adopt the model or an ordinance of their own.

### ***AB 1826***

In October of 2014, Governor Brown signed AB 1826 requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses and multifamily residential dwellings with five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed with food waste.

## *Water Efficiency Regulations*

### ***SBX7-7***

The 20x2020 Water Conservation Plan was issued by the Department of Water Resources (DWR) in 2010 pursuant to Senate Bill 7, which was adopted during the 7th Extraordinary Session of 2009–2010 and therefore dubbed “SBX7-7.” SBX7-7 mandated urban water conservation and authorized the DWR to prepare a plan implementing urban water conservation requirements (20x2020 Water Conservation Plan). In addition, it required agricultural water providers to prepare agricultural water management plans, measure water deliveries to customers, and implement other efficiency measures. SBX7-7 required urban water providers to adopt a water conservation target of 20 percent reduction in urban per capita water use by 2020 compared to 2005 baseline use.

***AB 1881: Water Conservation in Landscaping Act***

The Water Conservation in Landscaping Act of 2006 (AB 1881) requires local agencies to adopt the updated DWR model ordinance or an equivalent. AB 1881 also requires the CEC to consult with the DWR to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

***Short-Lived Climate Pollutant Reduction Strategy******Senate Bill 1383***

On September 19, 2016, the Governor signed SB 1383 to supplement the GHG reduction strategies in the Scoping Plan to consider short-lived climate pollutants, including black carbon and methane. Black carbon is the light-absorbing component of fine particulate matter produced during incomplete combustion of fuels. SB 1383 required the state board, no later than January 1, 2018, to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants to achieve a reduction in methane by 40 percent, hydrofluorocarbon gases by 40 percent, and anthropogenic black carbon by 50 percent below 2013 levels by 2030. The bill also established targets for reducing organic waste in landfills. On March 14, 2017, CARB adopted the Short-Lived Climate Pollutant Reduction Strategy, which identifies the state's approach to reducing anthropogenic and biogenic sources of short-lived climate pollutants. Anthropogenic sources of black carbon include on- and off-road transportation, residential wood burning, fuel combustion (charbroiling), and industrial processes. According to CARB, ambient levels of black carbon in California are 90 percent lower than in the early 1960s, despite the tripling of diesel fuel use (CARB 2017a). In-use on-road rules were expected to reduce black carbon emissions from on-road sources by 80 percent between 2000 and 2020.

**Local Regulations*****City of Pasadena Climate Action Plan***

The City of Pasadena prepared a Climate Action Plan (CAP) to establish a framework for evaluating and mitigating GHG emissions by providing an emissions inventory, emissions reduction goals, and strategies for reducing emissions (Pasadena 2018). The Pasadena Climate Action Plan identifies a reduction target for the City to reduce GHG emissions to 15 percent below 2009 emissions for 2020, 49 percent below for 2030, 59 percent below for 2035, and 83 percent below for 2050. In addition, the purpose of the CAP is to analyze GHG emissions at a programmatic-level, outline a strategy to reduce and mitigate municipal and community-wide GHG emissions, demonstrate Pasadena's commitment to achieving the state-wide emissions reduction targets, and serve as a qualified GHG reduction plan consistent with the California Environmental Quality Act (CEQA) Guidelines Section 15183.5. The CAP includes five emissions reduction strategies for sustainable mobility and land use, energy efficiency and conservation, water conservation, and solid waste reduction, and urban greening.

## Thresholds of Significance

The CEQA Guidelines recommend that a lead agency consider the following when assessing the significance of impacts from GHG emissions on the environment:

1. The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
3. The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions.<sup>13</sup>

### SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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

- **Tier 1.** If a project is exempt from CEQA, project-level and cumulative GHG emissions are less than significant.
- **Tier 2.** If the project complies with a 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.** If GHG emissions are less than the 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, South Coast AQMD requires an assessment of GHG emissions. South Coast AQMD is proposing a screening-level threshold of 3,000 MTCO<sub>2</sub>e annually for all land use types or the following land-use-specific thresholds: 1,400 MTCO<sub>2</sub>e for commercial projects, 3,500 MTCO<sub>2</sub>e for residential projects, or 3,000 MTCO<sub>2</sub>e for mixed-use projects. These bright-line thresholds are based on a review of the Governor's Office of Planning and Research database of CEQA projects. Based on their review of 711 CEQA projects, 90 percent of CEQA projects would exceed the bright-line thresholds identified above. Therefore,

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<sup>13</sup> The Governor's Office of Planning and Research recommendations include a requirement that such a plan must be adopted through a public review process and include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable, notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

projects that do not exceed the bright-line threshold would have a nominal, and therefore, less than cumulatively considerable impact on GHG emissions:

- **Tier 4.** If emissions exceed the screening threshold, a more detailed review of the project's GHG emissions is warranted.

The South Coast AQMD Working Group has identified an efficiency target for projects that exceed the screening threshold of 4.8 MTCO<sub>2</sub>e per year per service population (MTCO<sub>2</sub>e/year/SP) for project-level analyses and 6.6 MTCO<sub>2</sub>e/year/SP for plan level projects (e.g., program-level projects such as general plans) for the year 2020.<sup>14</sup> The per capita efficiency targets are based on the AB 32 GHG reduction target and 2020 GHG emissions inventory prepared for CARB's 2008 Scoping Plan.

The bright-line screening-level criterion of 3,000 MTCO<sub>2</sub>e/yr is used as the significance threshold for this project. Therefore, if the project operation-phase emissions exceed the 3,000 MTCO<sub>2</sub>e/yr threshold, GHG emissions would be considered potentially significant in the absence of mitigation measures.

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<sup>14</sup> It should be noted that the Working Group also considered efficiency targets for 2035 for the first time in this Working Group meeting.

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# **Emissions Worksheet**

## Regional Construction Emissions Worksheet (Driving Range):

Demolition							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Off-Road	2.64	25.72	20.59	0.04	1.24	1.16
	Total	<b>2.64</b>	<b>25.72</b>	<b>20.59</b>	<b>0.04</b>	<b>1.24</b>	<b>1.16</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.06	0.04	0.54	0.00	0.16	0.04
	Total	<b>0.06</b>	<b>0.25</b>	<b>0.61</b>	<b>0.00</b>	<b>0.18</b>	<b>0.05</b>
<b>TOTAL</b>		<b>2.70</b>	<b>25.97</b>	<b>21.21</b>	<b>0.04</b>	<b>1.42</b>	<b>1.21</b>
Onsite		<b>2022</b>					
	Off-Road	2.64	25.72	20.59	0.04	1.24	1.16
	Total	<b>2.64</b>	<b>25.72</b>	<b>20.59</b>	<b>0.04</b>	<b>1.24</b>	<b>1.16</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.06	0.04	0.54	0.00	0.16	0.04
	Total	<b>0.06</b>	<b>0.25</b>	<b>0.61</b>	<b>0.00</b>	<b>0.18</b>	<b>0.05</b>
<b>TOTAL</b>		<b>2.70</b>	<b>25.97</b>	<b>21.21</b>	<b>0.04</b>	<b>1.42</b>	<b>1.21</b>
Site Preparation							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Fugitive Dust					8.40	4.32
	Off-Road	3.17	33.08	19.70	0.04	1.61	1.48
	Total	<b>3.17</b>	<b>33.08</b>	<b>19.70</b>	<b>0.04</b>	<b>10.02</b>	<b>5.80</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.07	0.05	0.65	0.00	0.19	0.05
	Total	<b>0.07</b>	<b>0.25</b>	<b>0.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.06</b>
<b>TOTAL</b>		<b>3.24</b>	<b>33.34</b>	<b>20.42</b>	<b>0.04</b>	<b>10.23</b>	<b>5.86</b>
Onsite		<b>2022</b>					
	Fugitive Dust	0.00	0.00	0.00	0.00	8.40	4.32
	Off-Road	3.17	33.08	19.70	0.04	1.61	1.48
	Total	<b>3.17</b>	<b>33.08</b>	<b>19.70</b>	<b>0.04</b>	<b>10.02</b>	<b>5.80</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.07	0.05	0.65	0.00	0.19	0.05
	Total	<b>0.07</b>	<b>0.25</b>	<b>0.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.06</b>
<b>TOTAL</b>		<b>3.24</b>	<b>33.34</b>	<b>20.42</b>	<b>0.04</b>	<b>10.23</b>	<b>5.86</b>

<b>Grading</b>							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Fugitive Dust					3.93	1.56
	Off-Road	3.62	38.84	29.04	0.06	1.63	1.50
	Total	<b>3.62</b>	<b>38.84</b>	<b>29.04</b>	<b>0.06</b>	<b>5.57</b>	<b>3.07</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.07	0.06	0.72	0.00	0.21	0.06
	Total	<b>0.08</b>	<b>0.26</b>	<b>0.79</b>	<b>0.00</b>	<b>0.23</b>	<b>0.07</b>
<b>TOTAL</b>		<b>3.71</b>	<b>39.10</b>	<b>29.83</b>	<b>0.06</b>	<b>5.80</b>	<b>3.13</b>
Onsite		<b>2022</b>					
	Fugitive Dust	0.00	0.00	0.00	0.00	3.93	1.56
	Off-Road	3.62	38.84	29.04	0.06	1.63	1.50
	Total	<b>3.62</b>	<b>38.84</b>	<b>29.04</b>	<b>0.06</b>	<b>5.57</b>	<b>3.07</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.20	0.07	0.00	0.03	0.01
	Worker	0.07	0.06	0.72	0.00	0.21	0.06
	Total	<b>0.08</b>	<b>0.26</b>	<b>0.79</b>	<b>0.00</b>	<b>0.23</b>	<b>0.07</b>
<b>TOTAL</b>		<b>3.71</b>	<b>39.10</b>	<b>29.83</b>	<b>0.06</b>	<b>5.80</b>	<b>3.13</b>

<b>Trenching</b>							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Off-Road	0.73	6.76	5.20	0.01	0.48	0.44
	Total	<b>0.73</b>	<b>6.76</b>	<b>5.20</b>	<b>0.01</b>	<b>0.48</b>	<b>0.44</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.02	0.01	0.18	0.00	0.05	0.01
	Total	<b>0.02</b>	<b>0.01</b>	<b>0.18</b>	<b>0.00</b>	<b>0.05</b>	<b>0.01</b>
<b>TOTAL</b>		<b>0.75</b>	<b>6.77</b>	<b>5.38</b>	<b>0.01</b>	<b>0.53</b>	<b>0.45</b>
Onsite		<b>2022</b>					
	Off-Road	0.73	6.76	5.20	0.01	0.48	0.44
	Total	<b>0.73</b>	<b>6.76</b>	<b>5.20</b>	<b>0.01</b>	<b>0.48</b>	<b>0.44</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.02	0.01	0.18	0.00	0.05	0.01
	Total	<b>0.02</b>	<b>0.01</b>	<b>0.18</b>	<b>0.00</b>	<b>0.05</b>	<b>0.01</b>
<b>TOTAL</b>		<b>0.75</b>	<b>6.77</b>	<b>5.38</b>	<b>0.01</b>	<b>0.53</b>	<b>0.45</b>

<b>Fencing</b>							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Off-Road	0.75	6.59	5.31	0.01	0.29	0.28
	Total	<b>0.75</b>	<b>6.59</b>	<b>5.31</b>	<b>0.01</b>	<b>0.29</b>	<b>0.28</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.15	0.05	0.00	0.02	0.01
	Worker	0.03	0.02	0.29	0.00	0.08	0.02
	Total	<b>0.04</b>	<b>0.18</b>	<b>0.34</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.78</b>	<b>6.77</b>	<b>5.65</b>	<b>0.01</b>	<b>0.40</b>	<b>0.31</b>
Onsite		<b>2022</b>					
	Off-Road	0.75	6.59	5.31	0.01	0.29	0.28
	Total	<b>0.75</b>	<b>6.59</b>	<b>5.31</b>	<b>0.01</b>	<b>0.29</b>	<b>0.28</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.01	0.15	0.05	0.00	0.02	0.01
	Worker	0.03	0.02	0.29	0.00	0.08	0.02
	Total	<b>0.04</b>	<b>0.18</b>	<b>0.34</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.78</b>	<b>6.77</b>	<b>5.65</b>	<b>0.01</b>	<b>0.40</b>	<b>0.31</b>

<b>Paving</b>							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite		<b>2022 Winter</b>					
	Off-Road	1.19	11.68	15.04	0.02	0.59	0.54
	Paving	0.00				0.00	0.00
	Total	<b>1.19</b>	<b>11.68</b>	<b>15.04</b>	<b>0.02</b>	<b>0.59</b>	<b>0.54</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.07	0.06	0.72	0.00	0.21	0.06
	Total	<b>0.07</b>	<b>0.06</b>	<b>0.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.06</b>
<b>TOTAL</b>		<b>1.27</b>	<b>11.73</b>	<b>15.77</b>	<b>0.03</b>	<b>0.80</b>	<b>0.60</b>

		<b>2022</b>						
Onsite	Off-Road	1.19	11.68	15.04	0.02	0.59	0.54	
	Paving	0.00	0.00	0.00	0.00	0.00	0.00	
	<b>Total</b>	<b>1.19</b>	<b>11.68</b>	<b>15.04</b>	<b>0.02</b>	<b>0.59</b>	<b>0.54</b>	
Offsite	Hauling	0.00	0.00	0.00	0.00	0.00	0.00	
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00	
	Worker	0.07	0.06	0.72	0.00	0.21	0.06	
	<b>Total</b>	<b>0.07</b>	<b>0.06</b>	<b>0.72</b>	<b>0.00</b>	<b>0.21</b>	<b>0.06</b>	
<b>TOTAL</b>		<b>1.27</b>	<b>11.73</b>	<b>15.77</b>	<b>0.03</b>	<b>0.80</b>	<b>0.60</b>	

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
<b>Demolition</b>	<b>3</b>	<b>26</b>	<b>21</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Site Preparation</b>	<b>3</b>	<b>33</b>	<b>20</b>	<b>0</b>	<b>10</b>	<b>6</b>
<b>Grading</b>	<b>4</b>	<b>39</b>	<b>30</b>	<b>0</b>	<b>6</b>	<b>3</b>
<b>Trenching and Fencing</b>	<b>2</b>	<b>14</b>	<b>11</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>Paving</b>	<b>1</b>	<b>12</b>	<b>16</b>	<b>0</b>	<b>1</b>	<b>1</b>
<b>MAX DAILY</b>	<b>4</b>	<b>39</b>	<b>30</b>	<b>0</b>	<b>10</b>	<b>6</b>
<b>Regional Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Thresholds?	No	No	No	No	No	No

# Construction LST Worksheet (Driving Range):

\*\*NOx and CO LSTs based on 82 ft receptor (employees), PM10 and PM2.5 LSTs based on 250 ft receptor (residences) as employees would not be onsite 24hrs/day

<b>Demolition</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Off-Road	25.72	20.59	1.24	1.16
	Total	<b>25.72</b>	<b>20.59</b>	<b>1.24</b>	<b>1.16</b>
<b>TOTAL</b>		<b>25.72</b>	<b>20.59</b>	<b>1.24</b>	<b>1.16</b>
Onsite	Off-Road	25.72	20.59	1.24	1.16
	Total	<b>25.72</b>	<b>20.59</b>	<b>1.24</b>	<b>1.16</b>
<b>TOTAL</b>		<b>25.72</b>	<b>20.59</b>	<b>1.24</b>	<b>1.16</b>

<b>Site Preparation</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Fugitive Dust			8.40	4.32
	Off-Road	33.08	19.70	1.61	1.48
	Total	<b>33.08</b>	<b>19.70</b>	<b>10.02</b>	<b>5.80</b>
<b>TOTAL</b>		<b>33.08</b>	<b>19.70</b>	<b>10.02</b>	<b>5.80</b>
Onsite	Fugitive Dust	0.00	0.00	8.40	4.32
	Off-Road	33.08	19.70	1.61	1.48
	Total	<b>33.08</b>	<b>19.70</b>	<b>10.02</b>	<b>5.80</b>
<b>TOTAL</b>		<b>33.08</b>	<b>19.70</b>	<b>10.02</b>	<b>5.80</b>

<b>Grading</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Fugitive Dust			3.93	1.56
	Off-Road	38.84	29.04	1.63	1.50
	Total	<b>38.84</b>	<b>29.04</b>	<b>5.57</b>	<b>3.07</b>
<b>TOTAL</b>		<b>38.84</b>	<b>29.04</b>	<b>5.57</b>	<b>3.07</b>
Onsite	Fugitive Dust	0.00	0.00	3.93	1.56
	Off-Road	38.84	29.04	1.63	1.50
	Total	<b>38.84</b>	<b>29.04</b>	<b>5.57</b>	<b>3.07</b>
<b>TOTAL</b>		<b>38.84</b>	<b>29.04</b>	<b>5.57</b>	<b>3.07</b>

<b>Trenching</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Off-Road	6.76	5.20	0.48	0.44
	Total	<b>6.76</b>	<b>5.20</b>	<b>0.48</b>	<b>0.44</b>
<b>TOTAL</b>		<b>6.76</b>	<b>5.20</b>	<b>0.48</b>	<b>0.44</b>
Onsite	Off-Road	6.76	5.20	0.48	0.44
	Total	<b>6.76</b>	<b>5.20</b>	<b>0.48</b>	<b>0.44</b>
<b>TOTAL</b>		<b>6.76</b>	<b>5.20</b>	<b>0.48</b>	<b>0.44</b>
<b>Fencing</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Off-Road	6.59	5.31	0.29	0.28
	Total	<b>6.59</b>	<b>5.31</b>	<b>0.29</b>	<b>0.28</b>
<b>TOTAL</b>		<b>6.59</b>	<b>5.31</b>	<b>0.29</b>	<b>0.28</b>
Onsite	Off-Road	6.59	5.31	0.29	0.28
	Total	<b>6.59</b>	<b>5.31</b>	<b>0.29</b>	<b>0.28</b>
<b>TOTAL</b>		<b>6.59</b>	<b>5.31</b>	<b>0.29</b>	<b>0.28</b>
<b>Paving</b>					
		NOx	CO	PM10 Total	PM2.5 Total
Onsite	Off-Road	11.68	15.04	0.59	0.54
	Paving			0.00	0.00
	Total	<b>11.68</b>	<b>15.04</b>	<b>0.59</b>	<b>0.54</b>
<b>TOTAL</b>		<b>11.68</b>	<b>15.04</b>	<b>0.59</b>	<b>0.54</b>
Onsite	Off-Road	11.68	15.04	0.59	0.54
	Paving	0.00	0.00	0.00	0.00
	Total	<b>11.68</b>	<b>15.04</b>	<b>0.59</b>	<b>0.54</b>
<b>TOTAL</b>		<b>11.68</b>	<b>15.04</b>	<b>0.59</b>	<b>0.54</b>
<b>Demolition</b>		<b>26</b>	<b>21</b>	<b>1.24</b>	<b>1.16</b>
	<b>≤1.00 Acre LST</b>	<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Site Preparation</b>		<b>33</b>	<b>20</b>	<b>10.02</b>	<b>5.80</b>
	<b>3.50 Acre LST</b>	<b>123</b>	<b>1,176</b>	<b>36.12</b>	<b>9.36</b>
	<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Grading</b>		<b>39</b>	<b>29</b>	<b>5.57</b>	<b>3.07</b>
	<b>4.00 Acre LST</b>	<b>131</b>	<b>1,297</b>	<b>39.21</b>	<b>10.11</b>
	<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>

<b>Trenching and Fencing</b>	<b>13</b>	<b>11</b>	<b>0.77</b>	<b>0.72</b>
<b>≤1.00 Acre LST</b>	<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Paving</b>	<b>12</b>	<b>15</b>	<b>0.59</b>	<b>0.54</b>
<b>≤1.00 Acre LST</b>	<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
<b>Exceeds LST?</b>	<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>

## Regional Construction Emissions Worksheet (Mini Golf Course):

Demolition							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	Winter						
	Off-Road	0.96	9.08	7.66	0.02	0.43	0.40
	<b>Total</b>	<b>0.96</b>	<b>9.08</b>	<b>7.66</b>	<b>0.02</b>	<b>0.43</b>	<b>0.40</b>
Offsite	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.03	0.02	0.27	0.00	0.08	0.02
	<b>Total</b>	<b>0.03</b>	<b>0.10</b>	<b>0.30</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
	<b>TOTAL</b>	<b>0.99</b>	<b>9.18</b>	<b>7.96</b>	<b>0.02</b>	<b>0.52</b>	<b>0.43</b>
Onsite	Winter						
	Off-Road	0.96	9.08	7.66	0.02	0.43	0.40
	<b>Total</b>	<b>0.96</b>	<b>9.08</b>	<b>7.66</b>	<b>0.02</b>	<b>0.43</b>	<b>0.40</b>
Offsite	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.03	0.02	0.27	0.00	0.08	0.02
	<b>Total</b>	<b>0.03</b>	<b>0.10</b>	<b>0.30</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
	<b>TOTAL</b>	<b>0.99</b>	<b>9.18</b>	<b>7.96</b>	<b>0.02</b>	<b>0.52</b>	<b>0.43</b>
Site Preparation							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	Winter						
	Fugitive Dust					2.80	1.44
	Off-Road	0.83	8.58	5.30	0.01	0.39	0.36
	<b>Total</b>	<b>0.83</b>	<b>8.58</b>	<b>5.30</b>	<b>0.01</b>	<b>3.19</b>	<b>1.80</b>
Offsite	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.02	0.01	0.17	0.00	0.05	0.01
	<b>Total</b>	<b>0.02</b>	<b>0.09</b>	<b>0.20</b>	<b>0.00</b>	<b>0.06</b>	<b>0.02</b>
	<b>TOTAL</b>	<b>0.85</b>	<b>8.67</b>	<b>5.50</b>	<b>0.01</b>	<b>3.26</b>	<b>1.82</b>
Onsite	Winter						
	Fugitive Dust	0.00	0.00	0.00	0.00	2.80	1.44
	Off-Road	0.83	8.58	5.30	0.01	0.39	0.36
	<b>Total</b>	<b>0.83</b>	<b>8.58</b>	<b>5.30</b>	<b>0.01</b>	<b>3.19</b>	<b>1.80</b>
Offsite	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.02	0.01	0.17	0.00	0.05	0.01
	<b>Total</b>	<b>0.02</b>	<b>0.09</b>	<b>0.20</b>	<b>0.00</b>	<b>0.06</b>	<b>0.02</b>
	<b>TOTAL</b>	<b>0.85</b>	<b>8.67</b>	<b>5.50</b>	<b>0.01</b>	<b>3.26</b>	<b>1.82</b>



Grading							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	Winter						
	Fugitive Dust					2.10	1.08
	Off-Road	0.85	8.69	5.42	0.01	0.37	0.34
	Total	<b>0.85</b>	<b>8.69</b>	<b>5.42</b>	<b>0.01</b>	<b>2.47</b>	<b>1.42</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.03	0.02	0.27	0.00	0.08	0.02
	Total	<b>0.03</b>	<b>0.10</b>	<b>0.30</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.88</b>	<b>8.79</b>	<b>5.72</b>	<b>0.01</b>	<b>2.57</b>	<b>1.45</b>
Onsite							
	Fugitive Dust	0.00	0.00	0.00	0.00	2.10	1.08
	Off-Road	0.85	8.69	5.42	0.01	0.37	0.34
	Total	<b>0.85</b>	<b>8.69</b>	<b>5.42</b>	<b>0.01</b>	<b>2.47</b>	<b>1.42</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.08	0.03	0.00	0.01	0.00
	Worker	0.03	0.02	0.27	0.00	0.08	0.02
	Total	<b>0.03</b>	<b>0.10</b>	<b>0.30</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.88</b>	<b>8.79</b>	<b>5.72</b>	<b>0.01</b>	<b>2.57</b>	<b>1.45</b>
Trenching							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	Winter						
	Off-Road	0.35	3.23	2.59	0.00	0.22	0.21
	Total	<b>0.35</b>	<b>3.23</b>	<b>2.59</b>	<b>0.00</b>	<b>0.22</b>	<b>0.21</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.01	0.01	0.10	0.00	0.03	0.01
	Total	<b>0.01</b>	<b>0.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>
<b>TOTAL</b>		<b>0.36</b>	<b>3.24</b>	<b>2.69</b>	<b>0.00</b>	<b>0.26</b>	<b>0.21</b>
Onsite							
	Off-Road	0.35	3.23	2.59	0.00	0.22	0.21
	Total	<b>0.35</b>	<b>3.23</b>	<b>2.59</b>	<b>0.00</b>	<b>0.22</b>	<b>0.21</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.01	0.01	0.10	0.00	0.03	0.01
	Total	<b>0.01</b>	<b>0.01</b>	<b>0.10</b>	<b>0.00</b>	<b>0.03</b>	<b>0.01</b>
<b>TOTAL</b>		<b>0.36</b>	<b>3.24</b>	<b>2.69</b>	<b>0.00</b>	<b>0.26</b>	<b>0.21</b>
Paving							
		ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Onsite	Winter						
	Off-Road	0.49	4.72	6.58	0.01	0.23	0.22
	Paving	0.00				0.00	0.00
	Total	<b>0.49</b>	<b>4.72</b>	<b>6.58</b>	<b>0.01</b>	<b>0.23</b>	<b>0.22</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.03	0.02	0.33	0.00	0.10	0.03
	Total	<b>0.03</b>	<b>0.02</b>	<b>0.33</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.53</b>	<b>4.74</b>	<b>6.91</b>	<b>0.01</b>	<b>0.34</b>	<b>0.24</b>
Onsite							
	Off-Road	0.49	4.72	6.58	0.01	0.23	0.22
	Paving	0.00	0.00	0.00	0.00	0.00	0.00
	Total	<b>0.49</b>	<b>4.72</b>	<b>6.58</b>	<b>0.01</b>	<b>0.23</b>	<b>0.22</b>
Offsite							
	Hauling	0.00	0.00	0.00	0.00	0.00	0.00
	Vendor	0.00	0.00	0.00	0.00	0.00	0.00
	Worker	0.03	0.02	0.33	0.00	0.10	0.03
	Total	<b>0.03</b>	<b>0.02</b>	<b>0.33</b>	<b>0.00</b>	<b>0.10</b>	<b>0.03</b>
<b>TOTAL</b>		<b>0.53</b>	<b>4.74</b>	<b>6.91</b>	<b>0.01</b>	<b>0.34</b>	<b>0.24</b>

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
<i>Demolition</i>	1	9	8	0	1	0
<i>Site Preparation</i>	1	9	5	0	3	2
<i>Grading</i>	1	9	6	0	3	1
<i>Trenching and Paving</i>	1	8	10	0	1	0
<i>Paving</i>	1	5	7	0	0	0
<b>MAX DAILY</b>	<b>1</b>	<b>9</b>	<b>10</b>	<b>0</b>	<b>3</b>	<b>2</b>
<b>Regional Thresholds</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
Exceeds Thresholds?	No	No	No	No	No	No

# Construction LST Worksheet (Mini Golf Course):

\*\*NOx and CO LSTs based on 82 ft receptor (employees), PM10 and PM2.5 LSTs based on 250 ft receptor (residences) as employees would not be onsite 24hrs/day

