APPENDIX B

Air Quality and Greenhouse Gas Emissions Technical Report

Air Quality and Greenhouse Gas Emissions Analysis Technical Report for the Hughes Circuits Project City of San Marcos, California

Prepared for:

Hughes Circuits
546 S. Pacific Street
San Marcos, California 92078
Contact: Joe Hughes

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Matthew Morales

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
µg/m^3	micrograms per cubic meter
AB	Assembly Bill
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California's Green Building Standards
CalRecycle	California Department of Resources Recycling and Recovery
CAP	climate action plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CH_4	methane
City	City of San Marcos
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CPUC	California Public Utilities Commission
DPM	diesel particulate matter
EIR	environmental impact report
EO	Executive Order
EPA	U.S. Environmental Protection Agency
EV	electric vehicle
GHG	greenhouse gas
gpm	gallons per minute
GWP	global warming potential
H_2S	hydrogen sulfide
HAP	hazardous air pollutant
HCFCs	hydrochlorofluorocarbons
HFC	hydrofluorocarbon
HVAC	heating, ventilation, and air conditioning
IPCC	Intergovernmental Panel on Climate Change
kW	kilowatt
LCFS	Low Carbon Fuel Standard
LOS	level of service
MMT	million metric ton
MPO	metropolitan planning organization
MT CO_2e	metric tons of CO_2 equivalent
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NF_3	nitrogen trifluoride
NHTSA	National Highway Traffic Safety Administration
NO_2	nitrogen dioxide

Acronym/Abbreviation	Definition
NO_x	oxides of nitrogen
O_3	ozone
PFC	perfluorocarbon
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to 10 microns
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
ppb	parts per billion
ppm	parts per million
Project	Hughes Circuits Project
PV	photovoltaic
RAQS	Regional Air Quality Strategy
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
SAFE	Safer Affordable Fuel-Efficient
SANDAG	San Diego Association of Governments
SB	Senate Bill
SCS	Sustainable Communities Strategy
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SLCP	short-lived climate pollutant
SO_2	sulfur dioxide
SO_4	sulfates
SO_x	sulfur oxides
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
VOC	volatile organic compound
ZEV	zero emission vehicle

Executive Summary

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Hughes Circuits Project (Project). This assessment utilizes the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.).

Project Overview

The Project consists of development of a 67,410-square foot (SF) manufacturing building to support the expansion of the existing operations of Hughes Circuits Inc., currently located adjacent to the Project site to the south, at 546 S. Pacific Street. The 67,410 SF manufacturing building includes a 56,310 SF first floor, and a 11,100 SF mezzanine. The proposed manufacturing building would be located at the western-most portion of the Project site, and the disturbance area associated with Project construction would be limited to approximately 113,877 SF or 2.6 acres of the 10.46-acre project site.

The Project site is located within the San Diego Air Basin and is under the jurisdiction of the San Diego Air Pollution Control District (SDAPCD). Construction and operational criteria air pollutant and GHG emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2020.4.0.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the Project. Impacts were evaluated for their significance based on the County of San Diego's mass daily criteria air pollutant thresholds of significance (County of San Diego 2007), which is based on SDAPCD Rules 20.2 and 20.3 (SDAPCD 1998 and 2018). Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

Regarding consistency with local air quality plans, the Project would not result in a more intensive land use than currently allowed under the City's General Plan (City of San Marcos 2012), which SDAPCD's Regional Air Quality Strategy (RAQS) emissions forecast is based on. The Project site is designated as Light Industrial (LI) in the City's General Plan and is zoned Light Manufacturing (L-I). The Project would be consistent with these designations. As such, the Project would be consistent with relevant air quality plans, and impacts would be **less than significant**.

Construction Criteria Air Pollutant Emissions

Construction of the Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Notably, the Project applicant has committed that all diesel-powered off-road equipment over 50 horsepower will meet the U.S. EPA Tier 4 Final emission

standards for off-road equipment, which is included in the analysis as Project Design Feature (PDF) AQ-1. In addition, as specified in PDF-AQ-2, only low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC) will be used for the interiors and exteriors of the buildings. Estimated maximum daily construction emissions would not exceed the applied significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years (2023–2024). Therefore, Project construction air quality impacts would be **less than significant**.

Operational Criteria Air Pollutant Emissions

Operation of the Project would generate operational criteria air pollutants from mobile sources (i.e., vehicle trips), area sources (i.e., consumer product use, architectural coatings, and landscape maintenance equipment), off-road equipment (i.e., natural gas forklift), and energy (i.e., natural gas). Maximum daily operational emissions would not exceed the County of San Diego's operational significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$. Therefore, Project operational air quality impacts would be **less than significant**.

Exposure of Sensitive Receptors

Carbon Monoxide Hotspots

Operation of the Project would generate minimal new daily vehicle trips and would not expose sensitive receptors to localized high concentrations of CO or contribute traffic volumes to intersections that would cause a CO hotspot. Potential operational CO hotspot impacts would be **less than significant**.