<b>Demolition</b>						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		<b>2023</b>				
	Off-Road		9.08	7.66	0.43	0.40
	Total		<b>9.08</b>	<b>7.66</b>	<b>0.43</b>	<b>0.40</b>
<b>TOTAL</b>			<b>9.08</b>	<b>7.66</b>	<b>0.43</b>	<b>0.40</b>
Onsite		<b>2023</b>				
	Off-Road		9.08	7.66	0.43	0.40
	Total		<b>9.08</b>	<b>7.66</b>	<b>0.43</b>	<b>0.40</b>
<b>TOTAL</b>			<b>9.08</b>	<b>7.66</b>	<b>0.43</b>	<b>0.40</b>
<b>Site Preparation</b>						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		<b>2023</b>				
	Fugitive Dust				2.80	1.44
	Off-Road		8.58	5.30	0.39	0.36
	Total		<b>8.58</b>	<b>5.30</b>	<b>3.19</b>	<b>1.80</b>
<b>TOTAL</b>			<b>8.58</b>	<b>5.30</b>	<b>3.19</b>	<b>1.80</b>
Onsite		<b>2023</b>				
	Fugitive Dust		0.00	0.00	2.80	1.44
	Off-Road		8.58	5.30	0.39	0.36
	Total		<b>8.58</b>	<b>5.30</b>	<b>3.19</b>	<b>1.80</b>
<b>TOTAL</b>			<b>8.58</b>	<b>5.30</b>	<b>3.19</b>	<b>1.80</b>
<b>Grading</b>						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		<b>2023</b>				
	Fugitive Dust				2.10	1.08
	Off-Road		8.69	5.42	0.37	0.34
	Total		<b>8.69</b>	<b>5.42</b>	<b>2.47</b>	<b>1.42</b>
<b>TOTAL</b>			<b>8.69</b>	<b>5.42</b>	<b>2.47</b>	<b>1.42</b>
Onsite		<b>2023</b>				
	Fugitive Dust		0.00	0.00	2.10	1.08
	Off-Road		8.69	5.42	0.37	0.34
	Total		<b>8.69</b>	<b>5.42</b>	<b>2.47</b>	<b>1.42</b>
<b>TOTAL</b>			<b>8.69</b>	<b>5.42</b>	<b>2.47</b>	<b>1.42</b>
<b>Trenching</b>						
			NOx	CO	PM10 Total	PM2.5 Total
Onsite		<b>2023</b>				
	Off-Road		3.23	2.59	0.22	0.21
	Total		<b>3.23</b>	<b>2.59</b>	<b>0.22</b>	<b>0.21</b>
<b>TOTAL</b>			<b>3.23</b>	<b>2.59</b>	<b>0.22</b>	<b>0.21</b>
Onsite		<b>2023</b>				
	Off-Road		3.23	2.59	0.22	0.21
	Total		<b>3.23</b>	<b>2.59</b>	<b>0.22</b>	<b>0.21</b>
<b>TOTAL</b>			<b>3.23</b>	<b>2.59</b>	<b>0.22</b>	<b>0.21</b>

<b>Paving</b>			NOx	CO	PM10 Total	PM2.5 Total
Onsite		<b>2023</b>				
	Off-Road		4.72	6.58	0.23	0.22
	Paving				0.00	0.00
	Total		<b>4.72</b>	<b>6.58</b>	<b>0.23</b>	<b>0.22</b>
<b>TOTAL</b>			<b>4.72</b>	<b>6.58</b>	<b>0.23</b>	<b>0.22</b>
Onsite		<b>2023</b>				
	Off-Road		4.72	6.58	0.23	0.22
	Paving		0.00	0.00	0.00	0.00
	Total		<b>4.72</b>	<b>6.58</b>	<b>0.23</b>	<b>0.22</b>
<b>TOTAL</b>			<b>4.72</b>	<b>6.58</b>	<b>0.23</b>	<b>0.22</b>
			NOx	CO	PM10 Total	PM2.5 Total
<b>Demolition</b>			<b>9</b>	<b>8</b>	<b>0.43</b>	<b>0.40</b>
	<b>≤1.00 Acre LST</b>		<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>		<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Site Preparation</b>			<b>9</b>	<b>5</b>	<b>3.19</b>	<b>1.80</b>
	<b>≤1.00 Acre LST</b>		<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>		<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Grading</b>			<b>9</b>	<b>5</b>	<b>2.47</b>	<b>1.42</b>
	<b>≤1.00 Acre LST</b>		<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>		<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Trenching and Paving</b>			<b>8</b>	<b>9</b>	<b>0.46</b>	<b>0.42</b>
	<b>≤1.00 Acre LST</b>		<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>		<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>
<b>Paving</b>			<b>5</b>	<b>7</b>	<b>0.23</b>	<b>0.22</b>
	<b>≤1.00 Acre LST</b>		<b>69</b>	<b>535</b>	<b>19.38</b>	<b>5.57</b>
	<b>Exceeds LST?</b>		<b>no</b>	<b>no</b>	<b>no</b>	<b>no</b>

# Regional Operation Emissions Worksheet: Buildout Year 2023<sup>1</sup>

<sup>1</sup> CalEEMod, Version 2020.4

## Project

### Summer

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.06	0.00	0.01	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	1.35	1.46	14.73	0.03	3.37	0.91
<b>Total</b>	<b>1.41</b>	<b>1.46</b>	<b>14.74</b>	<b>0.03</b>	<b>3.37</b>	<b>0.91</b>

### Winter

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0.06	0.00	0.01	0.00	0.00	0.00
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	1.33	1.58	14.30	0.03	3.37	0.91
<b>Total</b>	<b>1.39</b>	<b>1.58</b>	<b>14.31</b>	<b>0.03</b>	<b>3.37</b>	<b>0.91</b>

### Max Daily

	ROG	NOx	CO	SO2	PM10 Total	PM2.5 Total
Area	0	0	0	0	0	0
Energy	0	0	0	0	0	0
Mobile	1	2	15	0	3	1
<b>Total</b>	<b>1</b>	<b>2</b>	<b>15</b>	<b>0</b>	<b>3</b>	<b>1</b>

### Regional Thresholds (lb/day)

Exceeds Thresholds?	No	No	No	No	No	No
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# GHG Emissions Inventory

Source: CalEEMod, Version 2020.4

MTCO<sub>2</sub>e=metric tons of carbon dioxide equivalent.

## Construction

	<u>MTCO<sub>2</sub>e</u>
2022 (Driving Range)	315
2023 (Mini Golf)	50
<b>Total Construction</b>	<b>365</b>
<b>30-Year Amortization<sup>1</sup></b>	<b>12</b>

## Operation

	<u>MTCO<sub>2</sub>e</u>	<u>Percent of Emissions</u>
Area	0	0%
Energy (Lighting) <sup>2</sup>	12	2%
Mobile	547	95%
Solid Waste	0	0%
Water	4	1%
30-Yr Amortized Construction Emissions <sup>1</sup>	12	2%
<b>Total</b>	<b>575</b>	<b>100%</b>
South Coast AQMD Working Group Threshold	3,000	
<b>Exceed Threshold?</b>	<b>No</b>	

## Notes

1

Total construction emissions are amortized over 30 years per South Coast AQMD Working Group methodology; SCAQMD. 2009, November 19. Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting 14. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-14/ghg-meeting-14-main-presentation.pdf?sfvrsn=2).

2 See assumptions file for lighting calculations.

# **Assumptions Worksheet**



## CalEEMod Inputs - Brookside Golf Course Improvements Project (Driving Range), Construction

**Name:** Brookside Golf Course Improvements Project (Driving Range)  
**Project Number:** RBOC-01  
**Project Location:** 1133 Rosemont Ave, Pasadena, CA  
**County/Air Basin:** Los Angeles  
**Climate Zone:** 12  
**Land Use Setting:** Urban  
**Operational Year:** 2023  
**Utility Company:** Pasadena Water and Power  
**Air Basin:** South Coast Air Basin  
**Air District:** SCAQMD  
**SRA:** 8- West San Gabriel Valley

Project Site Acreage 12  
 Disturbed Acreage (Driving Range) 9.00

Project Components	SQFT	Tons
<b>New Construction</b>	<b>SQFT</b>	<b>ACRES</b>
Golf Course	301,000	6.91
Hardscape	16,000	0.37
Additional Area	75,040	1.72

## CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage*	Land Use Square Feet
Recreational	Golf Course	6.910	acre	6.91	301,000
Parking	Other Non-asphalt Surfaces	91.040	1000 sqft	2.09	91,040
				9.00	

### Architectural Coating

### Construction Mitigation

#### SCAQMD Rule 403

Replace Ground Cover	PM10:	<u>5</u>	% Reduction
Replace Ground Cover	PM2.5:	<u>5</u>	% Reduction
Water Exposed Area	Frequency:	<u>2</u>	per day
	PM10:	<u>55</u>	% Reduction
	PM25:	<u>55</u>	% Reduction
Unpaved Roads	Vehicle Speed:	<u>15</u>	mph
SCAQMD Rule 1186	Clean Paved Road	<u>9</u>	% PM Reduction

### Pasadena Water and Power Carbon Intensity Factors

CO2: <sup>1,2</sup>	872.98	pounds per megawatt hour
CH4: <sup>3</sup>	0.029	pound per megawatt hour
N2O: <sup>3</sup>	0.00617	pound per megawatt hour



## CalEEMod Inputs - Brookside Golf Course Improvements Project (Mini Golf), Construction

**Name:** Brookside Golf Course Improvements Project (Mini Golf)  
**Project Number:** RBOC-01  
**Project Location:** 1133 Rosemont Ave, Pasadena, CA  
**County/Air Basin:** Los Angeles  
**Climate Zone:** 12  
**Land Use Setting:** Urban  
**Operational Year:** 2023  
**Utility Company:** Pasadena Water and Power  
**Air Basin:** South Coast Air Basin  
**Air District:** SCAQMD  
**SRA:** 8- West San Gabriel Valley

Project Site Acreage	12
Disturbed Site Acreage	1.00

Project Components	SQFT	Tons
<b>New Construction</b>	<b>SQFT</b>	<b>ACRES</b>
Landscape (Mini Golf Course)	21,500	0.49
Hardscape	21,500	0.49

### CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage*	Land Use Square Feet
Recreational	Golf Course	0.494	acres	0.49	21,500
Parking	Other Non-asphalt Surfaces	21.500	1000 sqft	0.49	21,500
				0.99	

#### Architectural Coating

#### Construction Mitigation

##### SCAQMD Rule 403

Replace Ground Cover	PM10:	5	% Reduction
Replace Ground Cover	PM2.5:	5	% Reduction
Water Exposed Area	Frequency:	2	per day
	PM10:	55	% Reduction
	PM25:	55	% Reduction
Unpaved Roads	Vehicle Speed:	15	mph
SCAQMD Rule 1186	Clean Paved Road	9	% PM Reduction

#### Pasadena Water and Power Carbon Intensity Factors

CO2:	872.98	pounds per megawatt hour
CH4:	0.029	pound per megawatt hour
N2O:	0.00617	pound per megawatt hour

## Construction Activities and Schedule Assumptions: Brookside Golf Course Improvement Project

*based on durations provided by Applicant*

*model assumes construction begins year 2022 for the most conservative emissions outputs*

### Construction Schedule (Driving Range)

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	5/1/2022	6/10/2022	30
Site Preparation	Site Preparation	6/11/2022	7/11/2022	21
Grading (Rough Grading + Fine Grading)	Grading	7/12/2022	9/30/2022	59
Trenching	Trenching	10/1/2022	11/15/2022	32
Fencing	Building Construction	10/1/2022	11/15/2022	32
Paving	Paving	11/16/2022	12/16/2022	23

### Construction Schedule (Mini Golf)

Construction Activities	Phase Type	Start Date	End Date	CalEEMod Duration (Workday)
Demolition	Demolition	1/1/2023	1/13/2023	10
Site Preparation	Site Preparation	1/14/2023	2/3/2023	15
Grading (Rough Grading + Fine Grading)	Grading	2/4/2023	3/28/2023	37
Trenching	Trenching	3/29/2023	4/11/2023	10
Paving	Paving	3/29/2023	4/20/2023	17

### CalEEMod Construction Off-Road Equipment Inputs

\*Based on equipment mix provided by the Applicant.

General Construction Hours:

8 hours

btwn 7:00 AM to 4:00 PM (with 1 hr break), Mon-Fri

Construction Equipment Details						
Equipment	model	# of Equipment	hr/day	hp	load factor	total trips/Day

### Driving Range Development

#### Demolition

Concrete/Industrial Saws		1	8	81		
Excavators		3	8	158		
Rubber Tired Dozers		2	8	247		
Worker Trips						15
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						4

#### Site Preparation

Rubber Tired Dozers		3	8	247		
Tractors/Loaders/Backhoes		4	8	97		
Worker Trips						18
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						4

#### Grading

Excavators		2	8	158		
Graders		1	8	187		
Rubber Tired Dozers		1	8	247		
Scrapers		2	8	367		
Tractors/Loaders/Backhoes		2	8	97		
Worker Trips						20
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						4

#### Utility Trenching

Trenchers		2	8	78		
Worker Trips						5
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0

#### Fencing

Cranes		1	7	231		
Tractors/Loaders/Backhoes		1	7	97		
Welders		1	8	46		
Worker Trips						8
Vendor Trips						3
Hauling Trips (TOTAL TRIPS)						0

\* for the most conservative estimates, fencing construction activity uses vendor trip rates for building construction activities and the hardscape area

	16.00	Unit
		1000sqft
<b>Building Construction Trips</b>	<b>Vendor Trip Rate</b>	<b>Trips</b>
	0.1639	3

#### Paving\*

Pavers		2	8	130		
Rollers		2	8	80		
Paving Equipment		2	8	132		
Cement and Mortar Mixers		2	6	9		
Worker Trips						20
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0

## Mini Golf Course Development

### Demolition

Concrete/Industrial Saws		1	8	81		
Rubber Tired Dozers		1	6	247		
Tractors/Loaders/Backhoes		1	6	97		
Worker Trips						8
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						2

### Site Preparation

Rubber Tired Dozers		1	8	247		
Tractors/Loaders/Backhoes		1	8	97		
Worker Trips						5
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						2

### Grading

Rubber Tired Loader		1	6	203		
Rubber Tired Dozers		1	6	247		
Tractors/Loaders/Backhoes		1	7	97		
Worker Trips						8
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0
Water Trucks						2

### Utility Trenching

Trenchers		1	8	78		
Worker Trips						3
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0

### Paving\*

Pavers		1	7	130		
Cement and Mortar Mixers		1	6	9		
Rollers		1	7	80		
Paving Equipment		1	7	132		
Worker Trips						10
Vendor Trips						0
Hauling Trips (TOTAL TRIPS)						0

## CalEEMod Inputs - Brookside Golf Course Improvements Project, Operations

**Name:** Brookside Golf Course Improvements Project  
**Project Number:** RBOC-01  
**Project Location:** 1133 Rosemont Ave, Pasadena, CA  
**County/Air Basin:** Los Angeles  
**Climate Zone:** 12  
**Land Use Setting:** Urban  
**Operational Year:** 2023  
**Utility Company:** Pasadena Water and Power  
**Air Basin:** South Coast Air Basin  
**Air District:** SCAQMD  
**SRA:** 8- West San Gabriel Valley

Project Site Acreage	12
Disturbed Site Acreage	10.00

Project Components	SQFT	Tons
<b>New Construction</b>	<b>SQFT</b>	<b>ACRES</b>
Driving Range	301,000	6.91
Hardscape	16,000	0.37
Additional Area	75,040	1.72
<b>New Construction</b>	<b>SQFT</b>	<b>ACRES</b>
Mini Golf Course	21,500	0.49
Hardscape	21,500	0.49

### CalEEMod Land Use Inputs

Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Land Use Square Feet
Recreational	Golf Course	7.404	acres	7.40	322,500
Parking	Other Non-asphalt Surfaces	112.540	1000 sqft	2.58	112,540
				9.99	

### Trips

Land Use Type	Average Daily Trips	CalEEMod Trip Rate	Saturday Trips	CalEEMod Trip Rate	Sunday Trips	CalEEMod Trip
Driving Range	410	55.31	410	55.31	410	55.31
Mini Golf	130	17.56	130	17.56	130	17.56
Existing	136	18.37	136	18.37	136	18.37
<b>Total</b>	<b>404</b>	<b>54.50</b>	<b>404</b>	<b>54.50</b>	<b>404</b>	<b>54.50</b>

**Source:** Pasadena Department of Transportation. 2021, May. Transportation Impact Analysis for Expansion of the Existing Brookside Golf Course

**Daily Weekday VMT** 4,364

Trips	Average Trip Rate (mi/trip)	Annual Vehicle Miles Traveled***
<b>Total Trips</b>	<b>10.82</b>	<b>1,588,536</b>

\*\*\* Annual VMT is calculated based on weekday VMT x 364 days per year.

Trip Type Percentages			
	Primary	Diverted	Passby
Golf Course	52%	39%	9%
<b>Adjusted Trip Type Percentages</b>	<b>100%</b>	<b>0%</b>	<b>0%</b>

**Water Use (CalEEMod Defaults)**

Mini Golf Course Sewage Generation \_\_\_\_\_ 80 \_\_\_\_\_ gal/day/1000 sf  
 \*Sewage generation rates based on a City of LA CEQA Thresholds for a golf course lobby

Land Use <sup>1,2</sup>	Indoor	Outdoor <sup>3</sup>	Total
Total Water Use (gal/day)	1,720	0	1,720
Total Water Use (gal/year)	627,800	0	627,800

<sup>1</sup> considers only new generation from Mini Golf Course operations. Assumes driving range operations is intended to meet demand currently at the golf course

<sup>2</sup> Assumes 100% aerobic treatment.

<sup>3</sup> Outdoor water use already occurs

**Solid Waste**

Land Use	(tons/year)
Golf Course	0.46

\*Based on CalEEMod default rates for new generation from Mini Golf Course operations. Assumes driving range operations is intended to meet demand currently at the golf course.

**Lighting (Electricity Use)**

	Total Average kW/Day <sup>1</sup>	Day/Year <sup>2</sup>	Hours <sup>3</sup>	Kwh (Annual)
Light Pole Operations	21.30	365	4	31,098
<b>Total Annual kWh</b>				<b>31,098</b>

**Calculation of GHGs from Field Lighting**

CO <sub>2</sub> <sup>4</sup>	CH <sub>4</sub> <sup>4</sup>	N <sub>2</sub> O <sup>4</sup>	CO <sub>2</sub> e	CO <sub>2</sub> e
lbs/Mwh	lbs/Mwh	lbs/Mwh	lbs/Mwh	MT/Kwh
872.98300	0.02900	0.00617	873.02	0.000396
<b>CO<sub>2</sub>e from Lighting</b>				<b>12.31</b>

<sup>1</sup> Based on Lighting Plan for the proposed driving range as provided by the Applicant.

<sup>2</sup> Assumes light poles will be operational year round

<sup>3</sup> Based on worst case estimate

<sup>4</sup> CalEEMod default Carbon Intensity Factors

**Pasadena Water and Power Carbon Intensity Factors**

CO2:	872.98	pounds per megawatt hour
CH4:	0.029	pound per megawatt hour
N2O:	0.00617	pound per megawatt hour



# **CalEEMod Construction Model**

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Driving Range) Construction Run**  
**Los Angeles-South Coast County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	91.04	1000sqft	2.09	91,040.00	0
Golf Course	6.91	Acre	6.91	300,999.60	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MWhr)</b>	872.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Trips and VMT - assuming 4 vt/water truck/day. Fencing bendor trips based on vendor trip rate for building construction activities and hardscape area.

Grading -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	5462	960
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	20.00	59.00
tblConstructionPhase	NumDays	20.00	23.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00

**2.0 Emissions Summary**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2226	2.2448	1.7716	3.5500e-003	0.4954	0.1032	0.5986	0.2186	0.0952	0.3138	0.0000	312.3358	312.3358	0.0928	1.0900e-003	314.9803
Maximum	0.2226	2.2448	1.7716	3.5500e-003	0.4954	0.1032	0.5986	0.2186	0.0952	0.3138	0.0000	312.3358	312.3358	0.0928	1.0900e-003	314.9803

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
2022	0.2226	2.2448	1.7716	3.5500e-003	0.2205	0.1032	0.3236	0.0958	0.0952	0.1910	0.0000	312.3354	312.3354	0.0928	1.0900e-003	314.9799
<b>Maximum</b>	<b>0.2226</b>	<b>2.2448</b>	<b>1.7716</b>	<b>3.5500e-003</b>	<b>0.2205</b>	<b>0.1032</b>	<b>0.3236</b>	<b>0.0958</b>	<b>0.0952</b>	<b>0.1910</b>	<b>0.0000</b>	<b>312.3354</b>	<b>312.3354</b>	<b>0.0928</b>	<b>1.0900e-003</b>	<b>314.9799</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>55.50</b>	<b>0.00</b>	<b>45.93</b>	<b>56.17</b>	<b>0.00</b>	<b>39.13</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	5-1-2022	7-31-2022	1.1300	1.1300
2	8-1-2022	9-30-2022	0.9323	0.9323
		<b>Highest</b>	1.1300	1.1300

**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	5/1/2022	6/10/2022	5	30	a
2	Site Preparation	Site Preparation	6/11/2022	7/11/2022	5	21	b
3	Grading	Grading	7/12/2022	9/30/2022	5	59	c
4	Trenching	Trenching	10/1/2022	11/15/2022	5	32	d
5	Fencing	Trenching	10/1/2022	11/15/2022	5	32	e
6	Paving	Paving	11/16/2022	12/16/2022	5	23	f

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**Acres of Grading (Site Preparation Phase): 31.5**

**Acres of Grading (Grading Phase): 177**

**Acres of Paving: 2.09**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
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	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Fencing	Cranes	1	7.00	231	0.29
Fencing	Forklifts	0	8.00	89	0.20
Fencing	Generator Sets	0	8.00	84	0.74
Fencing	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Fencing	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
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

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**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fencing	3	8.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

**3.2 Demolition - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0396	0.3858	0.3089	5.8000e-004		0.0186	0.0186		0.0173	0.0173	0.0000	50.9853	50.9853	0.0143	0.0000	51.3434
<b>Total</b>	<b>0.0396</b>	<b>0.3858</b>	<b>0.3089</b>	<b>5.8000e-004</b>		<b>0.0186</b>	<b>0.0186</b>		<b>0.0173</b>	<b>0.0173</b>	<b>0.0000</b>	<b>50.9853</b>	<b>50.9853</b>	<b>0.0143</b>	<b>0.0000</b>	<b>51.3434</b>

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**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	1.2000e-004	3.0900e-003	1.0200e-003	1.0000e-005	3.8000e-004	3.0000e-005	4.1000e-004	1.1000e-004	3.0000e-005	1.4000e-004	0.0000	1.1458	1.1458	4.0000e-005	1.7000e-004	1.1960
Worker	7.7000e-004	6.4000e-004	8.3400e-003	2.0000e-005	2.4700e-003	2.0000e-005	2.4800e-003	6.5000e-004	1.0000e-005	6.7000e-004	0.0000	2.0278	2.0278	6.0000e-005	6.0000e-005	2.0458
<b>Total</b>	<b>8.9000e-004</b>	<b>3.7300e-003</b>	<b>9.3600e-003</b>	<b>3.0000e-005</b>	<b>2.8500e-003</b>	<b>5.0000e-005</b>	<b>2.8900e-003</b>	<b>7.6000e-004</b>	<b>4.0000e-005</b>	<b>8.1000e-004</b>	<b>0.0000</b>	<b>3.1735</b>	<b>3.1735</b>	<b>1.0000e-004</b>	<b>2.3000e-004</b>	<b>3.2417</b>

**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	0.0396	0.3858	0.3089	5.8000e-004		0.0186	0.0186		0.0173	0.0173	0.0000	50.9853	50.9853	0.0143	0.0000	51.3433
<b>Total</b>	<b>0.0396</b>	<b>0.3858</b>	<b>0.3089</b>	<b>5.8000e-004</b>		<b>0.0186</b>	<b>0.0186</b>		<b>0.0173</b>	<b>0.0173</b>	<b>0.0000</b>	<b>50.9853</b>	<b>50.9853</b>	<b>0.0143</b>	<b>0.0000</b>	<b>51.3433</b>

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**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	1.2000e-004	3.0900e-003	1.0200e-003	1.0000e-005	3.5000e-004	3.0000e-005	3.8000e-004	1.0000e-004	3.0000e-005	1.3000e-004	0.0000	1.1458	1.1458	4.0000e-005	1.7000e-004	1.1960
Worker	7.7000e-004	6.4000e-004	8.3400e-003	2.0000e-005	2.2700e-003	2.0000e-005	2.2900e-003	6.1000e-004	1.0000e-005	6.2000e-004	0.0000	2.0278	2.0278	6.0000e-005	6.0000e-005	2.0458
<b>Total</b>	<b>8.9000e-004</b>	<b>3.7300e-003</b>	<b>9.3600e-003</b>	<b>3.0000e-005</b>	<b>2.6200e-003</b>	<b>5.0000e-005</b>	<b>2.6700e-003</b>	<b>7.1000e-004</b>	<b>4.0000e-005</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>3.1735</b>	<b>3.1735</b>	<b>1.0000e-004</b>	<b>2.3000e-004</b>	<b>3.2417</b>

**3.3 Site Preparation - 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					
Fugitive Dust					0.2064	0.0000	0.2064	0.1061	0.0000	0.1061	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0333	0.3474	0.2068	4.0000e-004		0.0169	0.0169		0.0156	0.0156	0.0000	35.1114	35.1114	0.0114	0.0000	35.3953
<b>Total</b>	<b>0.0333</b>	<b>0.3474</b>	<b>0.2068</b>	<b>4.0000e-004</b>	<b>0.2064</b>	<b>0.0169</b>	<b>0.2233</b>	<b>0.1061</b>	<b>0.0156</b>	<b>0.1217</b>	<b>0.0000</b>	<b>35.1114</b>	<b>35.1114</b>	<b>0.0114</b>	<b>0.0000</b>	<b>35.3953</b>



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**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	8.0000e-005	2.1600e-003	7.2000e-004	1.0000e-005	2.6000e-004	2.0000e-005	2.8000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.8020	0.8020	3.0000e-005	1.2000e-004	0.8372
Worker	6.5000e-004	5.4000e-004	7.0100e-003	2.0000e-005	2.0700e-003	1.0000e-005	2.0800e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.7034	1.7034	5.0000e-005	5.0000e-005	1.7184
<b>Total</b>	<b>7.3000e-004</b>	<b>2.7000e-003</b>	<b>7.7300e-003</b>	<b>3.0000e-005</b>	<b>2.3300e-003</b>	<b>3.0000e-005</b>	<b>2.3600e-003</b>	<b>6.3000e-004</b>	<b>3.0000e-005</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.5054</b>	<b>2.5054</b>	<b>8.0000e-005</b>	<b>1.7000e-004</b>	<b>2.5556</b>

**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					0.0882	0.0000	0.0882	0.0454	0.0000	0.0454	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0333	0.3474	0.2068	4.0000e-004		0.0169	0.0169		0.0156	0.0156	0.0000	35.1113	35.1113	0.0114	0.0000	35.3952
<b>Total</b>	<b>0.0333</b>	<b>0.3474</b>	<b>0.2068</b>	<b>4.0000e-004</b>	<b>0.0882</b>	<b>0.0169</b>	<b>0.1052</b>	<b>0.0454</b>	<b>0.0156</b>	<b>0.0609</b>	<b>0.0000</b>	<b>35.1113</b>	<b>35.1113</b>	<b>0.0114</b>	<b>0.0000</b>	<b>35.3952</b>

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**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	8.0000e-005	2.1600e-003	7.2000e-004	1.0000e-005	2.5000e-004	2.0000e-005	2.7000e-004	7.0000e-005	2.0000e-005	9.0000e-005	0.0000	0.8020	0.8020	3.0000e-005	1.2000e-004	0.8372
Worker	6.5000e-004	5.4000e-004	7.0100e-003	2.0000e-005	1.9100e-003	1.0000e-005	1.9200e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.7034	1.7034	5.0000e-005	5.0000e-005	1.7184
<b>Total</b>	<b>7.3000e-004</b>	<b>2.7000e-003</b>	<b>7.7300e-003</b>	<b>3.0000e-005</b>	<b>2.1600e-003</b>	<b>3.0000e-005</b>	<b>2.1900e-003</b>	<b>5.8000e-004</b>	<b>3.0000e-005</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>2.5054</b>	<b>2.5054</b>	<b>8.0000e-005</b>	<b>1.7000e-004</b>	<b>2.5556</b>

**3.4 Grading - 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					
Fugitive Dust					0.2715	0.0000	0.2715	0.1078	0.0000	0.1078	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1069	1.1459	0.8567	1.8300e-003		0.0482	0.0482		0.0444	0.0444	0.0000	160.8771	160.8771	0.0520	0.0000	162.1778
<b>Total</b>	<b>0.1069</b>	<b>1.1459</b>	<b>0.8567</b>	<b>1.8300e-003</b>	<b>0.2715</b>	<b>0.0482</b>	<b>0.3197</b>	<b>0.1078</b>	<b>0.0444</b>	<b>0.1522</b>	<b>0.0000</b>	<b>160.8771</b>	<b>160.8771</b>	<b>0.0520</b>	<b>0.0000</b>	<b>162.1778</b>

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**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	2.3000e-004	6.0700e-003	2.0100e-003	2.0000e-005	7.4000e-004	6.0000e-005	8.0000e-004	2.1000e-004	5.0000e-005	2.7000e-004	0.0000	2.2533	2.2533	8.0000e-005	3.3000e-004	2.3520
Worker	2.0200e-003	1.6800e-003	0.0219	6.0000e-005	6.4700e-003	4.0000e-005	6.5100e-003	1.7200e-003	4.0000e-005	1.7600e-003	0.0000	5.3173	5.3173	1.5000e-004	1.5000e-004	5.3644
<b>Total</b>	<b>2.2500e-003</b>	<b>7.7500e-003</b>	<b>0.0239</b>	<b>8.0000e-005</b>	<b>7.2100e-003</b>	<b>1.0000e-004</b>	<b>7.3100e-003</b>	<b>1.9300e-003</b>	<b>9.0000e-005</b>	<b>2.0300e-003</b>	<b>0.0000</b>	<b>7.5706</b>	<b>7.5706</b>	<b>2.3000e-004</b>	<b>4.8000e-004</b>	<b>7.7165</b>

**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					0.1161	0.0000	0.1161	0.0461	0.0000	0.0461	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1069	1.1459	0.8567	1.8300e-003		0.0482	0.0482		0.0444	0.0444	0.0000	160.8769	160.8769	0.0520	0.0000	162.1777
<b>Total</b>	<b>0.1069</b>	<b>1.1459</b>	<b>0.8567</b>	<b>1.8300e-003</b>	<b>0.1161</b>	<b>0.0482</b>	<b>0.1643</b>	<b>0.0461</b>	<b>0.0444</b>	<b>0.0905</b>	<b>0.0000</b>	<b>160.8769</b>	<b>160.8769</b>	<b>0.0520</b>	<b>0.0000</b>	<b>162.1777</b>

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**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	2.3000e-004	6.0700e-003	2.0100e-003	2.0000e-005	7.0000e-004	6.0000e-005	7.5000e-004	2.0000e-004	5.0000e-005	2.6000e-004	0.0000	2.2533	2.2533	8.0000e-005	3.3000e-004	2.3520
Worker	2.0200e-003	1.6800e-003	0.0219	6.0000e-005	5.9600e-003	4.0000e-005	6.0000e-003	1.5900e-003	4.0000e-005	1.6300e-003	0.0000	5.3173	5.3173	1.5000e-004	1.5000e-004	5.3644
<b>Total</b>	<b>2.2500e-003</b>	<b>7.7500e-003</b>	<b>0.0239</b>	<b>8.0000e-005</b>	<b>6.6600e-003</b>	<b>1.0000e-004</b>	<b>6.7500e-003</b>	<b>1.7900e-003</b>	<b>9.0000e-005</b>	<b>1.8900e-003</b>	<b>0.0000</b>	<b>7.5706</b>	<b>7.5706</b>	<b>2.3000e-004</b>	<b>4.8000e-004</b>	<b>7.7165</b>

**3.5 Trenching - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0116	0.1082	0.0832	1.1000e-004		7.6600e-003	7.6600e-003		7.0500e-003	7.0500e-003	0.0000	9.4913	9.4913	3.0700e-003	0.0000	9.5681
<b>Total</b>	<b>0.0116</b>	<b>0.1082</b>	<b>0.0832</b>	<b>1.1000e-004</b>		<b>7.6600e-003</b>	<b>7.6600e-003</b>		<b>7.0500e-003</b>	<b>7.0500e-003</b>	<b>0.0000</b>	<b>9.4913</b>	<b>9.4913</b>	<b>3.0700e-003</b>	<b>0.0000</b>	<b>9.5681</b>

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**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	2.7000e-004	2.3000e-004	2.9700e-003	1.0000e-005	8.8000e-004	1.0000e-005	8.8000e-004	2.3000e-004	1.0000e-005	2.4000e-004	0.0000	0.7210	0.7210	2.0000e-005	2.0000e-005	0.7274
<b>Total</b>	<b>2.7000e-004</b>	<b>2.3000e-004</b>	<b>2.9700e-003</b>	<b>1.0000e-005</b>	<b>8.8000e-004</b>	<b>1.0000e-005</b>	<b>8.8000e-004</b>	<b>2.3000e-004</b>	<b>1.0000e-005</b>	<b>2.4000e-004</b>	<b>0.0000</b>	<b>0.7210</b>	<b>0.7210</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.7274</b>

**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	0.0116	0.1082	0.0832	1.1000e-004		7.6600e-003	7.6600e-003		7.0500e-003	7.0500e-003	0.0000	9.4913	9.4913	3.0700e-003	0.0000	9.5680
<b>Total</b>	<b>0.0116</b>	<b>0.1082</b>	<b>0.0832</b>	<b>1.1000e-004</b>		<b>7.6600e-003</b>	<b>7.6600e-003</b>		<b>7.0500e-003</b>	<b>7.0500e-003</b>	<b>0.0000</b>	<b>9.4913</b>	<b>9.4913</b>	<b>3.0700e-003</b>	<b>0.0000</b>	<b>9.5680</b>

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**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	2.7000e-004	2.3000e-004	2.9700e-003	1.0000e-005	8.1000e-004	1.0000e-005	8.1000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7210	0.7210	2.0000e-005	2.0000e-005	0.7274
<b>Total</b>	<b>2.7000e-004</b>	<b>2.3000e-004</b>	<b>2.9700e-003</b>	<b>1.0000e-005</b>	<b>8.1000e-004</b>	<b>1.0000e-005</b>	<b>8.1000e-004</b>	<b>2.2000e-004</b>	<b>1.0000e-005</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.7210</b>	<b>0.7210</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.7274</b>

**3.6 Fencing - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0120	0.1055	0.0850	1.7000e-004		4.7200e-003	4.7200e-003		4.4200e-003	4.4200e-003	0.0000	13.9349	13.9349	3.8900e-003	0.0000	14.0322
<b>Total</b>	<b>0.0120</b>	<b>0.1055</b>	<b>0.0850</b>	<b>1.7000e-004</b>		<b>4.7200e-003</b>	<b>4.7200e-003</b>		<b>4.4200e-003</b>	<b>4.4200e-003</b>	<b>0.0000</b>	<b>13.9349</b>	<b>13.9349</b>	<b>3.8900e-003</b>	<b>0.0000</b>	<b>14.0322</b>

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**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	9.0000e-005	2.4700e-003	8.2000e-004	1.0000e-005	3.0000e-004	2.0000e-005	3.2000e-004	9.0000e-005	2.0000e-005	1.1000e-004	0.0000	0.9166	0.9166	3.0000e-005	1.3000e-004	0.9568
Worker	4.4000e-004	3.7000e-004	4.7500e-003	1.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.1536	1.1536	3.0000e-005	3.0000e-005	1.1638
<b>Total</b>	<b>5.3000e-004</b>	<b>2.8400e-003</b>	<b>5.5700e-003</b>	<b>2.0000e-005</b>	<b>1.7000e-003</b>	<b>3.0000e-005</b>	<b>1.7300e-003</b>	<b>4.6000e-004</b>	<b>3.0000e-005</b>	<b>4.9000e-004</b>	<b>0.0000</b>	<b>2.0702</b>	<b>2.0702</b>	<b>6.0000e-005</b>	<b>1.6000e-004</b>	<b>2.1206</b>

**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	0.0120	0.1055	0.0850	1.7000e-004		4.7200e-003	4.7200e-003		4.4200e-003	4.4200e-003	0.0000	13.9349	13.9349	3.8900e-003	0.0000	14.0322
<b>Total</b>	<b>0.0120</b>	<b>0.1055</b>	<b>0.0850</b>	<b>1.7000e-004</b>		<b>4.7200e-003</b>	<b>4.7200e-003</b>		<b>4.4200e-003</b>	<b>4.4200e-003</b>	<b>0.0000</b>	<b>13.9349</b>	<b>13.9349</b>	<b>3.8900e-003</b>	<b>0.0000</b>	<b>14.0322</b>

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**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	9.0000e-005	2.4700e-003	8.2000e-004	1.0000e-005	2.8000e-004	2.0000e-005	3.1000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	0.9166	0.9166	3.0000e-005	1.3000e-004	0.9568
Worker	4.4000e-004	3.7000e-004	4.7500e-003	1.0000e-005	1.2900e-003	1.0000e-005	1.3000e-003	3.5000e-004	1.0000e-005	3.5000e-004	0.0000	1.1536	1.1536	3.0000e-005	3.0000e-005	1.1638
<b>Total</b>	<b>5.3000e-004</b>	<b>2.8400e-003</b>	<b>5.5700e-003</b>	<b>2.0000e-005</b>	<b>1.5700e-003</b>	<b>3.0000e-005</b>	<b>1.6100e-003</b>	<b>4.3000e-004</b>	<b>3.0000e-005</b>	<b>4.5000e-004</b>	<b>0.0000</b>	<b>2.0702</b>	<b>2.0702</b>	<b>6.0000e-005</b>	<b>1.6000e-004</b>	<b>2.1206</b>

**3.7 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	0.0137	0.1343	0.1730	2.7000e-004		6.7800e-003	6.7800e-003		6.2600e-003	6.2600e-003	0.0000	23.8222	23.8222	7.5300e-003	0.0000	24.0105
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0137</b>	<b>0.1343</b>	<b>0.1730</b>	<b>2.7000e-004</b>		<b>6.7800e-003</b>	<b>6.7800e-003</b>		<b>6.2600e-003</b>	<b>6.2600e-003</b>	<b>0.0000</b>	<b>23.8222</b>	<b>23.8222</b>	<b>7.5300e-003</b>	<b>0.0000</b>	<b>24.0105</b>



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**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	7.9000e-004	6.6000e-004	8.5300e-003	2.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.8000e-004	0.0000	2.0729	2.0729	6.0000e-005	6.0000e-005	2.0912
<b>Total</b>	<b>7.9000e-004</b>	<b>6.6000e-004</b>	<b>8.5300e-003</b>	<b>2.0000e-005</b>	<b>2.5200e-003</b>	<b>2.0000e-005</b>	<b>2.5400e-003</b>	<b>6.7000e-004</b>	<b>2.0000e-005</b>	<b>6.8000e-004</b>	<b>0.0000</b>	<b>2.0729</b>	<b>2.0729</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>2.0912</b>

**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	0.0137	0.1343	0.1730	2.7000e-004		6.7800e-003	6.7800e-003		6.2600e-003	6.2600e-003	0.0000	23.8222	23.8222	7.5300e-003	0.0000	24.0105
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0137</b>	<b>0.1343</b>	<b>0.1730</b>	<b>2.7000e-004</b>		<b>6.7800e-003</b>	<b>6.7800e-003</b>		<b>6.2600e-003</b>	<b>6.2600e-003</b>	<b>0.0000</b>	<b>23.8222</b>	<b>23.8222</b>	<b>7.5300e-003</b>	<b>0.0000</b>	<b>24.0105</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	7.9000e-004	6.6000e-004	8.5300e-003	2.0000e-005	2.3200e-003	2.0000e-005	2.3400e-003	6.2000e-004	2.0000e-005	6.4000e-004	0.0000	2.0729	2.0729	6.0000e-005	6.0000e-005	2.0912
<b>Total</b>	<b>7.9000e-004</b>	<b>6.6000e-004</b>	<b>8.5300e-003</b>	<b>2.0000e-005</b>	<b>2.3200e-003</b>	<b>2.0000e-005</b>	<b>2.3400e-003</b>	<b>6.2000e-004</b>	<b>2.0000e-005</b>	<b>6.4000e-004</b>	<b>0.0000</b>	<b>2.0729</b>	<b>2.0729</b>	<b>6.0000e-005</b>	<b>6.0000e-005</b>	<b>2.0912</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Driving Range) Construction Run**  
 Los Angeles-South Coast County, Summer

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	91.04	1000sqft	2.09	91,040.00	0
Golf Course	6.91	Acre	6.91	300,999.60	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MW hr)</b>	872.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Trips and VMT - assuming 4 vt/water truck/day. Fencing bendor trips based on vendor trip rate for building construction activities and hardscape area.

Grading -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	5462	960
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	20.00	59.00
tblConstructionPhase	NumDays	20.00	23.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00

**2.0 Emissions Summary**

**2.1 Overall Construction (Maximum Daily Emission)**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7019	39.0899	29.8959	0.0649	19.8838	1.6382	21.4996	10.1632	1.5072	11.6497	0.0000	6,302.2836	6,302.2836	1.9527	0.0171	6,356.2064
Maximum	3.7019	39.0899	29.8959	0.0649	19.8838	1.6382	21.4996	10.1632	1.5072	11.6497	0.0000	6,302.2836	6,302.2836	1.9527	0.0171	6,356.2064

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
2022	3.7019	39.0899	29.8959	0.0649	8.6128	1.6382	10.2285	4.3753	1.5072	5.8618	0.0000	6,302.2836	6,302.2836	1.9527	0.0171	6,356.2064
Maximum	3.7019	39.0899	29.8959	0.0649	8.6128	1.6382	10.2285	4.3753	1.5072	5.8618	0.0000	6,302.2836	6,302.2836	1.9527	0.0171	6,356.2064

	ROG	NOx	CO	SO2	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	0.00	0.00	0.00	0.00	56.68	0.00	52.42	56.95	0.00	49.68	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2022	6/10/2022	5	30	a
2	Site Preparation	Site Preparation	6/11/2022	7/11/2022	5	21	b
3	Grading	Grading	7/12/2022	9/30/2022	5	59	c
4	Trenching	Trenching	10/1/2022	11/15/2022	5	32	d
5	Fencing	Trenching	10/1/2022	11/15/2022	5	32	e
6	Paving	Paving	11/16/2022	12/16/2022	5	23	f

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Acres of Grading (Site Preparation Phase): 31.5**

**Acres of Grading (Grading Phase): 177**

**Acres of Paving: 2.09**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating**

**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	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Fencing	Cranes	1	7.00	231	0.29
Fencing	Forklifts	0	8.00	89	0.20
Fencing	Generator Sets	0	8.00	84	0.74
Fencing	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Fencing	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
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

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fencing	3	8.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

**3.2 Demolition - 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	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
<b>Total</b>	<b>2.6392</b>	<b>25.7194</b>	<b>20.5941</b>	<b>0.0388</b>		<b>1.2427</b>	<b>1.2427</b>		<b>1.1553</b>	<b>1.1553</b>		<b>3,746.7812</b>	<b>3,746.7812</b>	<b>1.0524</b>		<b>3,773.0920</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0519	0.0379	0.5904	1.5300e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		155.0163	155.0163	4.2200e-003	3.7500e-003	156.2404
<b>Total</b>	<b>0.0598</b>	<b>0.2338</b>	<b>0.6576</b>	<b>2.3100e-003</b>	<b>0.1933</b>	<b>2.9400e-003</b>	<b>0.1962</b>	<b>0.0519</b>	<b>2.7800e-003</b>	<b>0.0546</b>		<b>239.2009</b>	<b>239.2009</b>	<b>7.0300e-003</b>	<b>0.0159</b>	<b>244.1105</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
<b>Total</b>	<b>2.6392</b>	<b>25.7194</b>	<b>20.5941</b>	<b>0.0388</b>		<b>1.2427</b>	<b>1.2427</b>		<b>1.1553</b>	<b>1.1553</b>	<b>0.0000</b>	<b>3,746.7812</b>	<b>3,746.7812</b>	<b>1.0524</b>		<b>3,773.0920</b>



Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0519	0.0379	0.5904	1.5300e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		155.0163	155.0163	4.2200e-003	3.7500e-003	156.2404
<b>Total</b>	<b>0.0598</b>	<b>0.2338</b>	<b>0.6576</b>	<b>2.3100e-003</b>	<b>0.1785</b>	<b>2.9400e-003</b>	<b>0.1815</b>	<b>0.0482</b>	<b>2.7800e-003</b>	<b>0.0510</b>		<b>239.2009</b>	<b>239.2009</b>	<b>7.0300e-003</b>	<b>0.0159</b>	<b>244.1105</b>

**3.3 Site Preparation - 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					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
<b>Total</b>	<b>3.1701</b>	<b>33.0835</b>	<b>19.6978</b>	<b>0.0380</b>	<b>19.6570</b>	<b>1.6126</b>	<b>21.2696</b>	<b>10.1025</b>	<b>1.4836</b>	<b>11.5860</b>		<b>3,686.0619</b>	<b>3,686.0619</b>	<b>1.1922</b>		<b>3,715.8655</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0623	0.0455	0.7085	1.8400e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		186.0196	186.0196	5.0700e-003	4.5000e-003	187.4885
<b>Total</b>	<b>0.0702</b>	<b>0.2414</b>	<b>0.7756</b>	<b>2.6200e-003</b>	<b>0.2268</b>	<b>3.1600e-003</b>	<b>0.2300</b>	<b>0.0607</b>	<b>2.9800e-003</b>	<b>0.0637</b>		<b>270.2042</b>	<b>270.2042</b>	<b>7.8800e-003</b>	<b>0.0166</b>	<b>275.3585</b>

**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					8.4034	0.0000	8.4034	4.3188	0.0000	4.3188			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
<b>Total</b>	<b>3.1701</b>	<b>33.0835</b>	<b>19.6978</b>	<b>0.0380</b>	<b>8.4034</b>	<b>1.6126</b>	<b>10.0159</b>	<b>4.3188</b>	<b>1.4836</b>	<b>5.8024</b>	<b>0.0000</b>	<b>3,686.0619</b>	<b>3,686.0619</b>	<b>1.1922</b>		<b>3,715.8655</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0623	0.0455	0.7085	1.8400e-003	0.1855	1.2900e-003	0.1867	0.0495	1.1900e-003	0.0507		186.0196	186.0196	5.0700e-003	4.5000e-003	187.4885
<b>Total</b>	<b>0.0702</b>	<b>0.2414</b>	<b>0.7756</b>	<b>2.6200e-003</b>	<b>0.2094</b>	<b>3.1600e-003</b>	<b>0.2126</b>	<b>0.0565</b>	<b>2.9800e-003</b>	<b>0.0594</b>		<b>270.2042</b>	<b>270.2042</b>	<b>7.8800e-003</b>	<b>0.0166</b>	<b>275.3585</b>

**3.4 Grading - 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					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
<b>Total</b>	<b>3.6248</b>	<b>38.8435</b>	<b>29.0415</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.6349</b>	<b>10.8385</b>	<b>3.6538</b>	<b>1.5041</b>	<b>5.1579</b>		<b>6,011.4105</b>	<b>6,011.4105</b>	<b>1.9442</b>		<b>6,060.0158</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0692	0.0505	0.7872	2.0400e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		206.6884	206.6884	5.6300e-003	5.0000e-003	208.3205
<b>Total</b>	<b>0.0771</b>	<b>0.2465</b>	<b>0.8543</b>	<b>2.8200e-003</b>	<b>0.2492</b>	<b>3.3000e-003</b>	<b>0.2525</b>	<b>0.0667</b>	<b>3.1100e-003</b>	<b>0.0698</b>		<b>290.8730</b>	<b>290.8730</b>	<b>8.4400e-003</b>	<b>0.0171</b>	<b>296.1906</b>

**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					3.9345	0.0000	3.9345	1.5620	0.0000	1.5620			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
<b>Total</b>	<b>3.6248</b>	<b>38.8435</b>	<b>29.0415</b>	<b>0.0621</b>	<b>3.9345</b>	<b>1.6349</b>	<b>5.5694</b>	<b>1.5620</b>	<b>1.5041</b>	<b>3.0661</b>	<b>0.0000</b>	<b>6,011.4105</b>	<b>6,011.4105</b>	<b>1.9442</b>		<b>6,060.0158</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.8700e-003	0.1959	0.0672	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7600e-003		84.1846	84.1846	2.8100e-003	0.0121	87.8701
Worker	0.0692	0.0505	0.7872	2.0400e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		206.6884	206.6884	5.6300e-003	5.0000e-003	208.3205
<b>Total</b>	<b>0.0771</b>	<b>0.2465</b>	<b>0.8543</b>	<b>2.8200e-003</b>	<b>0.2300</b>	<b>3.3000e-003</b>	<b>0.2333</b>	<b>0.0620</b>	<b>3.1100e-003</b>	<b>0.0651</b>		<b>290.8730</b>	<b>290.8730</b>	<b>8.4400e-003</b>	<b>0.0171</b>	<b>296.1906</b>

**3.5 Trenching - 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	0.7277	6.7594	5.1979	6.7400e-003		0.4789	0.4789		0.4406	0.4406		653.8989	653.8989	0.2115		659.1860
<b>Total</b>	<b>0.7277</b>	<b>6.7594</b>	<b>5.1979</b>	<b>6.7400e-003</b>		<b>0.4789</b>	<b>0.4789</b>		<b>0.4406</b>	<b>0.4406</b>		<b>653.8989</b>	<b>653.8989</b>	<b>0.2115</b>		<b>659.1860</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0173	0.0126	0.1968	5.1000e-004	0.0559	3.6000e-004	0.0563	0.0148	3.3000e-004	0.0152		51.6721	51.6721	1.4100e-003	1.2500e-003	52.0801
<b>Total</b>	<b>0.0173</b>	<b>0.0126</b>	<b>0.1968</b>	<b>5.1000e-004</b>	<b>0.0559</b>	<b>3.6000e-004</b>	<b>0.0563</b>	<b>0.0148</b>	<b>3.3000e-004</b>	<b>0.0152</b>		<b>51.6721</b>	<b>51.6721</b>	<b>1.4100e-003</b>	<b>1.2500e-003</b>	<b>52.0801</b>

**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	0.7277	6.7594	5.1979	6.7400e-003		0.4789	0.4789		0.4406	0.4406	0.0000	653.8989	653.8989	0.2115		659.1860
<b>Total</b>	<b>0.7277</b>	<b>6.7594</b>	<b>5.1979</b>	<b>6.7400e-003</b>		<b>0.4789</b>	<b>0.4789</b>		<b>0.4406</b>	<b>0.4406</b>	<b>0.0000</b>	<b>653.8989</b>	<b>653.8989</b>	<b>0.2115</b>		<b>659.1860</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0173	0.0126	0.1968	5.1000e-004	0.0515	3.6000e-004	0.0519	0.0138	3.3000e-004	0.0141		51.6721	51.6721	1.4100e-003	1.2500e-003	52.0801
<b>Total</b>	<b>0.0173</b>	<b>0.0126</b>	<b>0.1968</b>	<b>5.1000e-004</b>	<b>0.0515</b>	<b>3.6000e-004</b>	<b>0.0519</b>	<b>0.0138</b>	<b>3.3000e-004</b>	<b>0.0141</b>		<b>51.6721</b>	<b>51.6721</b>	<b>1.4100e-003</b>	<b>1.2500e-003</b>	<b>52.0801</b>

**3.6 Fencing - 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	0.7472	6.5903	5.3098	0.0103		0.2948	0.2948		0.2763	0.2763		960.0384	960.0384	0.2682		966.7438
<b>Total</b>	<b>0.7472</b>	<b>6.5903</b>	<b>5.3098</b>	<b>0.0103</b>		<b>0.2948</b>	<b>0.2948</b>		<b>0.2763</b>	<b>0.2763</b>		<b>960.0384</b>	<b>960.0384</b>	<b>0.2682</b>		<b>966.7438</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	5.9000e-003	0.1470	0.0504	5.9000e-004	0.0192	1.4000e-003	0.0206	5.5300e-003	1.3400e-003	6.8700e-003		63.1385	63.1385	2.1100e-003	9.1000e-003	65.9025
Worker	0.0277	0.0202	0.3149	8.2000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		82.6754	82.6754	2.2500e-003	2.0000e-003	83.3282
<b>Total</b>	<b>0.0336</b>	<b>0.1672</b>	<b>0.3653</b>	<b>1.4100e-003</b>	<b>0.1086</b>	<b>1.9700e-003</b>	<b>0.1106</b>	<b>0.0292</b>	<b>1.8700e-003</b>	<b>0.0311</b>		<b>145.8138</b>	<b>145.8138</b>	<b>4.3600e-003</b>	<b>0.0111</b>	<b>149.2308</b>

**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	0.7472	6.5903	5.3098	0.0103		0.2948	0.2948		0.2763	0.2763	0.0000	960.0384	960.0384	0.2682		966.7438
<b>Total</b>	<b>0.7472</b>	<b>6.5903</b>	<b>5.3098</b>	<b>0.0103</b>		<b>0.2948</b>	<b>0.2948</b>		<b>0.2763</b>	<b>0.2763</b>	<b>0.0000</b>	<b>960.0384</b>	<b>960.0384</b>	<b>0.2682</b>		<b>966.7438</b>



Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	5.9000e-003	0.1470	0.0504	5.9000e-004	0.0180	1.4000e-003	0.0194	5.2300e-003	1.3400e-003	6.5700e-003		63.1385	63.1385	2.1100e-003	9.1000e-003	65.9025
Worker	0.0277	0.0202	0.3149	8.2000e-004	0.0824	5.7000e-004	0.0830	0.0220	5.3000e-004	0.0225		82.6754	82.6754	2.2500e-003	2.0000e-003	83.3282
<b>Total</b>	<b>0.0336</b>	<b>0.1672</b>	<b>0.3653</b>	<b>1.4100e-003</b>	<b>0.1004</b>	<b>1.9700e-003</b>	<b>0.1024</b>	<b>0.0272</b>	<b>1.8700e-003</b>	<b>0.0291</b>		<b>145.8138</b>	<b>145.8138</b>	<b>4.3600e-003</b>	<b>0.0111</b>	<b>149.2308</b>

**3.7 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	1.1910	11.6772	15.0432	0.0239		0.5894	0.5894		0.5439	0.5439		2,283.4348	2,283.4348	0.7219		2,301.4815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.1910</b>	<b>11.6772</b>	<b>15.0432</b>	<b>0.0239</b>		<b>0.5894</b>	<b>0.5894</b>		<b>0.5439</b>	<b>0.5439</b>		<b>2,283.4348</b>	<b>2,283.4348</b>	<b>0.7219</b>		<b>2,301.4815</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0692	0.0505	0.7872	2.0400e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		206.6884	206.6884	5.6300e-003	5.0000e-003	208.3205
<b>Total</b>	<b>0.0692</b>	<b>0.0505</b>	<b>0.7872</b>	<b>2.0400e-003</b>	<b>0.2236</b>	<b>1.4300e-003</b>	<b>0.2250</b>	<b>0.0593</b>	<b>1.3200e-003</b>	<b>0.0606</b>		<b>206.6884</b>	<b>206.6884</b>	<b>5.6300e-003</b>	<b>5.0000e-003</b>	<b>208.3205</b>

**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	1.1910	11.6772	15.0432	0.0239		0.5894	0.5894		0.5439	0.5439	0.0000	2,283.4348	2,283.4348	0.7219		2,301.4815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.1910</b>	<b>11.6772</b>	<b>15.0432</b>	<b>0.0239</b>		<b>0.5894</b>	<b>0.5894</b>		<b>0.5439</b>	<b>0.5439</b>	<b>0.0000</b>	<b>2,283.4348</b>	<b>2,283.4348</b>	<b>0.7219</b>		<b>2,301.4815</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0692	0.0505	0.7872	2.0400e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		206.6884	206.6884	5.6300e-003	5.0000e-003	208.3205
<b>Total</b>	<b>0.0692</b>	<b>0.0505</b>	<b>0.7872</b>	<b>2.0400e-003</b>	<b>0.2061</b>	<b>1.4300e-003</b>	<b>0.2075</b>	<b>0.0550</b>	<b>1.3200e-003</b>	<b>0.0563</b>		<b>206.6884</b>	<b>206.6884</b>	<b>5.6300e-003</b>	<b>5.0000e-003</b>	<b>208.3205</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Driving Range) Construction Run**  
 Los Angeles-South Coast County, Winter

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	91.04	1000sqft	2.09	91,040.00	0
Golf Course	6.91	Acre	6.91	300,999.60	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2022
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MWhr)</b>	872.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on information provided by applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Trips and VMT - assuming 4 vt/water truck/day. Fencing bendor trips based on vendor trip rate for building construction activities and hardscape area.