Toxic Air Contaminants

Construction activities would not generate emissions in excess of the applied mass daily thresholds; therefore, Project-generated construction emissions are not anticipated to be substantial. In addition, diesel equipment used during Project construction would be subject to the California Air Resources Board air toxic control measures for in-use off-road diesel fleets, as well as Tier 4 Final engines for equipment greater than 50 horsepower pursuant to PDF-AQ-1, which would minimize diesel particulate matter emissions.

In regards to long-term toxic air contaminant emissions, the Project would result in a minimal increase in daily truck traffic on the roadway network and would not require stationary sources (such as diesel emergency generators). Therefore, the exposure of Project-related TAC emission impacts to proximate sensitive receptors would be **less than significant**.

Other Emissions (Odors)

The analysis of other emissions is focused on the potential for an odor impact to occur. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. In addition, the Project would not include land-use types that would generate odors during operation. Therefore, Project construction and operations would result in odor impacts that are **less than significant**.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact, but must also be evaluated on a project-level under CEQA. A project participates in this potential impact through its incremental contribution combined with the

cumulative increase of all other sources of GHG emissions. GHGs are gases that absorb infrared radiation in the atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential factors for CH_4 and N_2O.

The City of San Marcos adopted the Final Climate Action Plan (CAP) on December 8, 2020. The Project's GHG impact significance has been assessed based on compliance with the City's CAP Consistency Checklist. Construction and operational GHG emissions were quantified for informational purposes only and are summarized below.

Construction of the Project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The estimated total GHG emissions during construction would be approximately 397 MT CO_2e. Estimated Project-generated construction emissions amortized over 30 years would be approximately 13 MT CO_2e per year.

Operation of the Project would generate GHG emissions from area sources, energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment for the Project. In addition, GHGs generated by a natural gas forklift was estimated for the Project. Pursuant to PDF-GHG-1, the Project would incorporate approximately 9,700 square feet of solar photovoltaic panels, which was accounted for in the emissions modeling. The estimated GHG emissions from operation of the Project would be approximately 611 MT CO_2e per year, including amortized construction emissions.

Development of the Project site would be consistent with the City's CAP and would not conflict with the California Air Resources Board Scoping Plan or the San Diego Association of Governments Regional Transportation Plan/Sustainable Communities Strategy. As such, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs or generate GHGs that may have a significant impact on the environment. This impact would be **less than significant**.

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1 Introduction

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with implementation of the proposed Hughes Circuits Project (Project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and is based on the emissions-based significance thresholds recommended by the County of San Diego (County), which is based on the San Diego Air Pollution Control District (SDAPCD) rules, and other applicable thresholds of significance.

This introductory Section provides a description of the Project and the Project location. Chapter 2, Air Quality, describes the air quality–related environmental setting, regulatory setting, existing air quality conditions, and thresholds of significance and analysis methodology, and presents an air quality impact analysis per Appendix G of the CEQA Guidelines. Chapter 3, Greenhouse Gas Emissions, follows the same format as Chapter 2 and similarly describes the GHG emissions–related environmental setting, regulatory setting, existing climate changes conditions, and thresholds of significance and analysis methodology, and presents a GHG emissions impact analysis per Appendix G of the CEQA Guidelines. Chapter 4, References Cited, includes a list of the references cited. Chapter 5, List of Preparers, includes a list of those who prepared this technical report.

1.2 Project Description

The approximately 10.46-acre Project site is located at the northeast corner of South Pacific Street and South Pacific Street within the City of San Marcos (City), California. The vacant Project site is comprised of Assessor's Parcel Numbers (APNs) 219-223-20-00 and 219-223-22-00 and sits north of South Pacific Street on one side and east of South Pacific Street on the other.

The project consists of development of a 67,410-square foot (SF) manufacturing building to support the expansion of the existing operations of Hughes Circuits Inc., currently located adjacent to the Project site to the south, at 546 S. Pacific Street. The 67,410 SF manufacturing building includes a 56,310 SF first floor, and a 11,100 SF mezzanine. The proposed manufacturing building would be located at the western-most portion of the Project site, and the disturbance area associated with Project construction would be limited to approximately 113,877 SF or 2.61 acres of the 10.46-acre project site. Proposed development would only occur within APN 219-223-20-00. The proposed manufacturing building would include a fire control room, minimum point of entry room, trash enclosure, outdoor amenity area, electrical room, and grade level loading dock. Parking for the proposed building would include 72 parking spaces, including 9 spaces designated for clean air, vanpool, or electric vehicles (of which 4 spaces will have electric vehicle chargers pre-installed and at least 3 others will be electric vehicle ready), 4 accessible stalls, and 1 United States Postal Service parking stall. Additionally, 4 short-term bicycle parking spaces and 4 long-term bicycle parking spaces would be provided. Furthermore, the Project would incorporate approximately 9,700 square feet of rooftop mounted solar photovoltaic panels.

Access to the proposed building would be provided via two new driveways along S. Pacific Street, one at the northwestern boundary of the proposed building site, and the other at the southeastern boundary of the proposed building site. Stormwater basins and associated landscaping would be incorporated along the perimeter of the

proposed manufacturing building. Approximately 60 employees would work out of the proposed manufacturing building.