Grading -

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	5462	960
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	30.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	20.00	59.00
tblConstructionPhase	NumDays	20.00	23.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00

**2.0 Emissions Summary**

**2.1 Overall Construction (Maximum Daily Emission)**

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.7067	39.1033	29.8337	0.0648	19.8838	1.6382	21.4996	10.1632	1.5072	11.6497	0.0000	6,291.3874	6,291.3874	1.9527	0.0175	6,345.4187
Maximum	3.7067	39.1033	29.8337	0.0648	19.8838	1.6382	21.4996	10.1632	1.5072	11.6497	0.0000	6,291.3874	6,291.3874	1.9527	0.0175	6,345.4187

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					
2022	3.7067	39.1033	29.8337	0.0648	8.6128	1.6382	10.2285	4.3753	1.5072	5.8618	0.0000	6,291.3874	6,291.3874	1.9527	0.0175	6,345.4187
Maximum	3.7067	39.1033	29.8337	0.0648	8.6128	1.6382	10.2285	4.3753	1.5072	5.8618	0.0000	6,291.3874	6,291.3874	1.9527	0.0175	6,345.4187

	ROG	NOx	CO	SO2	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	0.00	0.00	0.00	0.00	56.68	0.00	52.42	56.95	0.00	49.68	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	5/1/2022	6/10/2022	5	30	a
2	Site Preparation	Site Preparation	6/11/2022	7/11/2022	5	21	b
3	Grading	Grading	7/12/2022	9/30/2022	5	59	c
4	Trenching	Trenching	10/1/2022	11/15/2022	5	32	d
5	Fencing	Trenching	10/1/2022	11/15/2022	5	32	e
6	Paving	Paving	11/16/2022	12/16/2022	5	23	f

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Acres of Grading (Site Preparation Phase): 31.5**

**Acres of Grading (Grading Phase): 177**

**Acres of Paving: 2.09**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating**

**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	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Trenchers	2	8.00	78	0.50
Fencing	Cranes	1	7.00	231	0.29
Fencing	Forklifts	0	8.00	89	0.20
Fencing	Generator Sets	0	8.00	84	0.74
Fencing	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Fencing	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
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

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Fencing	3	8.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

- Replace Ground Cover
- Water Exposed Area
- Reduce Vehicle Speed on Unpaved Roads
- Clean Paved Roads

**3.2 Demolition - 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	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
<b>Total</b>	<b>2.6392</b>	<b>25.7194</b>	<b>20.5941</b>	<b>0.0388</b>		<b>1.2427</b>	<b>1.2427</b>		<b>1.1553</b>	<b>1.1553</b>		<b>3,746.7812</b>	<b>3,746.7812</b>	<b>1.0524</b>		<b>3,773.0920</b>



Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0556	0.0419	0.5421	1.4500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		146.8205	146.8205	4.2700e-003	4.0100e-003	148.1225
<b>Total</b>	<b>0.0633</b>	<b>0.2459</b>	<b>0.6116</b>	<b>2.2300e-003</b>	<b>0.1933</b>	<b>2.9400e-003</b>	<b>0.1962</b>	<b>0.0519</b>	<b>2.7800e-003</b>	<b>0.0546</b>		<b>231.0367</b>	<b>231.0367</b>	<b>7.0700e-003</b>	<b>0.0162</b>	<b>236.0286</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
<b>Total</b>	<b>2.6392</b>	<b>25.7194</b>	<b>20.5941</b>	<b>0.0388</b>		<b>1.2427</b>	<b>1.2427</b>		<b>1.1553</b>	<b>1.1553</b>	<b>0.0000</b>	<b>3,746.7812</b>	<b>3,746.7812</b>	<b>1.0524</b>		<b>3,773.0920</b>

**Mitigated Construction Off-Site**

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive 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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0556	0.0419	0.5421	1.4500e-003	0.1546	1.0700e-003	0.1556	0.0413	9.9000e-004	0.0422		146.8205	146.8205	4.2700e-003	4.0100e-003	148.1225
<b>Total</b>	<b>0.0633</b>	<b>0.2459</b>	<b>0.6116</b>	<b>2.2300e-003</b>	<b>0.1785</b>	<b>2.9400e-003</b>	<b>0.1815</b>	<b>0.0482</b>	<b>2.7800e-003</b>	<b>0.0510</b>		<b>231.0367</b>	<b>231.0367</b>	<b>7.0700e-003</b>	<b>0.0162</b>	<b>236.0286</b>

**3.3 Site Preparation - 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					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
<b>Total</b>	<b>3.1701</b>	<b>33.0835</b>	<b>19.6978</b>	<b>0.0380</b>	<b>19.6570</b>	<b>1.6126</b>	<b>21.2696</b>	<b>10.1025</b>	<b>1.4836</b>	<b>11.5860</b>		<b>3,686.0619</b>	<b>3,686.0619</b>	<b>1.1922</b>		<b>3,715.8655</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0667	0.0502	0.6505	1.7400e-003	0.2012	1.2900e-003	0.2025	0.0534	1.1900e-003	0.0545		176.1846	176.1846	5.1300e-003	4.8100e-003	177.7470
<b>Total</b>	<b>0.0745</b>	<b>0.2543</b>	<b>0.7200</b>	<b>2.5200e-003</b>	<b>0.2268</b>	<b>3.1600e-003</b>	<b>0.2300</b>	<b>0.0607</b>	<b>2.9800e-003</b>	<b>0.0637</b>		<b>260.4008</b>	<b>260.4008</b>	<b>7.9300e-003</b>	<b>0.0170</b>	<b>265.6531</b>

**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					8.4034	0.0000	8.4034	4.3188	0.0000	4.3188			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
<b>Total</b>	<b>3.1701</b>	<b>33.0835</b>	<b>19.6978</b>	<b>0.0380</b>	<b>8.4034</b>	<b>1.6126</b>	<b>10.0159</b>	<b>4.3188</b>	<b>1.4836</b>	<b>5.8024</b>	<b>0.0000</b>	<b>3,686.0619</b>	<b>3,686.0619</b>	<b>1.1922</b>		<b>3,715.8655</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0667	0.0502	0.6505	1.7400e-003	0.1855	1.2900e-003	0.1867	0.0495	1.1900e-003	0.0507		176.1846	176.1846	5.1300e-003	4.8100e-003	177.7470
<b>Total</b>	<b>0.0745</b>	<b>0.2543</b>	<b>0.7200</b>	<b>2.5200e-003</b>	<b>0.2094</b>	<b>3.1600e-003</b>	<b>0.2126</b>	<b>0.0565</b>	<b>2.9800e-003</b>	<b>0.0595</b>		<b>260.4008</b>	<b>260.4008</b>	<b>7.9300e-003</b>	<b>0.0170</b>	<b>265.6531</b>

**3.4 Grading - 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					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
<b>Total</b>	<b>3.6248</b>	<b>38.8435</b>	<b>29.0415</b>	<b>0.0621</b>	<b>9.2036</b>	<b>1.6349</b>	<b>10.8385</b>	<b>3.6538</b>	<b>1.5041</b>	<b>5.1579</b>		<b>6,011.4105</b>	<b>6,011.4105</b>	<b>1.9442</b>		<b>6,060.0158</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0256	1.8700e-003	0.0275	7.3800e-003	1.7900e-003	9.1700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0741	0.0558	0.7227	1.9400e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		195.7606	195.7606	5.7000e-003	5.3500e-003	197.4967
<b>Total</b>	<b>0.0819</b>	<b>0.2598</b>	<b>0.7922</b>	<b>2.7200e-003</b>	<b>0.2492</b>	<b>3.3000e-003</b>	<b>0.2525</b>	<b>0.0667</b>	<b>3.1100e-003</b>	<b>0.0698</b>		<b>279.9769</b>	<b>279.9769</b>	<b>8.5000e-003</b>	<b>0.0175</b>	<b>285.4028</b>

**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					3.9345	0.0000	3.9345	1.5620	0.0000	1.5620			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
<b>Total</b>	<b>3.6248</b>	<b>38.8435</b>	<b>29.0415</b>	<b>0.0621</b>	<b>3.9345</b>	<b>1.6349</b>	<b>5.5694</b>	<b>1.5620</b>	<b>1.5041</b>	<b>3.0661</b>	<b>0.0000</b>	<b>6,011.4105</b>	<b>6,011.4105</b>	<b>1.9442</b>		<b>6,060.0158</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	7.7800e-003	0.2040	0.0695	7.8000e-004	0.0240	1.8700e-003	0.0259	6.9700e-003	1.7900e-003	8.7700e-003		84.2163	84.2163	2.8000e-003	0.0122	87.9061
Worker	0.0741	0.0558	0.7227	1.9400e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		195.7606	195.7606	5.7000e-003	5.3500e-003	197.4967
<b>Total</b>	<b>0.0819</b>	<b>0.2598</b>	<b>0.7922</b>	<b>2.7200e-003</b>	<b>0.2300</b>	<b>3.3000e-003</b>	<b>0.2333</b>	<b>0.0620</b>	<b>3.1100e-003</b>	<b>0.0651</b>		<b>279.9769</b>	<b>279.9769</b>	<b>8.5000e-003</b>	<b>0.0175</b>	<b>285.4028</b>

**3.5 Trenching - 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	0.7277	6.7594	5.1979	6.7400e-003		0.4789	0.4789		0.4406	0.4406		653.8989	653.8989	0.2115		659.1860
<b>Total</b>	<b>0.7277</b>	<b>6.7594</b>	<b>5.1979</b>	<b>6.7400e-003</b>		<b>0.4789</b>	<b>0.4789</b>		<b>0.4406</b>	<b>0.4406</b>		<b>653.8989</b>	<b>653.8989</b>	<b>0.2115</b>		<b>659.1860</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0185	0.0140	0.1807	4.8000e-004	0.0559	3.6000e-004	0.0563	0.0148	3.3000e-004	0.0152		48.9402	48.9402	1.4200e-003	1.3400e-003	49.3742
<b>Total</b>	<b>0.0185</b>	<b>0.0140</b>	<b>0.1807</b>	<b>4.8000e-004</b>	<b>0.0559</b>	<b>3.6000e-004</b>	<b>0.0563</b>	<b>0.0148</b>	<b>3.3000e-004</b>	<b>0.0152</b>		<b>48.9402</b>	<b>48.9402</b>	<b>1.4200e-003</b>	<b>1.3400e-003</b>	<b>49.3742</b>

**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	0.7277	6.7594	5.1979	6.7400e-003		0.4789	0.4789		0.4406	0.4406	0.0000	653.8989	653.8989	0.2115		659.1860
<b>Total</b>	<b>0.7277</b>	<b>6.7594</b>	<b>5.1979</b>	<b>6.7400e-003</b>		<b>0.4789</b>	<b>0.4789</b>		<b>0.4406</b>	<b>0.4406</b>	<b>0.0000</b>	<b>653.8989</b>	<b>653.8989</b>	<b>0.2115</b>		<b>659.1860</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0185	0.0140	0.1807	4.8000e-004	0.0515	3.6000e-004	0.0519	0.0138	3.3000e-004	0.0141		48.9402	48.9402	1.4200e-003	1.3400e-003	49.3742
<b>Total</b>	<b>0.0185</b>	<b>0.0140</b>	<b>0.1807</b>	<b>4.8000e-004</b>	<b>0.0515</b>	<b>3.6000e-004</b>	<b>0.0519</b>	<b>0.0138</b>	<b>3.3000e-004</b>	<b>0.0141</b>		<b>48.9402</b>	<b>48.9402</b>	<b>1.4200e-003</b>	<b>1.3400e-003</b>	<b>49.3742</b>

**3.6 Fencing - 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	0.7472	6.5903	5.3098	0.0103		0.2948	0.2948		0.2763	0.2763		960.0384	960.0384	0.2682		966.7438
<b>Total</b>	<b>0.7472</b>	<b>6.5903</b>	<b>5.3098</b>	<b>0.0103</b>		<b>0.2948</b>	<b>0.2948</b>		<b>0.2763</b>	<b>0.2763</b>		<b>960.0384</b>	<b>960.0384</b>	<b>0.2682</b>		<b>966.7438</b>



Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	5.8300e-003	0.1530	0.0521	5.9000e-004	0.0192	1.4000e-003	0.0206	5.5300e-003	1.3400e-003	6.8800e-003		63.1622	63.1622	2.1000e-003	9.1100e-003	65.9296
Worker	0.0296	0.0223	0.2891	7.7000e-004	0.0894	5.7000e-004	0.0900	0.0237	5.3000e-004	0.0242		78.3043	78.3043	2.2800e-003	2.1400e-003	78.9987
<b>Total</b>	<b>0.0355</b>	<b>0.1753</b>	<b>0.3412</b>	<b>1.3600e-003</b>	<b>0.1086</b>	<b>1.9700e-003</b>	<b>0.1106</b>	<b>0.0292</b>	<b>1.8700e-003</b>	<b>0.0311</b>		<b>141.4665</b>	<b>141.4665</b>	<b>4.3800e-003</b>	<b>0.0113</b>	<b>144.9283</b>

**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	0.7472	6.5903	5.3098	0.0103		0.2948	0.2948		0.2763	0.2763	0.0000	960.0384	960.0384	0.2682		966.7438
<b>Total</b>	<b>0.7472</b>	<b>6.5903</b>	<b>5.3098</b>	<b>0.0103</b>		<b>0.2948</b>	<b>0.2948</b>		<b>0.2763</b>	<b>0.2763</b>	<b>0.0000</b>	<b>960.0384</b>	<b>960.0384</b>	<b>0.2682</b>		<b>966.7438</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.0000
Vendor	5.8300e-003	0.1530	0.0521	5.9000e-004	0.0180	1.4000e-003	0.0194	5.2300e-003	1.3400e-003	6.5700e-003		63.1622	63.1622	2.1000e-003	9.1100e-003	65.9296
Worker	0.0296	0.0223	0.2891	7.7000e-004	0.0824	5.7000e-004	0.0830	0.0220	5.3000e-004	0.0225		78.3043	78.3043	2.2800e-003	2.1400e-003	78.9987
<b>Total</b>	<b>0.0355</b>	<b>0.1753</b>	<b>0.3412</b>	<b>1.3600e-003</b>	<b>0.1004</b>	<b>1.9700e-003</b>	<b>0.1024</b>	<b>0.0272</b>	<b>1.8700e-003</b>	<b>0.0291</b>		<b>141.4665</b>	<b>141.4665</b>	<b>4.3800e-003</b>	<b>0.0113</b>	<b>144.9283</b>

**3.7 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	1.1910	11.6772	15.0432	0.0239		0.5894	0.5894		0.5439	0.5439		2,283.4348	2,283.4348	0.7219		2,301.4815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.1910</b>	<b>11.6772</b>	<b>15.0432</b>	<b>0.0239</b>		<b>0.5894</b>	<b>0.5894</b>		<b>0.5439</b>	<b>0.5439</b>		<b>2,283.4348</b>	<b>2,283.4348</b>	<b>0.7219</b>		<b>2,301.4815</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0741	0.0558	0.7227	1.9400e-003	0.2236	1.4300e-003	0.2250	0.0593	1.3200e-003	0.0606		195.7606	195.7606	5.7000e-003	5.3500e-003	197.4967
<b>Total</b>	<b>0.0741</b>	<b>0.0558</b>	<b>0.7227</b>	<b>1.9400e-003</b>	<b>0.2236</b>	<b>1.4300e-003</b>	<b>0.2250</b>	<b>0.0593</b>	<b>1.3200e-003</b>	<b>0.0606</b>		<b>195.7606</b>	<b>195.7606</b>	<b>5.7000e-003</b>	<b>5.3500e-003</b>	<b>197.4967</b>

**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	1.1910	11.6772	15.0432	0.0239		0.5894	0.5894		0.5439	0.5439	0.0000	2,283.4348	2,283.4348	0.7219		2,301.4815
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.1910</b>	<b>11.6772</b>	<b>15.0432</b>	<b>0.0239</b>		<b>0.5894</b>	<b>0.5894</b>		<b>0.5439</b>	<b>0.5439</b>	<b>0.0000</b>	<b>2,283.4348</b>	<b>2,283.4348</b>	<b>0.7219</b>		<b>2,301.4815</b>

Brookside Golf Course Improvements (Driving Range) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	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
Worker	0.0741	0.0558	0.7227	1.9400e-003	0.2061	1.4300e-003	0.2075	0.0550	1.3200e-003	0.0563		195.7606	195.7606	5.7000e-003	5.3500e-003	197.4967
<b>Total</b>	<b>0.0741</b>	<b>0.0558</b>	<b>0.7227</b>	<b>1.9400e-003</b>	<b>0.2061</b>	<b>1.4300e-003</b>	<b>0.2075</b>	<b>0.0550</b>	<b>1.3200e-003</b>	<b>0.0563</b>		<b>195.7606</b>	<b>195.7606</b>	<b>5.7000e-003</b>	<b>5.3500e-003</b>	<b>197.4967</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Mini Golf) Construction Run**  
**Los Angeles-South Coast County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Golf Course	0.49	Acre	0.49	21,518.64	0
Other Non-Asphalt Surfaces	21.50	1000sqft	0.49	21,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MW hr)</b>	872.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Grading -

Trips and VMT - assumes 2vt/water truck/day

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	37.00
tblConstructionPhase	NumDays	5.00	17.00
tblConstructionPhase	NumDays	1.00	15.00
tblConstructionPhase	PhaseEndDate	1/18/2023	3/28/2023
tblConstructionPhase	PhaseEndDate	6/14/2023	4/20/2023
tblConstructionPhase	PhaseEndDate	1/16/2023	2/3/2023
tblConstructionPhase	PhaseStartDate	1/17/2023	2/4/2023
tblConstructionPhase	PhaseStartDate	6/8/2023	3/29/2023
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0338	0.3301	0.2593	5.7000e-004	0.1440	0.0151	0.1592	0.0730	0.0140	0.0870	0.0000	49.7930	49.7930	0.0141	2.4000e-004	50.2167
Maximum	0.0338	0.3301	0.2593	5.7000e-004	0.1440	0.0151	0.1592	0.0730	0.0140	0.0870	0.0000	49.7930	49.7930	0.0141	2.4000e-004	50.2167

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					
2023	0.0338	0.3301	0.2593	5.7000e-004	0.0635	0.0151	0.0787	0.0318	0.0140	0.0457	0.0000	49.7929	49.7929	0.0141	2.4000e-004	50.2166
Maximum	0.0338	0.3301	0.2593	5.7000e-004	0.0635	0.0151	0.0787	0.0318	0.0140	0.0457	0.0000	49.7929	49.7929	0.0141	2.4000e-004	50.2166

	ROG	NOx	CO	SO2	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	0.00	0.00	0.00	0.00	55.89	0.00	50.57	56.52	0.00	47.44	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2023	3-31-2023	0.3112	0.3112
2	4-1-2023	6-30-2023	0.0517	0.0517
		Highest	0.3112	0.3112

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	1/13/2023	5	10	a
2	Site Preparation	Site Preparation	1/14/2023	2/3/2023	5	15	b
3	Grading	Grading	2/4/2023	3/28/2023	5	37	c
4	Trenching	Trenching	3/29/2023	4/11/2023	5	10	d
5	Paving	Paving	3/29/2023	4/20/2023	5	17	e

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 13.88**

**Acres of Paving: 0.49**

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Loaders	1	6.00	203	0.36
Trenching	Trenchers	1	8.00	78	0.50
Grading	Graders	0	6.00	187	0.41
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Paving	Paving Equipment	1	7.00	132	0.36



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

**3.2 Demolition - 2023**

**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	4.8000e-003	0.0454	0.0383	7.0000e-005		2.1300e-003	2.1300e-003		2.0100e-003	2.0100e-003	0.0000	6.5276	6.5276	1.3700e-003	0.0000	6.5620
<b>Total</b>	<b>4.8000e-003</b>	<b>0.0454</b>	<b>0.0383</b>	<b>7.0000e-005</b>		<b>2.1300e-003</b>	<b>2.1300e-003</b>		<b>2.0100e-003</b>	<b>2.0100e-003</b>	<b>0.0000</b>	<b>6.5276</b>	<b>6.5276</b>	<b>1.3700e-003</b>	<b>0.0000</b>	<b>6.5620</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	1.0000e-005	4.0000e-004	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1818	0.1818	1.0000e-005	3.0000e-005	0.1898
Worker	1.3000e-004	1.0000e-004	1.3600e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.3489	0.3489	1.0000e-005	1.0000e-005	0.3518
<b>Total</b>	<b>1.4000e-004</b>	<b>5.0000e-004</b>	<b>1.5100e-003</b>	<b>0.0000</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.0000e-004</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>0.5307</b>	<b>0.5307</b>	<b>2.0000e-005</b>	<b>4.0000e-005</b>	<b>0.5416</b>

**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	4.8000e-003	0.0454	0.0383	7.0000e-005		2.1300e-003	2.1300e-003		2.0100e-003	2.0100e-003	0.0000	6.5276	6.5276	1.3700e-003	0.0000	6.5620
<b>Total</b>	<b>4.8000e-003</b>	<b>0.0454</b>	<b>0.0383</b>	<b>7.0000e-005</b>		<b>2.1300e-003</b>	<b>2.1300e-003</b>		<b>2.0100e-003</b>	<b>2.0100e-003</b>	<b>0.0000</b>	<b>6.5276</b>	<b>6.5276</b>	<b>1.3700e-003</b>	<b>0.0000</b>	<b>6.5620</b>

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**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	1.0000e-005	4.0000e-004	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1818	0.1818	1.0000e-005	3.0000e-005	0.1898
Worker	1.3000e-004	1.0000e-004	1.3600e-003	0.0000	4.0000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3489	0.3489	1.0000e-005	1.0000e-005	0.3518
<b>Total</b>	<b>1.4000e-004</b>	<b>5.0000e-004</b>	<b>1.5100e-003</b>	<b>0.0000</b>	<b>4.6000e-004</b>	<b>0.0000</b>	<b>4.7000e-004</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>0.5307</b>	<b>0.5307</b>	<b>2.0000e-005</b>	<b>4.0000e-005</b>	<b>0.5416</b>

**3.3 Site Preparation - 2023**

**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					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2100e-003	0.0643	0.0398	9.0000e-005		2.9500e-003	2.9500e-003		2.7100e-003	2.7100e-003	0.0000	7.6126	7.6126	2.4600e-003	0.0000	7.6742
<b>Total</b>	<b>6.2100e-003</b>	<b>0.0643</b>	<b>0.0398</b>	<b>9.0000e-005</b>	<b>0.0491</b>	<b>2.9500e-003</b>	<b>0.0521</b>	<b>0.0253</b>	<b>2.7100e-003</b>	<b>0.0280</b>	<b>0.0000</b>	<b>7.6126</b>	<b>7.6126</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.6742</b>

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**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	2.0000e-005	6.0000e-004	2.3000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2727	0.2727	1.0000e-005	4.0000e-005	0.2847
Worker	1.2000e-004	9.0000e-005	1.2800e-003	0.0000	4.1000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3271	0.3271	1.0000e-005	1.0000e-005	0.3299
<b>Total</b>	<b>1.4000e-004</b>	<b>6.9000e-004</b>	<b>1.5100e-003</b>	<b>0.0000</b>	<b>5.0000e-004</b>	<b>0.0000</b>	<b>5.1000e-004</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>0.5998</b>	<b>0.5998</b>	<b>2.0000e-005</b>	<b>5.0000e-005</b>	<b>0.6145</b>

**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					0.0210	0.0000	0.0210	0.0108	0.0000	0.0108	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.2100e-003	0.0643	0.0398	9.0000e-005		2.9500e-003	2.9500e-003		2.7100e-003	2.7100e-003	0.0000	7.6126	7.6126	2.4600e-003	0.0000	7.6741
<b>Total</b>	<b>6.2100e-003</b>	<b>0.0643</b>	<b>0.0398</b>	<b>9.0000e-005</b>	<b>0.0210</b>	<b>2.9500e-003</b>	<b>0.0240</b>	<b>0.0108</b>	<b>2.7100e-003</b>	<b>0.0135</b>	<b>0.0000</b>	<b>7.6126</b>	<b>7.6126</b>	<b>2.4600e-003</b>	<b>0.0000</b>	<b>7.6741</b>

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**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	2.0000e-005	6.0000e-004	2.3000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2727	0.2727	1.0000e-005	4.0000e-005	0.2847
Worker	1.2000e-004	9.0000e-005	1.2800e-003	0.0000	3.8000e-004	0.0000	3.8000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3271	0.3271	1.0000e-005	1.0000e-005	0.3299
<b>Total</b>	<b>1.4000e-004</b>	<b>6.9000e-004</b>	<b>1.5100e-003</b>	<b>0.0000</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>4.7000e-004</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>1.3000e-004</b>	<b>0.0000</b>	<b>0.5998</b>	<b>0.5998</b>	<b>2.0000e-005</b>	<b>5.0000e-005</b>	<b>0.6145</b>

**3.4 Grading - 2023**

**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					0.0909	0.0000	0.0909	0.0467	0.0000	0.0467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1608	0.1003	2.6000e-004		6.9200e-003	6.9200e-003		6.3700e-003	6.3700e-003	0.0000	22.4987	22.4987	7.2800e-003	0.0000	22.6806
<b>Total</b>	<b>0.0157</b>	<b>0.1608</b>	<b>0.1003</b>	<b>2.6000e-004</b>	<b>0.0909</b>	<b>6.9200e-003</b>	<b>0.0978</b>	<b>0.0467</b>	<b>6.3700e-003</b>	<b>0.0531</b>	<b>0.0000</b>	<b>22.4987</b>	<b>22.4987</b>	<b>7.2800e-003</b>	<b>0.0000</b>	<b>22.6806</b>

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**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4900e-003	5.6000e-004	1.0000e-005	2.3000e-004	1.0000e-005	2.4000e-004	7.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.6727	0.6727	2.0000e-005	1.0000e-004	0.7022
Worker	4.7000e-004	3.7000e-004	5.0400e-003	1.0000e-005	1.6200e-003	1.0000e-005	1.6300e-003	4.3000e-004	1.0000e-005	4.4000e-004	0.0000	1.2909	1.2909	3.0000e-005	3.0000e-005	1.3018
<b>Total</b>	<b>5.1000e-004</b>	<b>1.8600e-003</b>	<b>5.6000e-003</b>	<b>2.0000e-005</b>	<b>1.8500e-003</b>	<b>2.0000e-005</b>	<b>1.8700e-003</b>	<b>5.0000e-004</b>	<b>2.0000e-005</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>1.9637</b>	<b>1.9637</b>	<b>5.0000e-005</b>	<b>1.3000e-004</b>	<b>2.0040</b>

**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					0.0389	0.0000	0.0389	0.0200	0.0000	0.0200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0157	0.1608	0.1003	2.6000e-004		6.9200e-003	6.9200e-003		6.3700e-003	6.3700e-003	0.0000	22.4987	22.4987	7.2800e-003	0.0000	22.6806
<b>Total</b>	<b>0.0157</b>	<b>0.1608</b>	<b>0.1003</b>	<b>2.6000e-004</b>	<b>0.0389</b>	<b>6.9200e-003</b>	<b>0.0458</b>	<b>0.0200</b>	<b>6.3700e-003</b>	<b>0.0263</b>	<b>0.0000</b>	<b>22.4987</b>	<b>22.4987</b>	<b>7.2800e-003</b>	<b>0.0000</b>	<b>22.6806</b>

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**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4900e-003	5.6000e-004	1.0000e-005	2.2000e-004	1.0000e-005	2.3000e-004	6.0000e-005	1.0000e-005	7.0000e-005	0.0000	0.6727	0.6727	2.0000e-005	1.0000e-004	0.7022
Worker	4.7000e-004	3.7000e-004	5.0400e-003	1.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.2909	1.2909	3.0000e-005	3.0000e-005	1.3018
<b>Total</b>	<b>5.1000e-004</b>	<b>1.8600e-003</b>	<b>5.6000e-003</b>	<b>2.0000e-005</b>	<b>1.7200e-003</b>	<b>2.0000e-005</b>	<b>1.7400e-003</b>	<b>4.6000e-004</b>	<b>2.0000e-005</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>1.9637</b>	<b>1.9637</b>	<b>5.0000e-005</b>	<b>1.3000e-004</b>	<b>2.0040</b>

**3.5 Trenching - 2023**

**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	1.7300e-003	0.0162	0.0130	2.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	1.4842	1.4842	4.8000e-004	0.0000	1.4962
<b>Total</b>	<b>1.7300e-003</b>	<b>0.0162</b>	<b>0.0130</b>	<b>2.0000e-005</b>		<b>1.1200e-003</b>	<b>1.1200e-003</b>		<b>1.0300e-003</b>	<b>1.0300e-003</b>	<b>0.0000</b>	<b>1.4842</b>	<b>1.4842</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>1.4962</b>

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**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1308	0.1308	0.0000	0.0000	0.1319
<b>Total</b>	<b>5.0000e-005</b>	<b>4.0000e-005</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>1.7000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1308</b>	<b>0.1308</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1319</b>

**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	1.7300e-003	0.0162	0.0130	2.0000e-005		1.1200e-003	1.1200e-003		1.0300e-003	1.0300e-003	0.0000	1.4842	1.4842	4.8000e-004	0.0000	1.4962
<b>Total</b>	<b>1.7300e-003</b>	<b>0.0162</b>	<b>0.0130</b>	<b>2.0000e-005</b>		<b>1.1200e-003</b>	<b>1.1200e-003</b>		<b>1.0300e-003</b>	<b>1.0300e-003</b>	<b>0.0000</b>	<b>1.4842</b>	<b>1.4842</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>1.4962</b>



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**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	4.0000e-005	5.1000e-004	0.0000	1.5000e-004	0.0000	1.5000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1308	0.1308	0.0000	0.0000	0.1319
<b>Total</b>	<b>5.0000e-005</b>	<b>4.0000e-005</b>	<b>5.1000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.1308</b>	<b>0.1308</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.1319</b>

**3.6 Paving - 2023**

**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	4.2000e-003	0.0401	0.0559	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7034	7.7034	2.4300e-003	0.0000	7.7641
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>4.2000e-003</b>	<b>0.0401</b>	<b>0.0559</b>	<b>9.0000e-005</b>		<b>1.9800e-003</b>	<b>1.9800e-003</b>		<b>1.8300e-003</b>	<b>1.8300e-003</b>	<b>0.0000</b>	<b>7.7034</b>	<b>7.7034</b>	<b>2.4300e-003</b>	<b>0.0000</b>	<b>7.7641</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	2.7000e-004	2.1000e-004	2.9000e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.5000e-004	0.0000	0.7414	0.7414	2.0000e-005	2.0000e-005	0.7477
<b>Total</b>	<b>2.7000e-004</b>	<b>2.1000e-004</b>	<b>2.9000e-003</b>	<b>1.0000e-005</b>	<b>9.3000e-004</b>	<b>1.0000e-005</b>	<b>9.4000e-004</b>	<b>2.5000e-004</b>	<b>1.0000e-005</b>	<b>2.5000e-004</b>	<b>0.0000</b>	<b>0.7414</b>	<b>0.7414</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.7477</b>

**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	4.2000e-003	0.0401	0.0559	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7034	7.7034	2.4300e-003	0.0000	7.7641
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>4.2000e-003</b>	<b>0.0401</b>	<b>0.0559</b>	<b>9.0000e-005</b>		<b>1.9800e-003</b>	<b>1.9800e-003</b>		<b>1.8300e-003</b>	<b>1.8300e-003</b>	<b>0.0000</b>	<b>7.7034</b>	<b>7.7034</b>	<b>2.4300e-003</b>	<b>0.0000</b>	<b>7.7641</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	2.7000e-004	2.1000e-004	2.9000e-003	1.0000e-005	8.6000e-004	1.0000e-005	8.6000e-004	2.3000e-004	1.0000e-005	2.3000e-004	0.0000	0.7414	0.7414	2.0000e-005	2.0000e-005	0.7477
<b>Total</b>	<b>2.7000e-004</b>	<b>2.1000e-004</b>	<b>2.9000e-003</b>	<b>1.0000e-005</b>	<b>8.6000e-004</b>	<b>1.0000e-005</b>	<b>8.6000e-004</b>	<b>2.3000e-004</b>	<b>1.0000e-005</b>	<b>2.3000e-004</b>	<b>0.0000</b>	<b>0.7414</b>	<b>0.7414</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.7477</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Mini Golf) Construction Run**  
**Los Angeles-South Coast County, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Golf Course	0.49	Acre	0.49	21,518.64	0
Other Non-Asphalt Surfaces	21.50	1000sqft	0.49	21,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MWhr)</b>	872.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Grading -

Trips and VMT - assumes 2vt/water truck/day

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	37.00
tblConstructionPhase	NumDays	5.00	17.00
tblConstructionPhase	NumDays	1.00	15.00
tblConstructionPhase	PhaseEndDate	1/18/2023	3/28/2023
tblConstructionPhase	PhaseEndDate	6/14/2023	4/20/2023
tblConstructionPhase	PhaseEndDate	1/16/2023	2/3/2023
tblConstructionPhase	PhaseStartDate	1/17/2023	2/4/2023
tblConstructionPhase	PhaseStartDate	6/8/2023	3/29/2023
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	1/13/2023	5	10	a
2	Site Preparation	Site Preparation	1/14/2023	2/3/2023	5	15	b
3	Grading	Grading	2/4/2023	3/28/2023	5	37	c
4	Trenching	Trenching	3/29/2023	4/11/2023	5	10	d
5	Paving	Paving	3/29/2023	4/20/2023	5	17	e

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 13.88**

**Acres of Paving: 0.49**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Loaders	1	6.00	203	0.36
Trenching	Trenchers	1	8.00	78	0.50
Grading	Graders	0	6.00	187	0.41
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Paving	Paving Equipment	1	7.00	132	0.36
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9607	9.0814	7.6606	0.0150		0.4258	0.4258		0.4020	0.4020		1,439.0986	1,439.0986	0.3030		1,446.6724
<b>Total</b>	<b>0.9607</b>	<b>9.0814</b>	<b>7.6606</b>	<b>0.0150</b>		<b>0.4258</b>	<b>0.4258</b>		<b>0.4020</b>	<b>0.4020</b>		<b>1,439.0986</b>	<b>1,439.0986</b>	<b>0.3030</b>		<b>1,446.6724</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0256	0.0179	0.2891	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		80.0060	80.0060	2.0200e-003	1.8500e-003	80.6067
<b>Total</b>	<b>0.0279</b>	<b>0.0946</b>	<b>0.3189</b>	<b>1.1600e-003</b>	<b>0.1022</b>	<b>9.3000e-004</b>	<b>0.1032</b>	<b>0.0274</b>	<b>8.7000e-004</b>	<b>0.0283</b>		<b>120.0625</b>	<b>120.0625</b>	<b>3.3600e-003</b>	<b>7.6100e-003</b>	<b>122.4129</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.9607	9.0814	7.6606	0.0150		0.4258	0.4258		0.4020	0.4020	0.0000	1,439.0986	1,439.0986	0.3030		1,446.6724
<b>Total</b>	<b>0.9607</b>	<b>9.0814</b>	<b>7.6606</b>	<b>0.0150</b>		<b>0.4258</b>	<b>0.4258</b>		<b>0.4020</b>	<b>0.4020</b>	<b>0.0000</b>	<b>1,439.0986</b>	<b>1,439.0986</b>	<b>0.3030</b>		<b>1,446.6724</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0256	0.0179	0.2891	7.9000e-004	0.0824	5.4000e-004	0.0830	0.0220	5.0000e-004	0.0225		80.0060	80.0060	2.0200e-003	1.8500e-003	80.6067
<b>Total</b>	<b>0.0279</b>	<b>0.0946</b>	<b>0.3189</b>	<b>1.1600e-003</b>	<b>0.0944</b>	<b>9.3000e-004</b>	<b>0.0953</b>	<b>0.0255</b>	<b>8.7000e-004</b>	<b>0.0264</b>		<b>120.0625</b>	<b>120.0625</b>	<b>3.3600e-003</b>	<b>7.6100e-003</b>	<b>122.4129</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2023**

**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	0.8280	8.5791	5.3012	0.0116		0.3930	0.3930		0.3615	0.3615		1,118.8599	1,118.8599	0.3619		1,127.9065
<b>Total</b>	<b>0.8280</b>	<b>8.5791</b>	<b>5.3012</b>	<b>0.0116</b>	<b>6.5523</b>	<b>0.3930</b>	<b>6.9453</b>	<b>3.3675</b>	<b>0.3615</b>	<b>3.7290</b>		<b>1,118.8599</b>	<b>1,118.8599</b>	<b>0.3619</b>		<b>1,127.9065</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0160	0.0112	0.1807	4.9000e-004	0.0559	3.4000e-004	0.0562	0.0148	3.1000e-004	0.0151		50.0038	50.0038	1.2600e-003	1.1500e-003	50.3792
<b>Total</b>	<b>0.0183</b>	<b>0.0879</b>	<b>0.2104</b>	<b>8.6000e-004</b>	<b>0.0687</b>	<b>7.3000e-004</b>	<b>0.0694</b>	<b>0.0185</b>	<b>6.8000e-004</b>	<b>0.0192</b>		<b>90.0603</b>	<b>90.0603</b>	<b>2.6000e-003</b>	<b>6.9100e-003</b>	<b>92.1854</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	0.8280	8.5791	5.3012	0.0116		0.3930	0.3930		0.3615	0.3615	0.0000	1,118.8599	1,118.8599	0.3619		1,127.9065
<b>Total</b>	<b>0.8280</b>	<b>8.5791</b>	<b>5.3012</b>	<b>0.0116</b>	<b>2.8011</b>	<b>0.3930</b>	<b>3.1941</b>	<b>1.4396</b>	<b>0.3615</b>	<b>1.8011</b>	<b>0.0000</b>	<b>1,118.8599</b>	<b>1,118.8599</b>	<b>0.3619</b>		<b>1,127.9065</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0160	0.0112	0.1807	4.9000e-004	0.0515	3.4000e-004	0.0519	0.0138	3.1000e-004	0.0141		50.0038	50.0038	1.2600e-003	1.1500e-003	50.3792
<b>Total</b>	<b>0.0183</b>	<b>0.0879</b>	<b>0.2104</b>	<b>8.6000e-004</b>	<b>0.0635</b>	<b>7.3000e-004</b>	<b>0.0642</b>	<b>0.0172</b>	<b>6.8000e-004</b>	<b>0.0179</b>		<b>90.0603</b>	<b>90.0603</b>	<b>2.6000e-003</b>	<b>6.9100e-003</b>	<b>92.1854</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2023**

**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					4.9144	0.0000	4.9144	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.8498	8.6900	5.4202	0.0138		0.3740	0.3740		0.3441	0.3441		1,340.5717	1,340.5717	0.4336		1,351.4109
<b>Total</b>	<b>0.8498</b>	<b>8.6900</b>	<b>5.4202</b>	<b>0.0138</b>	<b>4.9144</b>	<b>0.3740</b>	<b>5.2884</b>	<b>2.5256</b>	<b>0.3441</b>	<b>2.8697</b>		<b>1,340.5717</b>	<b>1,340.5717</b>	<b>0.4336</b>		<b>1,351.4109</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0256	0.0179	0.2891	7.9000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		80.0060	80.0060	2.0200e-003	1.8500e-003	80.6067
<b>Total</b>	<b>0.0279</b>	<b>0.0946</b>	<b>0.3189</b>	<b>1.1600e-003</b>	<b>0.1022</b>	<b>9.3000e-004</b>	<b>0.1032</b>	<b>0.0274</b>	<b>8.7000e-004</b>	<b>0.0283</b>		<b>120.0625</b>	<b>120.0625</b>	<b>3.3600e-003</b>	<b>7.6100e-003</b>	<b>122.4129</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					2.1009	0.0000	2.1009	1.0797	0.0000	1.0797			0.0000			0.0000
Off-Road	0.8498	8.6900	5.4202	0.0138		0.3740	0.3740		0.3441	0.3441	0.0000	1,340.5717	1,340.5717	0.4336		1,351.4109
<b>Total</b>	<b>0.8498</b>	<b>8.6900</b>	<b>5.4202</b>	<b>0.0138</b>	<b>2.1009</b>	<b>0.3740</b>	<b>2.4749</b>	<b>1.0797</b>	<b>0.3441</b>	<b>1.4238</b>	<b>0.0000</b>	<b>1,340.5717</b>	<b>1,340.5717</b>	<b>0.4336</b>		<b>1,351.4109</b>

**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	0.0000
Vendor	2.3000e-003	0.0768	0.0297	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.0565	40.0565	1.3400e-003	5.7600e-003	41.8062
Worker	0.0256	0.0179	0.2891	7.9000e-004	0.0824	5.4000e-004	0.0830	0.0220	5.0000e-004	0.0225		80.0060	80.0060	2.0200e-003	1.8500e-003	80.6067
<b>Total</b>	<b>0.0279</b>	<b>0.0946</b>	<b>0.3189</b>	<b>1.1600e-003</b>	<b>0.0944</b>	<b>9.3000e-004</b>	<b>0.0953</b>	<b>0.0255</b>	<b>8.7000e-004</b>	<b>0.0264</b>		<b>120.0625</b>	<b>120.0625</b>	<b>3.3600e-003</b>	<b>7.6100e-003</b>	<b>122.4129</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Trenching - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3467	3.2332	2.5921	3.3800e-003		0.2243	0.2243		0.2064	0.2064		327.1999	327.1999	0.1058		329.8454
<b>Total</b>	<b>0.3467</b>	<b>3.2332</b>	<b>2.5921</b>	<b>3.3800e-003</b>		<b>0.2243</b>	<b>0.2243</b>		<b>0.2064</b>	<b>0.2064</b>		<b>327.1999</b>	<b>327.1999</b>	<b>0.1058</b>		<b>329.8454</b>

**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	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
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
<b>Total</b>	<b>9.6000e-003</b>	<b>6.6900e-003</b>	<b>0.1084</b>	<b>3.0000e-004</b>	<b>0.0335</b>	<b>2.0000e-004</b>	<b>0.0337</b>	<b>8.8900e-003</b>	<b>1.9000e-004</b>	<b>9.0800e-003</b>		<b>30.0023</b>	<b>30.0023</b>	<b>7.6000e-004</b>	<b>6.9000e-004</b>	<b>30.2275</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.3467	3.2332	2.5921	3.3800e-003		0.2243	0.2243		0.2064	0.2064	0.0000	327.1999	327.1999	0.1058		329.8454
<b>Total</b>	<b>0.3467</b>	<b>3.2332</b>	<b>2.5921</b>	<b>3.3800e-003</b>		<b>0.2243</b>	<b>0.2243</b>		<b>0.2064</b>	<b>0.2064</b>	<b>0.0000</b>	<b>327.1999</b>	<b>327.1999</b>	<b>0.1058</b>		<b>329.8454</b>

**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	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
Worker	9.6000e-003	6.6900e-003	0.1084	3.0000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4300e-003		30.0023	30.0023	7.6000e-004	6.9000e-004	30.2275
<b>Total</b>	<b>9.6000e-003</b>	<b>6.6900e-003</b>	<b>0.1084</b>	<b>3.0000e-004</b>	<b>0.0309</b>	<b>2.0000e-004</b>	<b>0.0311</b>	<b>8.2500e-003</b>	<b>1.9000e-004</b>	<b>8.4300e-003</b>		<b>30.0023</b>	<b>30.0023</b>	<b>7.6000e-004</b>	<b>6.9000e-004</b>	<b>30.2275</b>



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.4939	4.7159	6.5814	0.0105		0.2330	0.2330		0.2152	0.2152		999.0073	999.0073	0.3148			1,006.8768
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
<b>Total</b>	<b>0.4939</b>	<b>4.7159</b>	<b>6.5814</b>	<b>0.0105</b>		<b>0.2330</b>	<b>0.2330</b>		<b>0.2152</b>	<b>0.2152</b>		<b>999.0073</b>	<b>999.0073</b>	<b>0.3148</b>			<b>1,006.8768</b>

**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	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
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
<b>Total</b>	<b>0.0320</b>	<b>0.0223</b>	<b>0.3614</b>	<b>9.9000e-004</b>	<b>0.1118</b>	<b>6.7000e-004</b>	<b>0.1125</b>	<b>0.0296</b>	<b>6.2000e-004</b>	<b>0.0303</b>		<b>100.0075</b>	<b>100.0075</b>	<b>2.5200e-003</b>	<b>2.3100e-003</b>	<b>100.7583</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.4939	4.7159	6.5814	0.0105		0.2330	0.2330		0.2152	0.2152	0.0000	999.0073	999.0073	0.3148		1,006.8768
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.4939</b>	<b>4.7159</b>	<b>6.5814</b>	<b>0.0105</b>		<b>0.2330</b>	<b>0.2330</b>		<b>0.2152</b>	<b>0.2152</b>	<b>0.0000</b>	<b>999.0073</b>	<b>999.0073</b>	<b>0.3148</b>		<b>1,006.8768</b>

**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	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
Worker	0.0320	0.0223	0.3614	9.9000e-004	0.1030	6.7000e-004	0.1037	0.0275	6.2000e-004	0.0281		100.0075	100.0075	2.5200e-003	2.3100e-003	100.7583
<b>Total</b>	<b>0.0320</b>	<b>0.0223</b>	<b>0.3614</b>	<b>9.9000e-004</b>	<b>0.1030</b>	<b>6.7000e-004</b>	<b>0.1037</b>	<b>0.0275</b>	<b>6.2000e-004</b>	<b>0.0281</b>		<b>100.0075</b>	<b>100.0075</b>	<b>2.5200e-003</b>	<b>2.3100e-003</b>	<b>100.7583</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**  
**Brookside Golf Course Improvements (Mini Golf) Construction Run**  
**Los Angeles-South Coast County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Golf Course	0.49	Acre	0.49	21,518.64	0
Other Non-Asphalt Surfaces	21.50	1000sqft	0.49	21,500.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MWhr)</b>	872.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Off-road Equipment - based on info from applicant

Grading -

Trips and VMT - assumes 2vt/water truck/day

Construction Off-road Equipment Mitigation - SCAQMD Rule 403 and Rule 1186

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	2.00	37.00
tblConstructionPhase	NumDays	5.00	17.00
tblConstructionPhase	NumDays	1.00	15.00
tblConstructionPhase	PhaseEndDate	1/18/2023	3/28/2023
tblConstructionPhase	PhaseEndDate	6/14/2023	4/20/2023
tblConstructionPhase	PhaseEndDate	1/16/2023	2/3/2023
tblConstructionPhase	PhaseStartDate	1/17/2023	2/4/2023
tblConstructionPhase	PhaseStartDate	6/8/2023	3/29/2023
tblOffRoadEquipment	LoadFactor	0.40	0.40
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2023	1/13/2023	5	10	a
2	Site Preparation	Site Preparation	1/14/2023	2/3/2023	5	15	b
3	Grading	Grading	2/4/2023	3/28/2023	5	37	c
4	Trenching	Trenching	3/29/2023	4/11/2023	5	10	d
5	Paving	Paving	3/29/2023	4/20/2023	5	17	e

**Acres of Grading (Site Preparation Phase): 7.5**

**Acres of Grading (Grading Phase): 13.88**

**Acres of Paving: 0.49**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Loaders	1	6.00	203	0.36
Trenching	Trenchers	1	8.00	78	0.50
Grading	Graders	0	6.00	187	0.41
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Rubber Tired Dozers	1	6.00	247	0.40

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Paving	Paving Equipment	1	7.00	132	0.36
Demolition	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	1	3.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

**3.1 Mitigation Measures Construction**

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 Demolition - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9607	9.0814	7.6606	0.0150		0.4258	0.4258		0.4020	0.4020		1,439.0986	1,439.0986	0.3030		1,446.6724
<b>Total</b>	<b>0.9607</b>	<b>9.0814</b>	<b>7.6606</b>	<b>0.0150</b>		<b>0.4258</b>	<b>0.4258</b>		<b>0.4020</b>	<b>0.4020</b>		<b>1,439.0986</b>	<b>1,439.0986</b>	<b>0.3030</b>		<b>1,446.6724</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0275	0.0197	0.2658	7.5000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		75.7883	75.7883	2.0500e-003	1.9700e-003	76.4271
<b>Total</b>	<b>0.0297</b>	<b>0.1001</b>	<b>0.2964</b>	<b>1.1200e-003</b>	<b>0.1022</b>	<b>9.3000e-004</b>	<b>0.1032</b>	<b>0.0274</b>	<b>8.7000e-004</b>	<b>0.0283</b>		<b>115.9124</b>	<b>115.9124</b>	<b>3.3900e-003</b>	<b>7.7400e-003</b>	<b>118.3053</b>



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.9607	9.0814	7.6606	0.0150		0.4258	0.4258		0.4020	0.4020	0.0000	1,439.0986	1,439.0986	0.3030		1,446.6724
<b>Total</b>	<b>0.9607</b>	<b>9.0814</b>	<b>7.6606</b>	<b>0.0150</b>		<b>0.4258</b>	<b>0.4258</b>		<b>0.4020</b>	<b>0.4020</b>	<b>0.0000</b>	<b>1,439.0986</b>	<b>1,439.0986</b>	<b>0.3030</b>		<b>1,446.6724</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0275	0.0197	0.2658	7.5000e-004	0.0824	5.4000e-004	0.0830	0.0220	5.0000e-004	0.0225		75.7883	75.7883	2.0500e-003	1.9700e-003	76.4271
<b>Total</b>	<b>0.0297</b>	<b>0.1001</b>	<b>0.2964</b>	<b>1.1200e-003</b>	<b>0.0944</b>	<b>9.3000e-004</b>	<b>0.0953</b>	<b>0.0255</b>	<b>8.7000e-004</b>	<b>0.0264</b>		<b>115.9124</b>	<b>115.9124</b>	<b>3.3900e-003</b>	<b>7.7400e-003</b>	<b>118.3053</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 Site Preparation - 2023**

**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	0.8280	8.5791	5.3012	0.0116		0.3930	0.3930		0.3615	0.3615		1,118.8599	1,118.8599	0.3619		1,127.9065
<b>Total</b>	<b>0.8280</b>	<b>8.5791</b>	<b>5.3012</b>	<b>0.0116</b>	<b>6.5523</b>	<b>0.3930</b>	<b>6.9453</b>	<b>3.3675</b>	<b>0.3615</b>	<b>3.7290</b>		<b>1,118.8599</b>	<b>1,118.8599</b>	<b>0.3619</b>		<b>1,127.9065</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0172	0.0123	0.1661	4.7000e-004	0.0559	3.4000e-004	0.0562	0.0148	3.1000e-004	0.0151		47.3677	47.3677	1.2800e-003	1.2300e-003	47.7670
<b>Total</b>	<b>0.0194</b>	<b>0.0927</b>	<b>0.1968</b>	<b>8.4000e-004</b>	<b>0.0687</b>	<b>7.3000e-004</b>	<b>0.0694</b>	<b>0.0185</b>	<b>6.8000e-004</b>	<b>0.0192</b>		<b>87.4917</b>	<b>87.4917</b>	<b>2.6200e-003</b>	<b>7.0000e-003</b>	<b>89.6452</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					2.8011	0.0000	2.8011	1.4396	0.0000	1.4396			0.0000			0.0000
Off-Road	0.8280	8.5791	5.3012	0.0116		0.3930	0.3930		0.3615	0.3615	0.0000	1,118.8599	1,118.8599	0.3619		1,127.9065
<b>Total</b>	<b>0.8280</b>	<b>8.5791</b>	<b>5.3012</b>	<b>0.0116</b>	<b>2.8011</b>	<b>0.3930</b>	<b>3.1941</b>	<b>1.4396</b>	<b>0.3615</b>	<b>1.8011</b>	<b>0.0000</b>	<b>1,118.8599</b>	<b>1,118.8599</b>	<b>0.3619</b>		<b>1,127.9065</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0172	0.0123	0.1661	4.7000e-004	0.0515	3.4000e-004	0.0519	0.0138	3.1000e-004	0.0141		47.3677	47.3677	1.2800e-003	1.2300e-003	47.7670
<b>Total</b>	<b>0.0194</b>	<b>0.0927</b>	<b>0.1968</b>	<b>8.4000e-004</b>	<b>0.0635</b>	<b>7.3000e-004</b>	<b>0.0642</b>	<b>0.0172</b>	<b>6.8000e-004</b>	<b>0.0179</b>		<b>87.4917</b>	<b>87.4917</b>	<b>2.6200e-003</b>	<b>7.0000e-003</b>	<b>89.6452</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 Grading - 2023**

**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					4.9144	0.0000	4.9144	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	0.8498	8.6900	5.4202	0.0138		0.3740	0.3740		0.3441	0.3441		1,340.5717	1,340.5717	0.4336		1,351.4109
<b>Total</b>	<b>0.8498</b>	<b>8.6900</b>	<b>5.4202</b>	<b>0.0138</b>	<b>4.9144</b>	<b>0.3740</b>	<b>5.2884</b>	<b>2.5256</b>	<b>0.3441</b>	<b>2.8697</b>		<b>1,340.5717</b>	<b>1,340.5717</b>	<b>0.4336</b>		<b>1,351.4109</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0128	3.9000e-004	0.0132	3.6900e-003	3.7000e-004	4.0600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0275	0.0197	0.2658	7.5000e-004	0.0894	5.4000e-004	0.0900	0.0237	5.0000e-004	0.0242		75.7883	75.7883	2.0500e-003	1.9700e-003	76.4271
<b>Total</b>	<b>0.0297</b>	<b>0.1001</b>	<b>0.2964</b>	<b>1.1200e-003</b>	<b>0.1022</b>	<b>9.3000e-004</b>	<b>0.1032</b>	<b>0.0274</b>	<b>8.7000e-004</b>	<b>0.0283</b>		<b>115.9124</b>	<b>115.9124</b>	<b>3.3900e-003</b>	<b>7.7400e-003</b>	<b>118.3053</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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					2.1009	0.0000	2.1009	1.0797	0.0000	1.0797			0.0000				0.0000
Off-Road	0.8498	8.6900	5.4202	0.0138		0.3740	0.3740		0.3441	0.3441	0.0000	1,340.5717	1,340.5717	0.4336			1,351.4109
<b>Total</b>	<b>0.8498</b>	<b>8.6900</b>	<b>5.4202</b>	<b>0.0138</b>	<b>2.1009</b>	<b>0.3740</b>	<b>2.4749</b>	<b>1.0797</b>	<b>0.3441</b>	<b>1.4238</b>	<b>0.0000</b>	<b>1,340.5717</b>	<b>1,340.5717</b>	<b>0.4336</b>			<b>1,351.4109</b>

**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	0.0000
Vendor	2.2200e-003	0.0804	0.0307	3.7000e-004	0.0120	3.9000e-004	0.0124	3.4900e-003	3.7000e-004	3.8600e-003		40.1241	40.1241	1.3400e-003	5.7700e-003	41.8782
Worker	0.0275	0.0197	0.2658	7.5000e-004	0.0824	5.4000e-004	0.0830	0.0220	5.0000e-004	0.0225		75.7883	75.7883	2.0500e-003	1.9700e-003	76.4271
<b>Total</b>	<b>0.0297</b>	<b>0.1001</b>	<b>0.2964</b>	<b>1.1200e-003</b>	<b>0.0944</b>	<b>9.3000e-004</b>	<b>0.0953</b>	<b>0.0255</b>	<b>8.7000e-004</b>	<b>0.0264</b>		<b>115.9124</b>	<b>115.9124</b>	<b>3.3900e-003</b>	<b>7.7400e-003</b>	<b>118.3053</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 Trenching - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3467	3.2332	2.5921	3.3800e-003		0.2243	0.2243		0.2064	0.2064		327.1999	327.1999	0.1058		329.8454
<b>Total</b>	<b>0.3467</b>	<b>3.2332</b>	<b>2.5921</b>	<b>3.3800e-003</b>		<b>0.2243</b>	<b>0.2243</b>		<b>0.2064</b>	<b>0.2064</b>		<b>327.1999</b>	<b>327.1999</b>	<b>0.1058</b>		<b>329.8454</b>

**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	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
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0335	2.0000e-004	0.0337	8.8900e-003	1.9000e-004	9.0800e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
<b>Total</b>	<b>0.0103</b>	<b>7.3900e-003</b>	<b>0.0997</b>	<b>2.8000e-004</b>	<b>0.0335</b>	<b>2.0000e-004</b>	<b>0.0337</b>	<b>8.8900e-003</b>	<b>1.9000e-004</b>	<b>9.0800e-003</b>		<b>28.4206</b>	<b>28.4206</b>	<b>7.7000e-004</b>	<b>7.4000e-004</b>	<b>28.6602</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.3467	3.2332	2.5921	3.3800e-003		0.2243	0.2243		0.2064	0.2064	0.0000	327.1999	327.1999	0.1058		329.8454
<b>Total</b>	<b>0.3467</b>	<b>3.2332</b>	<b>2.5921</b>	<b>3.3800e-003</b>		<b>0.2243</b>	<b>0.2243</b>		<b>0.2064</b>	<b>0.2064</b>	<b>0.0000</b>	<b>327.1999</b>	<b>327.1999</b>	<b>0.1058</b>		<b>329.8454</b>

**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	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
Worker	0.0103	7.3900e-003	0.0997	2.8000e-004	0.0309	2.0000e-004	0.0311	8.2500e-003	1.9000e-004	8.4300e-003		28.4206	28.4206	7.7000e-004	7.4000e-004	28.6602
<b>Total</b>	<b>0.0103</b>	<b>7.3900e-003</b>	<b>0.0997</b>	<b>2.8000e-004</b>	<b>0.0309</b>	<b>2.0000e-004</b>	<b>0.0311</b>	<b>8.2500e-003</b>	<b>1.9000e-004</b>	<b>8.4300e-003</b>		<b>28.4206</b>	<b>28.4206</b>	<b>7.7000e-004</b>	<b>7.4000e-004</b>	<b>28.6602</b>

Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 Paving - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4939	4.7159	6.5814	0.0105		0.2330	0.2330		0.2152	0.2152		999.0073	999.0073	0.3148		1,006.8768
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.4939</b>	<b>4.7159</b>	<b>6.5814</b>	<b>0.0105</b>		<b>0.2330</b>	<b>0.2330</b>		<b>0.2152</b>	<b>0.2152</b>		<b>999.0073</b>	<b>999.0073</b>	<b>0.3148</b>		<b>1,006.8768</b>

**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	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
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1118	6.7000e-004	0.1125	0.0296	6.2000e-004	0.0303		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
<b>Total</b>	<b>0.0344</b>	<b>0.0246</b>	<b>0.3322</b>	<b>9.4000e-004</b>	<b>0.1118</b>	<b>6.7000e-004</b>	<b>0.1125</b>	<b>0.0296</b>	<b>6.2000e-004</b>	<b>0.0303</b>		<b>94.7354</b>	<b>94.7354</b>	<b>2.5600e-003</b>	<b>2.4700e-003</b>	<b>95.5339</b>



Brookside Golf Course Improvements (Mini Golf) Construction Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**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	0.4939	4.7159	6.5814	0.0105		0.2330	0.2330		0.2152	0.2152	0.0000	999.0073	999.0073	0.3148		1,006.8768
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.4939</b>	<b>4.7159</b>	<b>6.5814</b>	<b>0.0105</b>		<b>0.2330</b>	<b>0.2330</b>		<b>0.2152</b>	<b>0.2152</b>	<b>0.0000</b>	<b>999.0073</b>	<b>999.0073</b>	<b>0.3148</b>		<b>1,006.8768</b>

**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	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
Worker	0.0344	0.0246	0.3322	9.4000e-004	0.1030	6.7000e-004	0.1037	0.0275	6.2000e-004	0.0281		94.7354	94.7354	2.5600e-003	2.4700e-003	95.5339
<b>Total</b>	<b>0.0344</b>	<b>0.0246</b>	<b>0.3322</b>	<b>9.4000e-004</b>	<b>0.1030</b>	<b>6.7000e-004</b>	<b>0.1037</b>	<b>0.0275</b>	<b>6.2000e-004</b>	<b>0.0281</b>		<b>94.7354</b>	<b>94.7354</b>	<b>2.5600e-003</b>	<b>2.4700e-003</b>	<b>95.5339</b>

# **CalEEMod Operations Model**

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**  
**Brookside Golf Course Improvements Operational Run**  
**Los Angeles-South Coast County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.54	1000sqft	2.58	112,540.00	0
Golf Course	7.40	Acre	7.40	322,518.24	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MW hr)</b>	872.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase -

Vehicle Trips - based on net increase in trips from applicant

Area Coating - no parking area assumed for project

Water And Wastewater - Sewage generation rates based on a City of LA CEQA Thresholds for a golf course lobby. Considers only new generation from Mini Golf Course

Solid Waste - considers only new generation from Mini Golf Course operations. Assumes driving range operations is intended to meet demand currently at the golf course

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6752	0
tblLandUse	LandUseSquareFeet	322,344.00	322,518.24
tblSolidWaste	SolidWasteGenerationRate	6.88	0.46

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	ST_TR	3.74	54.50
tblVehicleTrips	SU_TR	3.74	54.50
tblVehicleTrips	WD_TR	3.74	54.50
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	0.00	627,800.00
tblWater	OutdoorWaterUseRate	8,816,961.99	0.00
tblWater	SepticTankPercent	10.33	0.00

**2.0 Emissions Summary**

**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	0.0105	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2388	0.2924	2.6302	5.7700e-003	0.5968	4.2200e-003	0.6010	0.1592	3.9200e-003	0.1631	0.0000	539.1676	539.1676	0.0354	0.0228	546.8472
Waste						0.0000	0.0000		0.0000	0.0000	0.0934	0.0000	0.0934	5.5200e-003	0.0000	0.2313
Water						0.0000	0.0000		0.0000	0.0000	0.2221	3.2370	3.4591	8.9000e-004	5.0000e-004	3.6296
<b>Total</b>	<b>0.2492</b>	<b>0.2924</b>	<b>2.6317</b>	<b>5.7700e-003</b>	<b>0.5968</b>	<b>4.2300e-003</b>	<b>0.6010</b>	<b>0.1592</b>	<b>3.9300e-003</b>	<b>0.1631</b>	<b>0.3155</b>	<b>542.4075</b>	<b>542.7230</b>	<b>0.0419</b>	<b>0.0233</b>	<b>550.7113</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0105	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.2388	0.2924	2.6302	5.7700e-003	0.5968	4.2200e-003	0.6010	0.1592	3.9200e-003	0.1631	0.0000	539.1676	539.1676	0.0354	0.0228	546.8472
Waste						0.0000	0.0000		0.0000	0.0000	0.0934	0.0000	0.0934	5.5200e-003	0.0000	0.2313
Water						0.0000	0.0000		0.0000	0.0000	0.2221	3.2370	3.4591	8.9000e-004	5.0000e-004	3.6296
<b>Total</b>	<b>0.2492</b>	<b>0.2924</b>	<b>2.6317</b>	<b>5.7700e-003</b>	<b>0.5968</b>	<b>4.2300e-003</b>	<b>0.6010</b>	<b>0.1592</b>	<b>3.9300e-003</b>	<b>0.1631</b>	<b>0.3155</b>	<b>542.4075</b>	<b>542.7230</b>	<b>0.0419</b>	<b>0.0233</b>	<b>550.7113</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2388	0.2924	2.6302	5.7700e-003	0.5968	4.2200e-003	0.6010	0.1592	3.9200e-003	0.1631	0.0000	539.1676	539.1676	0.0354	0.0228	546.8472
Unmitigated	0.2388	0.2924	2.6302	5.7700e-003	0.5968	4.2200e-003	0.6010	0.1592	3.9200e-003	0.1631	0.0000	539.1676	539.1676	0.0354	0.0228	546.8472



Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
Golf Course	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
Other Non-Asphalt Surfaces	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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					
Golf Course	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
Other Non-Asphalt Surfaces	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0105	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003
Unmitigated	0.0105	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0103					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003
<b>Total</b>	<b>0.0105</b>	<b>1.0000e-005</b>	<b>1.5300e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.9800e-003</b>	<b>2.9800e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.1700e-003</b>



Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0103					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4000e-004	1.0000e-005	1.5300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	2.9800e-003	2.9800e-003	1.0000e-005	0.0000	3.1700e-003
<b>Total</b>	<b>0.0105</b>	<b>1.0000e-005</b>	<b>1.5300e-003</b>	<b>0.0000</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>		<b>1.0000e-005</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>2.9800e-003</b>	<b>2.9800e-003</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>3.1700e-003</b>

**7.0 Water Detail**

**7.1 Mitigation Measures Water**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.4591	8.9000e-004	5.0000e-004	3.6296
Unmitigated	3.4591	8.9000e-004	5.0000e-004	3.6296

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0.6278 / 0	3.4591	8.9000e-004	5.0000e-004	3.6296
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.4591</b>	<b>8.9000e-004</b>	<b>5.0000e-004</b>	<b>3.6296</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Mitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0.6278 / 0	3.4591	8.9000e-004	5.0000e-004	3.6296
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>3.4591</b>	<b>8.9000e-004</b>	<b>5.0000e-004</b>	<b>3.6296</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**Category/Year**

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0934	5.5200e-003	0.0000	0.2313
Unmitigated	0.0934	5.5200e-003	0.0000	0.2313

**8.2 Waste by Land Use**

**Unmitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	0.46	0.0934	5.5200e-003	0.0000	0.2313
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0934</b>	<b>5.5200e-003</b>	<b>0.0000</b>	<b>0.2313</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Annual  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Mitigated**

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	0.46	0.0934	5.5200e-003	0.0000	0.2313
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0934</b>	<b>5.5200e-003</b>	<b>0.0000</b>	<b>0.2313</b>

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**Brookside Golf Course Improvements Operational Run  
Los Angeles-South Coast County, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.54	1000sqft	2.58	112,540.00	0
Golf Course	7.40	Acre	7.40	322,518.24	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MW hr)</b>	872.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase -

Vehicle Trips - based on net increase in trips from applicant

Area Coating - no parking area assumed for project

Water And Wastewater - Sewage generation rates based on a City of LA CEQA Thresholds for a golf course lobby. Considers only new generation from Mini Golf Course

Solid Waste - considers only new generation from Mini Golf Course operations. Assumes driving range operations is intended to meet demand currently at the golf course

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6752	0
tblLandUse	LandUseSquareFeet	322,344.00	322,518.24

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblSolidWaste	SolidWasteGenerationRate	6.88	0.46
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	ST_TR	3.74	54.50
tblVehicleTrips	SU_TR	3.74	54.50
tblVehicleTrips	WD_TR	3.74	54.50
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	0.00	627,800.00
tblWater	OutdoorWaterUseRate	8,816,961.99	0.00
tblWater	SepticTankPercent	10.33	0.00

**2.0 Emissions Summary**

**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	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3534	1.4641	14.7258	0.0328	3.3441	0.0232	3.3673	0.8907	0.0215	0.9123		3,375.4728	3,375.4728	0.2104	0.1312	3,419.8433
<b>Total</b>	<b>1.4110</b>	<b>1.4642</b>	<b>14.7381</b>	<b>0.0328</b>	<b>3.3441</b>	<b>0.0232</b>	<b>3.3674</b>	<b>0.8907</b>	<b>0.0216</b>	<b>0.9123</b>		<b>3,375.4990</b>	<b>3,375.4990</b>	<b>0.2105</b>	<b>0.1312</b>	<b>3,419.8712</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3534	1.4641	14.7258	0.0328	3.3441	0.0232	3.3673	0.8907	0.0215	0.9123		3,375.4728	3,375.4728	0.2104	0.1312	3,419.8433
<b>Total</b>	<b>1.4110</b>	<b>1.4642</b>	<b>14.7381</b>	<b>0.0328</b>	<b>3.3441</b>	<b>0.0232</b>	<b>3.3674</b>	<b>0.8907</b>	<b>0.0216</b>	<b>0.9123</b>		<b>3,375.4990</b>	<b>3,375.4990</b>	<b>0.2105</b>	<b>0.1312</b>	<b>3,419.8712</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3534	1.4641	14.7258	0.0328	3.3441	0.0232	3.3673	0.8907	0.0215	0.9123		3,375.4728	3,375.4728	0.2104	0.1312	3,419.8433
Unmitigated	1.3534	1.4641	14.7258	0.0328	3.3441	0.0232	3.3673	0.8907	0.0215	0.9123		3,375.4728	3,375.4728	0.2104	0.1312	3,419.8433

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	403.30	403.30	403.30	1,588,536	1,588,536
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
<b>Total</b>	<b>403.30</b>	<b>403.30</b>	<b>403.30</b>	<b>1,588,536</b>	<b>1,588,536</b>

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
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374
Other Non-Asphalt Surfaces	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000





Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Unmitigated	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0565					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
<b>Total</b>	<b>0.0576</b>	<b>1.1000e-004</b>	<b>0.0122</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>0.0263</b>	<b>0.0263</b>	<b>7.0000e-005</b>		<b>0.0280</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0565					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
<b>Total</b>	<b>0.0576</b>	<b>1.1000e-004</b>	<b>0.0122</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>0.0263</b>	<b>0.0263</b>	<b>7.0000e-005</b>		<b>0.0280</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**  
**Brookside Golf Course Improvements Operational Run**  
**Los Angeles-South Coast County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	112.54	1000sqft	2.58	112,540.00	0
Golf Course	7.40	Acre	7.40	322,518.24	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.2	<b>Precipitation Freq (Days)</b>	33
<b>Climate Zone</b>	12	<b>Operational Year</b>		2023	
<b>Utility Company</b>	Pasadena Water and Power				
<b>CO2 Intensity (lb/MW hr)</b>	872.98	<b>CH4 Intensity (lb/MW hr)</b>	0.033	<b>N2O Intensity (lb/MW hr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

Project Characteristics -

Land Use -

Construction Phase -

Vehicle Trips - based on net increase in trips from applicant

Area Coating - no parking area assumed for project

Water And Wastewater - Sewage generation rates based on a City of LA CEQA Thresholds for a golf course lobby. Considers only new generation from Mini Golf Course

Solid Waste - considers only new generation from Mini Golf Course operations. Assumes driving range operations is intended to meet demand currently at the golf course

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6752	0
tblLandUse	LandUseSquareFeet	322,344.00	322,518.24

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

tblSolidWaste	SolidWasteGenerationRate	6.88	0.46
tblVehicleTrips	DV_TP	39.00	0.00
tblVehicleTrips	PB_TP	9.00	0.00
tblVehicleTrips	PR_TP	52.00	100.00
tblVehicleTrips	ST_TR	3.74	54.50
tblVehicleTrips	SU_TR	3.74	54.50
tblVehicleTrips	WD_TR	3.74	54.50
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	IndoorWaterUseRate	0.00	627,800.00
tblWater	OutdoorWaterUseRate	8,816,961.99	0.00
tblWater	SepticTankPercent	10.33	0.00

**2.0 Emissions Summary**

**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	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3323	1.5822	14.2983	0.0314	3.3441	0.0232	3.3673	0.8907	0.0216	0.9123		3,230.6324	3,230.6324	0.2155	0.1371	3,276.8754
<b>Total</b>	<b>1.3900</b>	<b>1.5823</b>	<b>14.3105</b>	<b>0.0314</b>	<b>3.3441</b>	<b>0.0233</b>	<b>3.3674</b>	<b>0.8907</b>	<b>0.0216</b>	<b>0.9123</b>		<b>3,230.6587</b>	<b>3,230.6587</b>	<b>0.2156</b>	<b>0.1371</b>	<b>3,276.9034</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.3323	1.5822	14.2983	0.0314	3.3441	0.0232	3.3673	0.8907	0.0216	0.9123		3,230.6324	3,230.6324	0.2155	0.1371	3,276.8754
<b>Total</b>	<b>1.3900</b>	<b>1.5823</b>	<b>14.3105</b>	<b>0.0314</b>	<b>3.3441</b>	<b>0.0233</b>	<b>3.3674</b>	<b>0.8907</b>	<b>0.0216</b>	<b>0.9123</b>		<b>3,230.6587</b>	<b>3,230.6587</b>	<b>0.2156</b>	<b>0.1371</b>	<b>3,276.9034</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.3323	1.5822	14.2983	0.0314	3.3441	0.0232	3.3673	0.8907	0.0216	0.9123		3,230.6324	3,230.6324	0.2155	0.1371	3,276.8754
Unmitigated	1.3323	1.5822	14.2983	0.0314	3.3441	0.0232	3.3673	0.8907	0.0216	0.9123		3,230.6324	3,230.6324	0.2155	0.1371	3,276.8754

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	403.30	403.30	403.30	1,588,536	1,588,536
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
<b>Total</b>	<b>403.30</b>	<b>403.30</b>	<b>403.30</b>	<b>1,588,536</b>	<b>1,588,536</b>

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
Golf Course	16.60	8.40	6.90	33.00	48.00	19.00	100	0	0
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374
Other Non-Asphalt Surfaces	0.544785	0.062844	0.187478	0.127235	0.023089	0.006083	0.010475	0.008012	0.000925	0.000611	0.024394	0.000698	0.003374

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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					
Golf Course	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
Other Non-Asphalt Surfaces	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**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					
Golf Course	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
Other Non-Asphalt Surfaces	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
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
Unmitigated	0.0576	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0565					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
<b>Total</b>	<b>0.0576</b>	<b>1.1000e-004</b>	<b>0.0122</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>0.0263</b>	<b>0.0263</b>	<b>7.0000e-005</b>		<b>0.0280</b>



Brookside Golf Course Improvements Operational Run - Los Angeles-South Coast County, Winter  
**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**

**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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0565					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1300e-003	1.1000e-004	0.0122	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0263	0.0263	7.0000e-005		0.0280
<b>Total</b>	<b>0.0576</b>	<b>1.1000e-004</b>	<b>0.0122</b>	<b>0.0000</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>4.0000e-005</b>	<b>4.0000e-005</b>		<b>0.0263</b>	<b>0.0263</b>	<b>7.0000e-005</b>		<b>0.0280</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

# **LST Worksheets**

**Construction Localized Significance Thresholds: Demolition**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	
8	1.00	25	82	76	250	9.00
<b>Source Receptor Distance (meters)</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
	25	Tractors	0.5	0.0625		0
<b>NOx</b>	<b>69</b>	Tractors	0.5	0.0625		0
<b>CO</b>	<b>535</b>	Graders	0.5	0.0625		0
<b>PM10</b>	<b>19.38</b>	Dozers	0.5	0.0625	8	1
<b>PM2.5</b>	<b>5.57</b>	Scrapers	1	0.125	2	0
					<b>Acres</b>	1.00
	<b>Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	1	69	69	81	104	164
	1	69	69	81	104	164
		69	69	81	104	164
CO	1	535	783	1158	2229	7270
	1	535	783	1158	2229	7270
		535	783	1158	2229	7270
PM10	1	4	11	27	58	152
	1	4	11	27	58	152
		4	11	27	58	152
PM2.5	1	3	4	7	18	77
	1	3	4	7	18	77
		3	4	7	18	77
West San Gabriel Valley	<b>1.00 Acres</b>					
	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	
NOx	69	69	81	104	164	
CO	535	783	1158	2229	7270	
PM10	4	11	27	58	152	
PM2.5	3	4	7	18	77	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	1	8	1
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

**Construction Localized Significance Thresholds: Site Preparation**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	
8	3.50	25	82	76	250	9.00
<b>Source Receptor Distance (meters)</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
	25	Tractors	0.5	0.0625		0
<b>NOx</b>	<b>123</b>	Tractors	0.5	0.0625	8	4
<b>CO</b>	<b>1,176</b>	Graders	0.5	0.0625		0
<b>PM10</b>	<b>36.12</b>	Dozers	0.5	0.0625	8	3
<b>PM2.5</b>	<b>9.36</b>	Scrapers	1	0.125		0
					<b>Acres</b>	<b>3.50</b>
	<b>Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	3	115	110	120	138	186
	4	131	126	135	152	197
		123	118	128	145	192
CO	3	1055	1390	1929	3230	8590
	4	1297	1656	2264	3674	9224
		1176	1523	2097	3452	8907
PM10	3	8	25	40	72	167
	4	10	31	47	79	173
		9	28	44	76	170
PM2.5	3	5	6	11	23	86
	4	6	8	12	25	89
		6	7	12	24	88
West San Gabriel Valley	<b>3.50 Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	123	118	128	145	192	
CO	1176	1523	2097	3452	8907	
PM10	9	28	44	76	170	
PM2.5	6	7	12	24	88	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	3	8	4
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

## Construction Localized Significance Thresholds: Grading

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)	
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)		
8	4.00	25	82	76	250	9.00	
<b>Source Receptor</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>		<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
Distance (meters)	25	Tractors	0.5	0.0625			0
NOx	131	Tractors	0.5	0.0625	8	2	1
CO	1,297	Graders	0.5	0.0625	8	1	0.5
PM10	39.21	Dozers	0.5	0.0625	8	1	0.5
PM2.5	10.11	Scrapers	1	0.125	8	2	2
						<b>Acres</b>	4.00
	Acres	<b>25</b>	<b>50</b>	<b>100</b>		<b>200</b>	<b>500</b>
NOx	4	131	126	135		152	197
	4	131	126	135		152	197
		131	126	135		152	197
CO	4	1297	1656	2264		3674	9224
	4	1297	1656	2264		3674	9224
		1297	1656	2264		3674	9224
PM10	4	10	31	47		79	173
	4	10	31	47		79	173
		10	31	47		79	173
PM2.5	4	6	8	12		25	89
	4	6	8	12		25	89
		6	8	12		25	89
West San Gabriel Valley							
	<b>4.00 Acres</b>						
	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>		<b>500</b>	
NOx	131	126	135	152		197	
CO	1297	1656	2264	3674		9224	
PM10	10	31	47	79		173	
PM2.5	6	8	12	25		89	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	4	8	4
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

**Construction Localized Significance Thresholds: Trenching and Fencing**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)	
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)		
8	0.44	25	82	76	250	9.00	
<b>Source Receptor</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>	
Distance (meters)	25	Tractors	0.5	0.0625	7	1	0.4375
NOx	69	Tractors	0.5	0.0625			0
CO	535	Graders	0.5	0.0625			0
PM10	19.38	Dozers	0.5	0.0625			0
PM2.5	5.57	Scrapers	1	0.125			0
						<b>Acres</b>	0.44
	Acres	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	
NOx	1	69	69	81	104	164	
	1	69	69	81	104	164	
		69	69	81	104	164	
CO	1	535	783	1158	2229	7270	
	1	535	783	1158	2229	7270	
		535	783	1158	2229	7270	
PM10	1	4	11	27	58	152	
	1	4	11	27	58	152	
		4	11	27	58	152	
PM2.5	1	3	4	7	18	77	
	1	3	4	7	18	77	
		3	4	7	18	77	
West San Gabriel Valley	<b>0.44 Acres</b>						
	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>		
NOx	69	69	81	104	164		
CO	535	783	1158	2229	7270		
PM10	4	11	27	58	152		
PM2.5	3	4	7	18	77		

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	1	8	1
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

**Construction Localized Significance Thresholds: Paving**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	
8	0.00	25	82	76	250	9.00
<b>Source Receptor Distance (meters)</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
	25	Tractors	0.5	0.0625		0
<b>NOx</b>	<b>69</b>	Tractors	0.5	0.0625		0
<b>CO</b>	<b>535</b>	Graders	0.5	0.0625		0
<b>PM10</b>	<b>19.38</b>	Dozers	0.5	0.0625		0
<b>PM2.5</b>	<b>5.57</b>	Scrapers	1	0.125		0
					<b>Acres</b>	0.00
	<b>Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	1	69	69	81	104	164
	1	69	69	81	104	164
		69	69	81	104	164
CO	1	535	783	1158	2229	7270
	1	535	783	1158	2229	7270
		535	783	1158	2229	7270
PM10	1	4	11	27	58	152
	1	4	11	27	58	152
		4	11	27	58	152
PM2.5	1	3	4	7	18	77
	1	3	4	7	18	77
		3	4	7	18	77
West San Gabriel Valley	<b>0.00 Acres</b>					
	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	
NOx	69	69	81	104	164	
CO	535	783	1158	2229	7270	
PM10	4	11	27	58	152	
PM2.5	3	4	7	18	77	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	1	8	1
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008

**Construction Localized Significance Thresholds: ≤1.00 Acre LST**

SRA No.	Acres	NOx & CO		PM10 & PM2.5		Construction / Project Site Size (Acres)
		Source Receptor Distance (meters)	Source Receptor Distance (Feet)	Source Receptor Distance (meters)	Source Receptor Distance (Feet)	
8	1.00	25	82	76	250	1.00
<b>Source Receptor</b>	<b>West San Gabriel Valley</b>	<b>Equipment</b>	<b>Acres/8-hr Day</b>	<b>Daily hours</b>	<b>Equipment Used</b>	<b>Acres</b>
Distance (meters)	25	Tractors	0.5	0.0625		0
NOx	69	Tractors	0.5	0.0625	8	1
CO	535	Graders	0.5	0.0625		0
PM10	19.38	Dozers	0.5	0.0625	8	1
PM2.5	5.57	Scrapers	1	0.125		0
					<b>Acres</b>	1.00
	Acres	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	1	69	69	81	104	164
	1	69	69	81	104	164
		69	69	81	104	164
CO	1	535	783	1158	2229	7270
	1	535	783	1158	2229	7270
		535	783	1158	2229	7270
PM10	1	4	11	27	58	152
	1	4	11	27	58	152
		4	11	27	58	152
PM2.5	1	3	4	7	18	77
	1	3	4	7	18	77
		3	4	7	18	77
West San Gabriel Valley	<b>1.00 Acres</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>
NOx	69	69	81	104	164	
CO	535	783	1158	2229	7270	
PM10	4	11	27	58	152	
PM2.5	3	4	7	18	77	

Acre Below		Acre Above	
SRA No.	Acres	SRA No.	Acres
8	1	8	1
<b>Distance Increment Below</b>			
25			
<b>Distance Increment Above</b>			
25			

Updated: 10/21/2009 - Table C-1. 2006 – 2008



# Energy Calculations

## Construction-Related Fuel/Energy Usage

### CONSTRUCTION WORKER COMMUTE

Year	Gas		Diesel		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	kWh
2022	62,081	2,190	455	10	962	316
2023	9,336	330	63	1	145	47
<b>Total</b>	<b>71,416</b>	<b>2,520</b>	<b>518</b>	<b>12</b>	<b>1,107</b>	<b>364</b>

### CONSTRUCTION VENDOR TRIPS

Year	Gas		Diesel	
	VMT	Gallons	VMT	Gallons
2022	299	59	3,343	419
2023	68	13	774	92
<b>Total</b>	<b>367</b>	<b>73</b>	<b>4,117</b>	<b>511</b>

### CONSTRUCTION OFF-ROAD EQUIPMENT

Year	Gasoline gallons	Diesel gallons
2022	1,132	31,560
2023	377	4,491
<b>Total</b>	<b>1,509</b>	<b>36,051</b>

### CONSTRUCTION TOTAL

Year	Gas		Diesel		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	kWh
2022	62,379	3,380	3,798	31,989	962	316
2023	9,404	720	837	4,584	145	47
<b>Total</b>	<b>71,783</b>	<b>4,101</b>	<b>4,635</b>	<b>36,574</b>	<b>1,107</b>	<b>364</b>

## Operation-Related Vehicle Fuel/Energy Usage

### PROPOSED PROJECT COMMUTE

Vehicle Type	Gas		Diesel		CNG		Electricity	
	VMT	Gallons	VMT	Gallons	VMT	Gallons	VMT	kWh
Passenger Vehicles	1,492,867	56,570	66,804	4,816	1,105	320	27,764	9,056

**Construction Worker Trips Fuel Usage Worksheet**

Note: Per CalEEMod methodology, worker vehicles are "LD\_Mix", which is 50% LDA, 25% LDT1, and 25% LDT2

Activity <sup>1</sup>	Daily trips <sup>2</sup>	Trip miles <sup>3</sup>	Trip days <sup>3</sup>	Annual VMT
2022				
Demolition	15	14.7	30	6,615
Site Preparation	18	14.7	21	5,557
Grading	20	14.7	59	17,346
Trenching	5	14.7	32	2,352
Fencing	8	14.7	32	3,763
Paving	20	14.7	23	6,762
2023				
Demolition	8	14.7	10	1,176
Site Preparation	5	14.7	15	1,103
Grading	8	14.7	37	4,351
Trenching	3	14.7	10	441
Paving	10	14.7	17	2,499

<sup>1</sup> Based on information provided.

<sup>2</sup> Based on CalEEMod defaults.

Year	Gasoline <sup>1</sup>				Diesel <sup>1</sup>								Electricity <sup>1</sup>						
	LDA VMT	LDT1 VMT	LDT2 VMT	LDA mpg	LDA gallons	LDT1 mpg	LDT1 gallons	LDT2 mpg	LDT2 gallons	LDA mpg	LDA gallons	LDT1 mpg	LDT1 gallons	LDT2 mpg	LDT2 gallons	LDA m/kWh	LDA kWh	LDT1 m/kWh	LDT1 kWh
2022	42,395	10,599	10,599	30.28	1,359	26.12	402	24.33	429	47.29	8	21.78	0	34.76	2	3.04	287	3.04	29
2023	4,785	2,392	2,392	31.12	149	26.80	88	25.20	93	48.57	1	22.08	0	35.74	1	3.07	38	3.07	9

Gasoline		Diesel		Electricity	
VMT	Gallons	VMT	Gallons	VMT	kWh
62,081	2,190	455	10	962	316
9,336	330	63	1	145	47
<b>71,416</b>	<b>2,520</b>	<b>518</b>	<b>12</b>	<b>1,107</b>	<b>364</b>

<sup>1</sup> EMFAC2017 v1.0.3.

Year	VMT from gasoline			VMT from diesel			VMT from electricity		
	LDA	LDT1	LDT2	LDA	LDT1	LDT2	LDA	LDT1	
2022	97.06%	99.12%	98.39%	0.88%	0.04%	0.72%	2.06%	0.84%	
2023	96.62%	98.85%	98.14%	0.92%	0.03%	0.76%	2.46%	1.12%	

**Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline**

Table A 3: Evidence from U.S. Department of Energy and U.S. Environmental Protection Agency's fuel economy website<sup>[22]</sup>

Vehicle	Model year	Electric consumption	Gasoline fuel economy	Number of kWh that are equivalent to 1 gallon
Ford Fusion Energi & Ford C-Max Energi	2013	0.34 kWh per mile	43 mpg	14.6
Chevrolet Volt	2013	0.35 kWh per mile	37 mpg	12.9
Chevrolet Volt	2012	0.36 kWh per mile	37 mpg	13.3
Fisker Karma	2012	0.62 kWh per mile	20 mpg	12.4
Toyota Prius	2013	0.29 kWh per mile & 0.2 gal	50 mpg	13.1
Average for five models	-	-	-	13.3 +/- 0.8

Table A 5: Average power consumption per mile traveled over time for different PEV categories

Year range	2012-2020	2020-2030	2030-2040	2040-2050	2050
Efficiency improvement per year	0.3%	0.8%	0.9%	0.9%	
Year	2012	2020	2030	2040	2050
Relative energy efficiency	1.000	0.976	0.901	0.823	0.752

[https://www.fhwa.dot.gov/environment/climate\\_change/mitigation/publications\\_and\\_tools/ev\\_deployment/page08.cfm](https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/ev_deployment/page08.cfm)

0.34 14.6  
0.35 12.9  
0.36 13.3  
0.34 13.3

Year Estimated Electric Consumption

2013 0.34  
2014 0.34  
2015 0.34  
2016 0.34  
2017 0.34  
2018 0.34  
2019 0.34  
2020 0.33  
2021 0.33  
2022 0.33  
2023 0.33  
2024 0.32  
2025 0.32  
2026 0.32  
2027 0.32  
2028 0.31  
2029 0.31  
2030 0.31  
2031 0.31  
2032 0.30  
2033 0.30  
2034 0.30  
2035 0.29

**Vendor Trips Fuel Usage Worksheet**

Note: Based on CalEEMod methodology, vendor vehicles HHDT (T7).

Activity <sup>1</sup>	Daily trips <sup>1,2</sup>	Trip miles <sup>2</sup>	Trip days <sup>1</sup>	Annual VMT
<b>2022</b>				
Demolition	4	6.9	30	828
Site Preparation	4	6.9	21	580
Grading	4	6.9	59	1,628
Trenching	0	6.9	32	0
Fencing	3	6.9	32	662
Paving	0	6.9	23	0
<b>2023</b>				
Demolition	2	6.9	10	138
Site Preparation	2	6.9	15	207
Grading	2	6.9	37	511
Trenching	0	6.9	10	0
Paving	0	6.9	17	0

<sup>1</sup> Based on information provided.

<sup>2</sup> Based on CalEEMod defaults.

Year	HHDT (T7) VMT		MHDT (T6) VMT		Gasoline <sup>1</sup>				Diesel <sup>1</sup>			
	HHDT (T7) mpg	HHDT (T7) gallons	MHDT (T6) mpg	MHDT (T6) gallons	HHDT (T7) mpg	HHDT (T7) gallons	MHDT (T6) mpg	MHDT (T6) gallons	HHDT (T7) mpg	HHDT (T7) gallons	MHDT (T6) mpg	MHDT (T6) gallons
2022	1,849	1,849	4.10	0	5.04	59	6.59	272	10.52	148		
2023	428	428	4.20	0	5.12	13	7.00	59	11.00	33		

<sup>1</sup> EMFAC2017 v1.0.3.

Year	VMT from gasoline		VMT from diesel	
	HHDT (T7)	MHDT (T6)	HHDT (T7)	MHDT (T6)
2022	0.08%	16.07%	96.85%	83.93%
2023	0.08%	15.81%	96.71%	84.19%

**VENDOR**

Gasoline	Diesel			
	VMT	Gallons	VMT	Gallons
298.79	59.31	3,343	419	
67.98	13.30	774	92	
<b>366.77</b>	<b>72.61</b>	<b>4,117</b>	<b>511</b>	

Off-Road Construction Equipment Fuel Usage Worksheet

Year	Total Gasoline	Total Diesel Gallons	Total Natural Gas
2022	1,132	31,560	0
2023	377	4,491	0
<b>Total</b>	<b>1,509</b>	<b>36,051</b>	<b>0</b>

Equipment Type <sup>1</sup>	Number of Equipment <sup>1</sup>	Horsepower	OFFROAD2017 Horsepower Category	Fuel Type	2022		Total Hours of Operation	Gasoline Gal/Hr <sup>2</sup>	Total Gasoline gallons	Diesel Gal/Hr <sup>2</sup>	Total Diesel gallons	Natural Gas Gal/Hr <sup>2</sup>	Total Natural Gas gallons
					Working days <sup>1</sup>	Hours Per Day							
<b>2022</b>													
<b>Demolition</b>													
Concrete/Industrial Saws	1	81	100	Gasoline	30	8	240	4.71	1,132	0.00	0	0.00	0
Excavators	3	158	175	Diesel	30	8	720	0.00	0	2.89	2,077	0.00	0
Rubber Tired Dozers	2	247	300	Diesel	30	8	480	0.00	0	4.54	2,178	0.00	0
<b>Site Preparation</b>													
Rubber Tired Dozers	3	247	300	Diesel	21	8	504	0.00	0	4.54	2,287	0.00	0
Tractors/Loaders/Backhoes	4	97	100	Diesel	21	8	672	0.00	0	1.59	1,069	0.00	0
<b>Grading</b>													
Excavators	2	158	175	Diesel	59	8	944	0.00	0	2.89	2,724	0.00	0
Graders	1	187	300	Diesel	59	8	472	0.00	0	4.58	2,161	0.00	0
Rubber Tired Dozers	1	247	300	Diesel	59	8	472	0.00	0	4.54	2,142	0.00	0
Scrapers	2	367	600	Diesel	59	8	944	0.00	0	10.55	9,964	0.00	0
Tractors/Loaders/Backhoes	2	97	100	Diesel	59	8	944	0.00	0	1.59	1,502	0.00	0
<b>Trenching</b>													
Trrenchers	2	78	100	Diesel	32	8	512	0.00	0	2.18	1,115	0.00	0
Select Equipment Type			25	Select Fuel Type	32		0	0.00	0	0.00	0	0.00	0
<b>Fencing</b>													
Cranes	1	231	300	Diesel	32	7	224	0.00	0	3.28	736	0.00	0
Tractors/Loaders/Backhoes	1	97	100	Diesel	32	7	224	0.00	0	1.59	356	0.00	0
Welders	1	46	50	Diesel	32	8	256	0.00	0	1.19	305	0.00	0
<b>Paving</b>													
Cement and Mortar Mixers	2	9	25	Diesel	23	6	276	0.00	0	0.33	91	0.00	0
Pavers	2	130	175	Diesel	23	8	368	0.00	0	3.40	1,251	0.00	0
Paving Equipment	2	132	175	Diesel	23	8	368	0.00	0	2.66	980	0.00	0
Rollers	2	80	100	Diesel	23	8	368	0.00	0	1.69	623	0.00	0
<b>TOTAL</b>									<b>1,132</b>		<b>31,560</b>		<b>0</b>
<b>2023</b>													
<b>Demolition</b>													
Concrete/Industrial Saws	1	81	100	Gasoline	10	8	80	4.71	377	0.00	0	0.00	0
Rubber Tired Dozers	1	247	300	Diesel	10	6	60	0.00	0	4.47	368	0.00	0
Tractors/Loaders/Backhoes	1	97	100	Diesel	10	6	60	0.00	0	1.59	96	0.00	0
<b>Site Preparation</b>													
Rubber Tired Dozers	1	247	300	Diesel	15	8	120	0.00	0	4.47	536	0.00	0
Tractors/Loaders/Backhoes	1	97	100	Diesel	15	8	120	0.00	0	1.59	191	0.00	0
<b>Grading</b>													
Rubber Tired Loaders	1	203	300	Diesel	37	6	222	0.00	0	3.89	864	0.00	0
Rubber Tired Dozers	1	247	300	Diesel	37	6	222	0.00	0	4.47	992	0.00	0
Tractors/Loaders/Backhoes	1	97	100	Diesel	37	7	259	0.00	0	1.59	412	0.00	0
<b>Trenching</b>													
Trrenchers	1	78	100	Diesel	10	8	80	0.00	0	2.18	174	0.00	0
<b>Paving</b>													
Cement and Mortar Mixers	1	9	25	Diesel	17	6	102	0.00	0	0.33	34	0.00	0
Pavers	1	130	175	Diesel	17	7	119	0.00	0	3.40	404	0.00	0
Rollers	1	80	100	Diesel	17	7	119	0.00	0	1.69	202	0.00	0
Paving Equipment	1	132	175	Diesel	17	7	119	0.00	0	2.67	317	0.00	0
<b>TOTAL</b>									<b>377</b>		<b>4,491</b>		<b>0</b>

<sup>1</sup> Based on information provided.

<sup>2</sup> OFFROAD2017 v.1.0.1











Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	75	Dwell	0.00278138	0.00176847	0.00889979	0.04217299	0.01107587	5.86239995	0.00825788	0.00797925	5.43276E-05	4.78055E-05	190228.2981	182811.1291	127.1691213	12288647	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	100	Dwell	0.002894789	0.00479487	0.00970011	0.10071277	0.04781011	11.7942424	0.00817611	0.00182027	0.000138216	0.000112066	465468.4241	274118.8221	208.8502109	28778988	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	175	Dwell	0.005004409	0.00854315	0.00982429	0.16587828	0.05997820	26.54841124	0.002201128	0.00218021	0.00024246	0.00023885	861134.1136	373802.0006	216.9892116	35647135	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	300	Dwell	0.010310054	0.02008165	0.02318477	0.11878975	0.111892005	64.21869387	0.005204817	0.004621811	0.000050905	0.000403885	1797174.489	841929.0091	388.7649029	1.14E+08	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	600	Dwell	0.02154977	0.02749522	0.02191517	0.17121828	0.13863993	81.64644408	0.00669808	0.00669808	0.00007266	0.00069808	2717758.309	141248.4429	287.4228182	1.79E+08	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	750	Dwell	0.005102097	0.005246117	0.007919419	0.02767541	0.058875649	21.1107472	0.00270613	0.00277868	0.000118922	0.00184158	8011011824	25.64697171	24242147	1.64E+08	
Los Angeles (CA)	2022	Portable Equipment - Rental Generator	Aggregates	9999	Dwell	0.046170127	0.054132254	0.057282983	0.111208817	0.776003851	531.781849	0.012819197	0.02007184	0.001420119	0.002591818	48888771.841	250451.6018	174.1971401	1.22E+08	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	50	Dwell	0.11238E-05	4.2488E-05	0.1978E-05	0.00078152	0.000602009	0.000898466	1.53097E-05	1.408E-05	6.454E-07	5.7801E-07	2205.83958	1045.146162	2.822977022	11381	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	75	Dwell	0.00079766	0.001307709	0.002100991	0.01216555	0.010010101	1.24280289	0.000239049	0.00218925	2.9842E-05	2.6841E-05	1035385.1211	16517.42711	17.5989737	8796150	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	100	Dwell	0.00044682	0.000540714	0.000484950	0.00079265	0.000456429	1.720909014	0.00042244	0.000770664	1.3931E-05	1.4824E-05	58163.41264	39511.26228	15.79078927	3068278	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	175	Dwell	0.00111102	0.002579413	0.002040445	0.02626295	0.02017281	8.430442488	0.000749564	0.00064999	8.71257E-05	7.6897E-05	309061.8024	140606.4962	115.8430882	3798404	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	300	Dwell	0.002077901	0.002465461	0.002194111	0.04420766	0.03466688	1.276701021	0.00091296	0.00094442	5.7888E-05	1.1177E-05	20154.4307	10306.9161	62.67299111	1111941	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	600	Dwell	0.00146576	0.001787211	0.00207776	0.02091458	0.01604287	4.94405578	0.000492917	0.00044284	4.1047E-05	4.0112E-05	159401.5461	26910.12341	20.0227111	30305429	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	750	Dwell	0.00048481	0.002371481	0.00122413	0.00786972	0.00047752	1.23813885	0.00037419	0.00049062	1.0388E-05	2.8793E-05	114478.9086	18814.68841	8.70087006	775999	
Los Angeles (CA)	2022	Portable Equipment - Rental Other Portable Equipment	Aggregates	9999	Dwell	0.001138206	0.001385516	0.001292977	0.00876993	0.01689310	1.20000022	0.000491110	0.00041102	1.0388E-05	2.8825E-05	107460.4468	5412.24422	43.4949203	8980499	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	50	Dwell	1.2739E-05	1.5423E-05	1.8129E-05	0.00012176	0.00003910	0.01108991	1.7476E-06	0.1614E-06	1.8899E-07	1.2275E-05	1.2275E-05	18751.82091	4225.44075	41.5492003	147122
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	75	Dwell	0.00045708	0.00039027	0.00054482	0.009717616	0.007056810	1.50109791	0.000201224	0.00249006	1.2380E-05	1.8892E-05	7497.17471	50746.14076	57.4805264	4882317	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	100	Dwell	0.00061486	0.00082081	0.00095484	0.02491477	0.01008984	1.90424220	0.00043887	0.00043702	1.6027E-05	1.3831E-05	120519.1287	54919.13297	56.1420154	871119	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	300	Dwell	0.00162628	0.00138578	0.00130184	0.02491477	0.01008984	1.90424220	0.00043887	0.00043702	1.6027E-05	1.3831E-05	120519.1287	54919.13297	56.1420154	871119	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	600	Dwell	0.001191783	0.00144428	0.00192112	0.01272888	0.00809221	1.88718015	0.00018211	0.00017101	1.2380E-05	1.8892E-05	114478.9086	18814.68841	8.70087006	775999	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	750	Dwell	0.001381523	0.00119413	0.002277783	0.016186106	0.011517498	6.30083454	0.00013821	0.00041117	7.7161E-05	6.8159E-05	270939.409	44786.17919	46.1621213	1750884	
Los Angeles (CA)	2022	Portable Equipment - Rental Pump	Aggregates	9999	Dwell	0.001826206	0.00181218	0.00080089	0.00179676	0.00044584	8.84826867	0.00010111	0.00011402	2.4999E-05	2.4999E-05	167112.0109	100677.9191	128.441991	1710017	
Los Angeles (CA)	2022	TRU - Inmate Genes TRU	Aggregates	50	Dwell	0.000766877	0.00481768	0.007146116	0.12899942	0.097111029	2.83209878	0.000428897	0.000384040	0.000077911	0.000077911	167112.0109	100677.9191	128.441991	1710017	
Los Angeles (CA)	2022	TRU - Inmate Trailer TRU	Aggregates	25	Dwell	0.113709909	0.160484211	0.191113193	0.18691744	1.294102161	38.4923097	0.000270879	0.018181028	0.000077911	0.000077911	167112.0109	100677.9191	128.441991	1710017	
Los Angeles (CA)	2022	TRU - Inmate Truck TRU	Aggregates	25	Dwell	0.011209295	0.021132209	0.028187001	0.174207913	0.207621801	1.4420772	0.000899205	0.007777420	1.8025E-05	1.4015E-05	2629161496	208125.1274	113210112	2460910	
Los Angeles (CA)	2022	TRU - Inmate Van TRU	Aggregates	25	Dwell	0.000481815	0.000493866	0.000877729	0.031962912	0.04078265	0.059490107	0.000184447	0.000178810	8.8011E-07	7.8794E-07	68.87191628	7451.5701	51.9701015	68072.0	
Los Angeles (CA)	2022	TRU - Out-of-State Genes TRU	Aggregates	50	Dwell	0.000418135	0.001144416	0.000119093	0.003894979	0.000916820	1.658811319	0.000205485	0.000217833	1.5112E-05	1.3829E-05	1052196399	681822.0198	51.8112873	1998849	
Los Angeles (CA)	2022	TRU - Out-of-State Trailer TRU	Aggregates	50	Dwell	0.071391211	0.081103715	0.11233818	1.182144009	1.79957914	31.0464248	0.000760763	0.000728817	0.000170166	0.000154888	1209610111	460607.391	23971.40568	1.95E+08	
Los Angeles (CA)	2022	TRU - Trailer TRU	Aggregates	50	Dwell	0.007881008	0.00880002	0.010484652	0.117821924	0.07723956	1.971582527	0.000090951	0.000542629	1.8110E-05	1.6099E-05	1251147671	501091.092	156.1408154	1703997	

Equipment Type	Manufacturer	Fuel (Gal/HR)	Production	HR/HR	Gal/HR	Fuel (Gal/HR)	Production	HR/HR	Gal/HR	Fuel (Gal/HR)	Production	HR/HR	Gal/HR	Fuel (Gal/HR)	Production	HR/HR	Gal/HR	Fuel (Gal/HR)	Production	HR/HR	Gal/HR
AC Compressor25	AC Compressors	25	24700.0	2085.41	1.94844	0.3044035	2025.7	45.4	18979.1	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor50	AC Compressors	50	42960.0	1155	3.7962	2.265251	2201.1	71.4	22348.1	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor75	AC Compressors	75	60360.0	187.8	18.7601	0.765124	187.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor100	AC Compressors	100	80400.0	28	1200	0.850018	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor150	AC Compressors	150	108000.0	45	1600	1.275027	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor200	AC Compressors	200	144000.0	60	1600	1.700036	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor250	AC Compressors	250	180000.0	75	1600	2.125045	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor300	AC Compressors	300	216000.0	90	1600	2.550054	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor350	AC Compressors	350	252000.0	105	1600	2.975063	105	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor400	AC Compressors	400	288000.0	120	1600	3.400072	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor450	AC Compressors	450	324000.0	135	1600	3.825081	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor500	AC Compressors	500	360000.0	150	1600	4.25009	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor550	AC Compressors	550	396000.0	165	1600	4.6751	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor600	AC Compressors	600	432000.0	180	1600	5.100109	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor650	AC Compressors	650	468000.0	195	1600	5.525118	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor700	AC Compressors	700	504000.0	210	1600	5.950127	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor750	AC Compressors	750	540000.0	225	1600	6.375136	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor800	AC Compressors	800	576000.0	240	1600	6.800145	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor850	AC Compressors	850	612000.0	255	1600	7.225154	255	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor900	AC Compressors	900	648000.0	270	1600	7.650163	270	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor950	AC Compressors	950	684000.0	285	1600	8.075172	285	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1000	AC Compressors	1000	720000.0	300	1600	8.500181	300	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1050	AC Compressors	1050	756000.0	315	1600	8.92519	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1100	AC Compressors	1100	792000.0	330	1600	9.350199	330	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1150	AC Compressors	1150	828000.0	345	1600	9.775208	345	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1200	AC Compressors	1200	864000.0	360	1600	10.200217	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1250	AC Compressors	1250	900000.0	375	1600	10.625226	375	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1300	AC Compressors	1300	936000.0	390	1600	11.050235	390	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1350	AC Compressors	1350	972000.0	405	1600	11.475244	405	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1400	AC Compressors	1400	1008000.0	420	1600	11.900253	420	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1450	AC Compressors	1450	1044000.0	435	1600	12.325262	435	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1500	AC Compressors	1500	1080000.0	450	1600	12.750271	450	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1550	AC Compressors	1550	1116000.0	465	1600	13.17528	465	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1600	AC Compressors	1600	1152000.0	480	1600	13.600289	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1650	AC Compressors	1650	1188000.0	495	1600	14.025298	495	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1700	AC Compressors	1700	1224000.0	510	1600	14.450307	510	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1750	AC Compressors	1750	1260000.0	525	1600	14.875316	525	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1800	AC Compressors	1800	1296000.0	540	1600	15.300325	540	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1850	AC Compressors	1850	1332000.0	555	1600	15.725334	555	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1900	AC Compressors	1900	1368000.0	570	1600	16.150343	570	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor1950	AC Compressors	1950	1404000.0	585	1600	16.575352	585	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2000	AC Compressors	2000	1440000.0	600	1600	17.000361	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2050	AC Compressors	2050	1476000.0	615	1600	17.42537	615	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2100	AC Compressors	2100	1512000.0	630	1600	17.850379	630	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2150	AC Compressors	2150	1548000.0	645	1600	18.275388	645	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2200	AC Compressors	2200	1584000.0	660	1600	18.700397	660	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2250	AC Compressors	2250	1620000.0	675	1600	19.125406	675	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2300	AC Compressors	2300	1656000.0	690	1600	19.550415	690	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2350	AC Compressors	2350	1692000.0	705	1600	19.975424	705	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2400	AC Compressors	2400	1728000.0	720	1600	20.400433	720	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2450	AC Compressors	2450	1764000.0	735	1600	20.825442	735	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2500	AC Compressors	2500	1800000.0	750	1600	21.250451	750	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2550	AC Compressors	2550	1836000.0	765	1600	21.67546	765	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2600	AC Compressors	2600	1872000.0	780	1600	22.100469	780	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2650	AC Compressors	2650	1908000.0	795	1600	22.525478	795	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2700	AC Compressors	2700	1944000.0	810	1600	22.950487	810	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2750	AC Compressors	2750	1980000.0	825	1600	23.375496	825	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2800	AC Compressors	2800	2016000.0	840	1600	23.800505	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2850	AC Compressors	2850	2052000.0	855	1600	24.225514	855	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2900	AC Compressors	2900	2088000.0	870	1600	24.650523	870	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor2950	AC Compressors	2950	2124000.0	885	1600	25.075532	885	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3000	AC Compressors	3000	2160000.0	900	1600	25.500541	900	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3050	AC Compressors	3050	2196000.0	915	1600	25.92555	915	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3100	AC Compressors	3100	2232000.0	930	1600	26.350559	930	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3150	AC Compressors	3150	2268000.0	945	1600	26.775568	945	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3200	AC Compressors	3200	2304000.0	960	1600	27.200577	960	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3250	AC Compressors	3250	2340000.0	975	1600	27.625586	975	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3300	AC Compressors	3300	2376000.0	990	1600	28.050595	990	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3350	AC Compressors	3350	2412000.0	1005	1600	28.475604	1005	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3400	AC Compressors	3400	2448000.0	1020	1600	28.900613	1020	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3450	AC Compressors	3450	2484000.0	1035	1600	29.325622	1035	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC Compressor3500	AC Compressors	3500	2520000.0	1050	1600																







Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	50	Diesel	1.24845E-05	5.1502E-05	1.79777E-05	0.000180382	9.66579E-05	0.01749021	6.78874E-07	6.24466E-07	1.61877E-07	1.41224E-07	569.3848315	638.056845	0.49412286	3730.97
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	75	Diesel	0.002746608	0.001307812	0.000956452	0.04812127	0.01081719	1.98051081	0.00007051	0.00004614	5.2126E-05	4.88126E-05	19451.8641	18487.7519	128.308878	1248495
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	100	Diesel	0.000187608	0.004800575	0.000821711	0.10286445	0.04513022	14.02902	0.00397148	0.00289136	0.00021987	0.00011807	45479.8127	30131.5071	208.228158	2008117
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	175	Diesel	0.000180881	0.007805747	0.000848452	0.16891689	0.04613932	27.079986	0.00165487	0.00111177	0.00020287	0.00021018	87951.3028	88178.9486	281.321847	5140516
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	300	Diesel	0.01385721	0.01570722	0.022451438	0.12117973	0.10761857	55.3246775	0.00496454	0.00428103	0.00051204	0.00005143	179488.981	102427.5891	31.0442107	1.15E+08
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	625	Diesel	0.021492285	0.027707127	0.02209722	0.17488704	0.13207945	86.1173688	0.00646039	0.00591888	0.00078811	0.00008851	276881.526	161154.4128	290.021087	1.75E+08
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	750	Diesel	0.000353539	0.00837206	0.007828288	0.02827458	0.05986912	12.3804562	0.00203701	0.00219405	0.00031413	0.00002883	400251.831	17886.7439	21.9251887	2583658
Los Angeles (CA)	2023	Portable Equipment - Rental Generator	Aggregates	999	Diesel	0.048813289	0.046682215	0.04787922	0.11890534	0.17708926	204.2881014	0.02123961	0.01922106	0.001489556	0.001289165	508841.12	254628.2728	175.7495444	1.25E+08
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	50	Diesel	5.8128E-05	4.81102E-05	5.15702E-05	0.00088889	0.00049041	0.07132588	1.5624E-05	1.48072E-05	6.58458E-07	5.82221E-07	2114.404437	2.16877176	13.00877	131087.7
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	75	Diesel	0.002189261	0.001332029	0.002174728	0.02196121	0.01643332	1.90582446	0.00021182	0.00028872	1.2541E-05	2.89975E-05	10778.1185	10347.97886	75.2629761	688771.
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	100	Diesel	0.000499161	0.005446413	0.000847944	0.01116845	0.004877489	1.748003718	0.00042297	0.00079792	1.6211E-05	1.41232E-05	56959.8216	40222.9084	12.0776868	3638714
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	175	Diesel	0.000291884	0.00284428	0.00208777	0.07376121	0.01642621	61.9161148	0.00002105	0.00070497	8.8872E-05	7.85096E-05	12379.5275	14658.4062	118.883681	3594705
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	300	Diesel	0.000175139	0.002189718	0.002842	0.01484896	0.02178884	6.19222239	0.00051617	0.00047846	5.90493E-05	5.23806E-05	207421.1071	54138.78122	43.0240402	1325084
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	625	Diesel	0.007188026	0.001452428	0.00099929	0.01021828	0.00882221	31.0218886	0.00037422	0.00031028	4.6306E-05	4.9751E-05	16248.0861	25.2125151	1038412	1046142
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	750	Diesel	0.000081229	0.002127517	0.002222889	0.00710453	0.000177549	1.959883042	0.00051487	0.00031649	1.82499E-05	2.01775E-05	116784.4884	11047.0821	8.78428719	7462163
Los Angeles (CA)	2023	Portable Equipment - Rental Other Portable Equipment	Aggregates	999	Diesel	0.0011115	0.01349151	0.0050526	0.00869209	0.01179651	1.37038031	0.00031411	0.00038188	1.09926E-05	2.78985E-05	60851.2244	9221.94104	4.8942286	8958114
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	50	Diesel	1.29846E-05	5.17102E-05	1.88646E-05	0.00017983	0.00010706	0.011840259	7.8888E-08	7.0827E-08	1.00882E-07	9.8641E-08	184.151924	430.853356	0.49412286	2088.78
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	75	Diesel	0.00045422	0.000700019	0.00094061	0.01749012	0.00073288	1.31570521	0.00002905	0.00042462	1.14495E-05	1.20075E-05	46065.1897	43066.5356	48.842286	317648
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	100	Diesel	0.00066687	0.000870254	0.00094061	0.01749012	0.00073288	2.35080288	0.00002905	0.00042462	2.1725E-05	1.91854E-05	7832.32046	58979.5307	58.0024175	487891
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	175	Diesel	0.00156289	0.001376329	0.00131056	0.0488311	0.0091261	197619114	0.00004929	0.00041187	7.87606E-05	5.24819E-05	12968.9112	58971.7191	57.2107818	828793
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	300	Diesel	0.00131408	0.00135204	0.00146028	0.02118845	0.00914281	6.00077145	0.00068105	0.00038706	5.4799E-05	4.91248E-05	14428.1146	46971.8677	46.5777021	1245179
Los Angeles (CA)	2023	Portable Equipment - Rental Pump	Aggregates	625	Diesel	0.00151245	0.001877713	0.00219457	0.01658982	0.0091805	11.8182082	0.00068484	0.00043214	7.87606E-05	5.24819E-05	27671.2201	46971.8677	46.5777021	1768177
Los Angeles (CA)	2023	TRU - Inmate General TRU	Aggregates	750	Diesel	0.00087946	0.000488012	0.00014211	0.05179189	0.00717888	8.80521792	0.00012715	0.00011704	7.9915E-08	7.08216E-08	28027.4826	2.08477176	1798887	208413214
Los Angeles (CA)	2023	TRU - Inmate General TRU	Aggregates	50	Diesel	0.00187884	0.00889714	0.00219053	0.11841166	0.09983818	2.78197713	0.00005685	0.00011461	2.5031E-05	2.4871E-05	1711.00211	104424.421	1187.93313	1338814
Los Angeles (CA)	2023	TRU - Inmate Trailer TRU	Aggregates	50	Diesel	0.14059512	1.77292501	0.2038777	1.10914215	1.24418872	11.3084433	0.01888767	0.01712417	0.00020459	0.00020787	19766.4776	7912001.908	5971.90379	2.89E+08
Los Angeles (CA)	2023	TRU - Inmate Truck TRU	Aggregates	25	Diesel	0.01790339	0.021761787	0.02878856	0.17410711	0.13181846	422648484	0.00848078	0.00787668	4.884E-05	5.47951E-05	28447.0706	212911.088	1564.75146	3002874
Los Angeles (CA)	2023	TRU - Inmate Van TRU	Aggregates	25	Diesel	0.000140219	0.000339813	0.000399827	0.04047961	0.04488322	0.09780985	0.00029637	0.00030321	8.8887E-07	8.04488E-07	12.14692925	77221.47812	54.73880203	618995.1
Los Angeles (CA)	2023	TRU - Out-of-State General TRU	Aggregates	50	Diesel	0.00022231	0.001479161	0.00013253	0.08717177	0.02787872	1.7071982	0.00031779	0.00051054	1.58882E-05	1.61897E-05	1002.85756	68861.1195	512.898262	207214
Los Angeles (CA)	2023	TRU - Out-of-State Trailer TRU	Aggregates	50	Diesel	0.0711109	0.00687444	0.10816327	1.19941617	1.76975073	15.5386462	0.00247183	0.00427408	0.000179803	0.00020541	12462.4295	469529.679	2167.14873	1.69E+08
Los Angeles (CA)	2023	TRU - Jailbus TRU	Aggregates	50	Diesel	0.00779224	0.00082621	0.01139123	0.12199564	0.07917616	2.0220544	0.00009811	0.000498969	1.8932E-05	1.88181E-05	1281.83006	51487.684	1594.28172	1747282



**PROPOSED PROJECT CONDITIONS**

Vehicle type	Fleet percent		VMT
	Golf Course	Golf Course	
LDA	54.48%	865,410	865,410
LDT1	6.28%	99,830	99,830
LDT2	18.75%	297,816	297,816
MDV	12.72%	202,117	202,117
LHD1	2.31%	36,678	36,678
LHD2	0.61%	9,663	9,663
MHD	1.05%	16,640	16,640
HHD	0.80%	12,727	12,727
OBUS	0.09%	1,469	1,469
UBUS	0.06%	971	971
MCY	2.44%	38,751	38,751
SBUS	0.07%	1,109	1,109
MH	0.34%	5,360	5,360
	100.00%	1,588,536	1,588,536

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated Annual VMT	Mitigated Annual VMT
	Weekday	Saturday	Sunday		
Golf Course	403.30	403.30	403.30	1,588,536	1,588,536
Other Non-Residential Buildings	0.00	0.00	0.00	0	0
<b>Total</b>	<b>403.30</b>	<b>403.30</b>	<b>403.30</b>	<b>1,588,536</b>	<b>1,588,536</b>

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.944735	0.002281	0.017476	0.022275	0.022082	0.000002	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Other Non-Residential Buildings	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

**PROPOSED CONDITIONS**

Vehicle type	Fleet percent			Electricity percent
	Gas percent	Diesel percent	CNG percent	
LDA	96.62%	0.92%	0.00%	2.46%
LDT1	98.85%	0.03%	0.00%	1.12%
LDT2	98.14%	0.76%	0.00%	1.10%
MDV	96.51%	2.46%	0.00%	1.02%
LHD1	56.77%	43.23%	0.00%	0.00%
LHD2	35.72%	64.28%	0.00%	0.00%
MHD	15.81%	84.19%	0.00%	0.00%
HHD	0.08%	98.29%	1.63%	0.00%
OBUS	39.79%	60.21%	0.00%	0.00%
UBUS	6.98%	0.25%	92.54%	0.23%
MCY	100.00%	0.00%	0.00%	0.00%
SBUS	34.75%	65.25%	0.00%	0.00%
MH	74.85%	25.15%	0.00%	0.00%

<< Equal to T6 (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)  
 << Motor coach, all other buses, and OBUS (<https://www.arb.ca.gov/mse/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf>)

**PROPOSED CONDITIONS**

Vehicle type	VMT	Gasoline			Diesel			CNG			Electricity	
		mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	836,129	31.12	26,867	7,981	48.57	164	0	0.00	0	21,300	3.07	6,948
LDT1	98,677	26.80	3,682	35	22.08	2	0	0.00	0	1,118	3.07	365
LDT2	292,275	25.20	11,597	2,265	35.74	63	0	0.00	0	3,275	3.07	1,068
MDV	195,070	20.46	9,534	4,979	27.66	180	0	0.00	0	2,068	3.07	675
LHD1	20,823	10.57	1,969	15,855	22.10	717	0	0.00	0	0	3.07	0
LHD2	3,451	9.21	375	6,212	19.90	312	0	0.00	0	0	3.07	0
MHD	2,630	9.12	314	16,010	11.00	1,274	0	0.00	0	0	3.07	0
HHD	11	4.20	3	12,509	7.00	1,786	207	2.27	91	0	3.07	0
OBUS	585	5.06	116	885	9.06	98	0	0.00	0	0	3.07	0
UBUS	68	4.35	16	2	5.66	0	898	3.93	228	2	3.07	0
MCY	38,751	35.68	1,086	0	0.00	0	0	0.00	0	0	3.07	0
SBUS	385	9.27	42	724	7.70	94	0	0.00	0	0	3.07	0
MH	4,012	5.21	771	1,348	10.67	126	0	0.00	0	0	3.07	0
	<b>1,492,867</b>		<b>56,570</b>	<b>66,804</b>		<b>4,816</b>	<b>1,105</b>		<b>320</b>	<b>27,764</b>		<b>9,056</b>

EMFAC Fuel Usage: Year 2022

Vehicle type	GAS			DSL			NG			ELEC
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	
All other buses	0	0	0.00	144,213	14,122	10.21	0	0	0.00	0
LDA	149,966,457	4,951,891	30.28	1,365,564	28,876	47.29	0	0	0.00	3,181,478
LDT1	17,043,180	652,540	26.12	6,627	304	21.78	0	0	0.00	144,752
LDT2	51,802,173	2,129,498	24.33	378,461	10,888	34.76	0	0	0.00	469,870
LHD1	3,836,225	367,280	10.44	2,744,971	126,149	21.76	0	0	0.00	0
LHD2	625,803	68,770	9.10	1,067,421	54,454	19.60	0	0	0.00	0
MCY	1,237,635	34,667	35.70	0	0	0.00	0	0	0.00	0
MDV	32,233,548	1,629,223	19.78	771,652	28,703	26.88	0	0	0.00	250,682
MH	190,935	37,177	5.14	61,785	5,859	10.54	0	0	0.00	0
Motor coach	0	0	0.00	91,142	13,998	6.51	0	0	0.00	0
OBUS	163,041	32,643	4.99	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	76,505	15,508	4.93	0	0	0.00	0
SBUS	55,608	6,053	9.19	109,536	14,360	7.63	0	0	0.00	0
T6	793,122	157,239	5.04	4,140,797	393,561	10.52	0	0	0.00	0
T7	5,769	1,407	4.10	6,735,541	1,021,710	6.59	106,828	47,783	2.24	0
UBUS	32,989	7,783	4.24	1,181	209	5.66	437,121	111,088	3.93	1,070
<b>Total</b>	<b>257,986,485</b>	<b>10,076,171</b>	<b>25.60</b>	<b>17,695,397</b>	<b>1,728,701</b>	<b>10.24</b>	<b>543,949</b>	<b>158,871</b>	<b>3.42</b>	<b>4,047,852</b>

3,496,431,421

0.36%

81875000 12419573.21



Source: EMFAC2017 (v1.0.3) Emissions Inventory

Region Type: Sub-Area

Region: Los Angeles (SC)

Calendar Year: 2022

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Los Angeles (SC)	2022	All Other Buses	Aggregate	Aggregate	DSL	2387.615771	144212.5891	20055.97247	14.12157342
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	GAS	3949334.32	149966456.8	18636854.28	4951.890616
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	DSL	34750.74201	1365564.321	164528.3052	28.87579459
Los Angeles (SC)	2022	LDA	Aggregate	Aggregate	ELEC	78084.60157	3181477.948	389918.6908	0
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	GAS	458115.2498	17043179.81	2118381.376	652.5401757
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	DSL	270.6503295	6627.200698	961.4710483	0.304298206
Los Angeles (SC)	2022	LDT1	Aggregate	Aggregate	ELEC	3508.68045	144752.0157	17546.16027	0
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	GAS	1372144.276	51802172.9	6443902.5	2129.497975
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	DSL	8920.377392	378460.5711	44003.20424	10.88805719
Los Angeles (SC)	2022	LDT2	Aggregate	Aggregate	ELEC	14383.25646	469869.8144	72773.64326	0
Los Angeles (SC)	2022	LHD1	Aggregate	Aggregate	GAS	105423.6869	3836224.58	1570655.854	367.2799521
Los Angeles (SC)	2022	LHD1	Aggregate	Aggregate	DSL	64097.22758	2744971.33	806262.4886	126.1492688
Los Angeles (SC)	2022	LHD2	Aggregate	Aggregate	GAS	17796.61867	625803.0177	265143.1013	68.76969502
Los Angeles (SC)	2022	LHD2	Aggregate	Aggregate	DSL	25927.3097	1067421.343	326132.9395	54.45422002
Los Angeles (SC)	2022	MCY	Aggregate	Aggregate	GAS	177319.3254	1237635.154	354638.6508	34.66720507
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	GAS	921693.6708	32233548.24	4274374.135	1629.222502
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	DSL	19516.67089	771652.3864	96044.41776	28.70279505
Los Angeles (SC)	2022	MDV	Aggregate	Aggregate	ELEC	7423.218148	250681.8433	37959.59904	0
Los Angeles (SC)	2022	MH	Aggregate	Aggregate	GAS	18777.11371	190934.9774	1878.462455	37.17660803
Los Angeles (SC)	2022	MH	Aggregate	Aggregate	DSL	5865.304828	61785.30748	586.5304828	5.859423982
Los Angeles (SC)	2022	Motor Coach	Aggregate	Aggregate	DSL	676.2916755	91141.88557	9873.858462	13.99760817
Los Angeles (SC)	2022	OBUS	Aggregate	Aggregate	GAS	3972.712037	163041.1007	79486.02243	32.64328018
Los Angeles (SC)	2022	PTO	Aggregate	Aggregate	DSL	0	76505.4461	0	15.50775389
Los Angeles (SC)	2022	SBUS	Aggregate	Aggregate	GAS	1378.869452	55608.41612	5515.47781	6.053496228
Los Angeles (SC)	2022	SBUS	Aggregate	Aggregate	DSL	3460.157096	109535.682	39929.73315	14.35975618
Los Angeles (SC)	2022	T6 Ag	Aggregate	Aggregate	DSL	12.10479957	101.9666453	53.26111809	0.012181572
Los Angeles (SC)	2022	T6 CAIRP heavy	Aggregate	Aggregate	DSL	272.1638062	53846.97659	3973.591571	4.680155196
Los Angeles (SC)	2022	T6 CAIRP small	Aggregate	Aggregate	DSL	144.6349106	7530.75419	2111.669694	0.699944378
Los Angeles (SC)	2022	T6 instate construction heavy	Aggregate	Aggregate	DSL	2518.967495	168570.4564	11388.15411	16.56194729
Los Angeles (SC)	2022	T6 instate construction small	Aggregate	Aggregate	DSL	8157.753968	433957.0754	36880.88852	42.40587222
Los Angeles (SC)	2022	T6 instate heavy	Aggregate	Aggregate	DSL	10296.35106	1423092.141	118818.4637	128.9338909
Los Angeles (SC)	2022	T6 instate small	Aggregate	Aggregate	DSL	37908.6179	1932060.83	437460.1947	186.9232192
Los Angeles (SC)	2022	T6 OOS heavy	Aggregate	Aggregate	DSL	156.4590604	31080.56962	2284.302283	2.699014263
Los Angeles (SC)	2022	T6 OOS small	Aggregate	Aggregate	DSL	83.58460294	4317.240411	1220.335203	0.401773955
Los Angeles (SC)	2022	T6 Public	Aggregate	Aggregate	DSL	4445.935083	69430.49194	13486.00307	8.507368053
Los Angeles (SC)	2022	T6 utility	Aggregate	Aggregate	DSL	996.7203316	16808.24099	11462.28381	1.735997959
Los Angeles (SC)	2022	T6TS	Aggregate	Aggregate	GAS	14505.49561	793122.3284	290225.9562	157.2392835
Los Angeles (SC)	2022	T7 Ag	Aggregate	Aggregate	DSL	5.193051548	102.8930892	22.84942681	0.01852168
Los Angeles (SC)	2022	T7 CAIRP	Aggregate	Aggregate	DSL	6003.500987	1067306.387	87651.11441	155.0696328
Los Angeles (SC)	2022	T7 CAIRP construction	Aggregate	Aggregate	DSL	671.4917023	121085.6232	3035.787878	16.55458348
Los Angeles (SC)	2022	T7 NNOOS	Aggregate	Aggregate	DSL	6498.761345	1301079.701	94881.91563	179.099333
Los Angeles (SC)	2022	T7 NOOS	Aggregate	Aggregate	DSL	2371.048773	419354.6563	34617.31208	62.47642547
Los Angeles (SC)	2022	T7 POLA	Aggregate	Aggregate	DSL	8258.014728	1072153.038	62760.91194	188.7409496
Los Angeles (SC)	2022	T7 Public	Aggregate	Aggregate	DSL	5475.906144	110937.1004	16610.24862	19.0808356
Los Angeles (SC)	2022	T7 Single	Aggregate	Aggregate	DSL	5794.937297	385296.7187	66872.77297	58.88961274
Los Angeles (SC)	2022	T7 single construction	Aggregate	Aggregate	DSL	4300.116371	300391.1598	19440.65893	44.46501106
Los Angeles (SC)	2022	T7 SWCV	Aggregate	Aggregate	DSL	1379.990695	56384.18389	5381.963711	27.81339016
Los Angeles (SC)	2022	T7 SWCV	Aggregate	Aggregate	NG	2623.533087	106827.7218	10231.77904	47.782843
Los Angeles (SC)	2022	T7 tractor	Aggregate	Aggregate	DSL	12166.67647	1645420.533	154516.7912	230.7310322
Los Angeles (SC)	2022	T7 tractor construction	Aggregate	Aggregate	DSL	3592.159925	247796.2601	16240.01536	37.46414496
Los Angeles (SC)	2022	T7 utility	Aggregate	Aggregate	DSL	405.4684121	8232.431424	4662.886739	1.306947156
Los Angeles (SC)	2022	T7IS	Aggregate	Aggregate	GAS	55.2683338	5768.621752	1100808823	1.407168754
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	GAS	460.6006493	32989.32038	1842.402597	7.783285084
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	DSL	10.1389	1181.230112	40.5556	0.208547568
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	ELEC	12	1070.403311	48	0
Los Angeles (SC)	2022	UBUS	Aggregate	Aggregate	NG	4129.345993	437121.0718	16517.38397	111.0876976

Vehicle type	GAS			DSL			NG			ELEC
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day
All other buses	0	0	0.00	148,348	14,082	10.53	0	0	0.00	0
LDA	149,418,106	4,801,115	31.12	1,426,245	29,363	48.57	0	0	0.00	3,806,342
LDT1	17,372,475	648,191	26.80	6,133	278	22.08	0	0	0.00	196,782
LDT2	52,162,943	2,069,800	25.20	404,272	11,313	35.74	0	0	0.00	584,569
LHD1	3,800,052	359,383	10.57	2,893,383	130,924	22.10	0	0	0.00	0
LHD2	625,879	67,954	9.21	1,126,544	56,597	19.90	0	0	0.00	0
MCY	1,265,085	35,455	35.68	0	0	0.00	0	0	0.00	0
MDV	32,264,362	1,576,940	20.46	823,486	29,770	27.66	0	0	0.00	342,100
MH	191,392	36,760	5.21	64,319	6,026	10.67	0	0	0.00	0
Motor coach	0	0	0.00	92,744	13,826	6.71	0	0	0.00	0
OBUS	159,343	31,499	5.06	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	77,199	14,935	5.17	0	0	0.00	0
SBUS	58,916	6,358	9.27	110,638	14,360	7.70	0	0	0.00	0
T6	797,300	155,868	5.12	4,246,866	386,115	11.00	0	0	0.00	0
T7	5,905	1,406	4.20	6,872,058	981,183	7.00	113,852	50,168	2.27	0
UBUS	33,184	7,630	4.35	1,181	209	5.66	439,713	111,745	3.93	1,070
<b>Total</b>	<b>258,154,940</b>	<b>9,798,359</b>	<b>26.35</b>	<b>18,293,417</b>	<b>1,688,982</b>	<b>10.83</b>	<b>553,565</b>	<b>161,913</b>	<b>3.42</b>	<b>4,930,863</b>

3,400,030,661

0.34%

81875000 11690001.06



Source: EMFAC2017 (v1.0.3) Emissions Inventory

Region Type: Sub-Area

Region: Los Angeles (SC)

Calendar Year: 2023

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption
Los Angeles (SC)	2023	All Other Buses	Aggregate	Aggregate	DSL	2413.362241	148347.7525	20272.24282	14.0818541
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	GAS	3986929.129	149418105.6	18815397.63	4801.114553
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	DSL	36740.62878	1426244.815	174171.2985	29.36298643
Los Angeles (SC)	2023	LDA	Aggregate	Aggregate	ELEC	91678.53845	3806341.937	457107.9273	0
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	GAS	472375.6724	17372474.6	2187811.198	648.1906909
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	DSL	252.4118747	6132.921962	894.9059766	0.277775308
Los Angeles (SC)	2023	LDT1	Aggregate	Aggregate	ELEC	4635.248736	196781.6242	23233.68477	0
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	GAS	1397479.324	52162943.36	6567821.268	2069.799895
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	DSL	9765.230182	404272.1374	48008.05802	11.31280557
Los Angeles (SC)	2023	LDT2	Aggregate	Aggregate	ELEC	18283.62829	584568.8418	92279.45183	0
Los Angeles (SC)	2023	LHD1	Aggregate	Aggregate	GAS	105195.9307	3800052.408	1567262.626	359.3833271
Los Angeles (SC)	2023	LHD1	Aggregate	Aggregate	DSL	68776.35703	2893383.107	865120.0508	130.9243641
Los Angeles (SC)	2023	LHD2	Aggregate	Aggregate	GAS	17937.98852	625878.5235	267249.3013	67.95438628
Los Angeles (SC)	2023	LHD2	Aggregate	Aggregate	DSL	27873.77545	1126544.027	350617.0299	56.59739854
Los Angeles (SC)	2023	MCY	Aggregate	Aggregate	GAS	183955.3723	1265084.637	367910.7446	35.45479504
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	GAS	931795.9713	32264362.15	4326648.043	1576.940395
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	DSL	21297.50738	823486.0536	104465.3428	29.77006577
Los Angeles (SC)	2023	MDV	Aggregate	Aggregate	ELEC	10378.92649	342100.1259	52903.33041	0
Los Angeles (SC)	2023	MH	Aggregate	Aggregate	GAS	18786.35518	191391.548	1879.386973	36.76042896
Los Angeles (SC)	2023	MH	Aggregate	Aggregate	DSL	6166.797629	64319.47927	616.6797629	6.026053915
Los Angeles (SC)	2023	Motor Coach	Aggregate	Aggregate	DSL	658.0910352	92743.98303	9608.129114	13.82589661
Los Angeles (SC)	2023	OBUS	Aggregate	Aggregate	GAS	3965.955178	159342.8081	79350.83121	31.49929974
Los Angeles (SC)	2023	PTO	Aggregate	Aggregate	DSL	0	77198.6472	0	14.93547066
Los Angeles (SC)	2023	SBUS	Aggregate	Aggregate	GAS	1481.565044	58916.21473	5926.260176	6.358131428
Los Angeles (SC)	2023	SBUS	Aggregate	Aggregate	DSL	3497.078427	110638.3688	40355.80019	14.36000383
Los Angeles (SC)	2023	T6 Ag	Aggregate	Aggregate	DSL	11.67476155	97.073849	51.36895084	0.011080203
Los Angeles (SC)	2023	T6 CAIRP heavy	Aggregate	Aggregate	DSL	280.5602581	54871.42749	4096.179768	4.630891473
Los Angeles (SC)	2023	T6 CAIRP small	Aggregate	Aggregate	DSL	147.0353228	7680.714425	2146.715713	0.690922567
Los Angeles (SC)	2023	T6 instate construction heavy	Aggregate	Aggregate	DSL	2593.685207	170789.0459	11725.94998	16.01357351
Los Angeles (SC)	2023	T6 instate construction small	Aggregate	Aggregate	DSL	7838.439815	439668.4712	35437.28165	40.85987457
Los Angeles (SC)	2023	T6 instate heavy	Aggregate	Aggregate	DSL	10535.34865	1466280.47	121576.4628	127.6396288
Los Angeles (SC)	2023	T6 instate small	Aggregate	Aggregate	DSL	37375.9816	1984183.072	431331.6457	183.0271301
Los Angeles (SC)	2023	T6 OOS heavy	Aggregate	Aggregate	DSL	161.7713139	31697.11686	2361.861183	2.673821474
Los Angeles (SC)	2023	T6 OOS small	Aggregate	Aggregate	DSL	84.77351604	4403.138169	1237.693334	0.39634697
Los Angeles (SC)	2023	T6 Public	Aggregate	Aggregate	DSL	4479.460204	70241.70163	13587.69594	8.450363812
Los Angeles (SC)	2023	T6 utility	Aggregate	Aggregate	DSL	1011.45952	16954.26417	11631.78448	1.721713991
Los Angeles (SC)	2023	T6TS	Aggregate	Aggregate	GAS	14623.10816	797300.0842	292579.148	155.8676623
Los Angeles (SC)	2023	T7 Ag	Aggregate	Aggregate	DSL	5.450542727	89.56607012	23.982388	0.015745035
Los Angeles (SC)	2023	T7 CAIRP	Aggregate	Aggregate	DSL	5967.126018	1085857.383	87120.03986	152.0768811
Los Angeles (SC)	2023	T7 CAIRP construction	Aggregate	Aggregate	DSL	672.7726984	122679.2552	3041.579212	16.23989484
Los Angeles (SC)	2023	T7 NNOOS	Aggregate	Aggregate	DSL	6698.602472	1323677.931	97799.59609	176.2912352
Los Angeles (SC)	2023	T7 NOOS	Aggregate	Aggregate	DSL	2364.918201	426649.092	34527.80573	61.26348855
Los Angeles (SC)	2023	T7 POLA	Aggregate	Aggregate	DSL	8486.558826	1131828.731	64497.84707	175.4952223
Los Angeles (SC)	2023	T7 Public	Aggregate	Aggregate	DSL	5541.588258	112265.4557	16809.48436	19.02171313
Los Angeles (SC)	2023	T7 Single	Aggregate	Aggregate	DSL	5934.360332	388787.818	68481.69547	56.1742218
Los Angeles (SC)	2023	T7 single construction	Aggregate	Aggregate	DSL	4385.71399	304344.6678	19827.64243	42.88123171
Los Angeles (SC)	2023	T7 SWCV	Aggregate	Aggregate	DSL	1255.519365	51298.487	4896.525523	25.30419893
Los Angeles (SC)	2023	T7 SWCV	Aggregate	Aggregate	NG	2795.817267	113851.643	10903.68734	50.16782394
Los Angeles (SC)	2023	T7 tractor	Aggregate	Aggregate	DSL	12205.73158	1665217.666	155012.7911	219.5996373
Los Angeles (SC)	2023	T7 tractor construction	Aggregate	Aggregate	DSL	3685.502446	251057.5562	16662.01327	35.5101791
Los Angeles (SC)	2023	T7 utility	Aggregate	Aggregate	DSL	409.1727144	8303.947199	4705.486215	1.309375599
Los Angeles (SC)	2023	T7IS	Aggregate	Aggregate	GAS	52.86814563	5904.510911	1057.785858	1.405502268
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	GAS	463.3229945	33183.96593	1853.291978	7.630187276
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	DSL	10.1389	1181.230112	40.5556	0.208547568
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	ELEC	12	1070.403311	48	0
Los Angeles (SC)	2023	UBUS	Aggregate	Aggregate	NG	4153.840831	439713.4848	16615.36332	111.7447779