The Project site is currently designated as Light Industrial (L-I) under the City's General Plan, and the Project proposes a Light Manufacturing land use, consistent with the City's General Plan. Adjacent land uses include mixed commercial development to the north and south, a public recreational park (Bradley Park) to the west, and undeveloped land to the east.

2 Air Quality

2.1 Environmental Setting

2.1.1 Meteorological and Topographical Conditions

The Project site is located within the San Diego Air Basin (SDAB) and is subject to the SDAPCD guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted. Meteorological and topographical conditions, however, are also important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of air pollutants. Meteorological and topographical factors that affect air quality in the SDAB are described below.[1]

Regional Climate and Meteorological Conditions

The climate of the San Diego region, as in most of Southern California, is influenced by the strength and position of the semi-permanent high-pressure system over the Pacific Ocean, known as the Pacific High. This high-pressure ridge over the west coast often creates a pattern of late-night and early-morning low clouds, hazy afternoon sunshine, daytime onshore breezes, and little temperature variation year-round. The SDAB is characterized as a Mediterranean climate with dry, warm summers and mild, occasionally wet winters. Average temperature ranges (in degrees Fahrenheit (°F)) from the mid-40s to the high 90s, with an average of 201 days warmer than 70°F. The SDAB experiences 9 to 13 inches of rainfall annually, with most of the region's precipitation falling from November through March, with infrequent (approximately 10%) precipitation during the summer. El Niño and La Niña patterns have large effects on the annual rainfall received in San Diego, where San Diego receives less than normal rainfall during La Niña years.

The interaction of ocean, land, and the Pacific High maintains clear skies for much of the year and influences the direction of prevailing winds (westerly to northwesterly). The winds tend to blow onshore in the day and offshore at night. Local terrain is often the dominant factor inland, and winds in inland mountainous areas tend to blow through the valleys during the day and down the hills and valleys at night.

The favorable climate of San Diego also works to create air pollution problems. Sinking, or subsiding air from the Pacific High, creates a temperature inversion known as a subsidence inversion, which acts as a "lid" to vertical dispersion of pollutants. Weak summertime pressure gradients further limit horizontal dispersion of pollutants in the mixed layer below the subsidence inversion. Poorly dispersed anthropogenic emissions combined with strong sunshine leads to photochemical reactions that result in the creation of ozone (O_3) at this surface layer. In addition, light winds during the summer further limit ventilation.

In the fall months, the SDAB is often impacted by Santa Ana winds, which are the result of a high-pressure system over the Nevada and Utah regions that overcomes the westerly wind pattern and forces hot, dry winds from the east

[1] The discussion of meteorological and topographical conditions of the SDAB is based on information provided in the SDAPCD *2016 Monitoring Plan* (SDAPCD 2017), the County of San Diego *Guidelines for Determining Significance – Air Quality* (County of San Diego 2007), the County of San Diego *General Plan Update EIR* (County of San Diego 2011), and the CARB *Recommended Area Designation for the 2010 Federal Sulfur Dioxide Standard* (CARB 2011).

to the Pacific Ocean. The Santa Ana winds are powerful and can blow the SDAB's pollutants out to sea. However, a weak Santa Ana can transport air pollution from the South Coast Air Basin and greatly increase O_3 concentrations in the San Diego area.

Under certain conditions, atmospheric oscillation results in the offshore transport of air from the Los Angeles region to San Diego County. This often produces high O_3 concentrations, as measured at air pollutant monitoring stations within San Diego County. The transport of air pollutants from Los Angeles to San Diego can also occur within the stable layer of the elevated subsidence inversion, where high levels of O_3 are transported.

Topographical Conditions

Topography in the San Diego region varies greatly, from beaches in the west to mountains and desert in the east; much of the topography in between consists of mesa tops intersected by canyon areas. Along with local meteorology, topography influences the dispersal and movement of pollutants in the SDAB. Mountains to the east prohibit dispersal of pollutants in that direction and help trap pollutants in inversion layers.

The topography of the SDAB also drives pollutant levels, and the SDAB is classified as a "transport recipient," whereby pollutants are transported from the South Coast Air Basin to the north and, when the wind shifts direction, from Tijuana, Mexico, to the south.

2.1.2 Pollutants and Effects

2.1.2.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The national and California standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants. These pollutants, as well as toxic air contaminants (TACs), are discussed in the following paragraphs.[2]

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly oxides of nitrogen (NO_x) and volatile organic compounds (VOCs). The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere

[2] The descriptions of the criteria air pollutants and associated health effects are based on the U.S. Environmental Protection Agency's "Criteria Air Pollutants" (EPA 2018), as well as the California Air Resources Board's "Glossary" (CARB 2019a) and "Fact Sheet: Air Pollution Sources, Effects and Control" (CARB 2009).

(ground-level O_3).[3] The O_3 that the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2013).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2019b).

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016).

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during

[3] The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2019c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the Project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2019d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 parts per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2019e).

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Coarse particulate matter (PM_{10}) consists of particulate matter that is 10 microns or less in diameter, which is about 1/7 the thickness of a human hair. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. Fine particulate matter ($PM_{2.5}$) consists of particulate matter that is 2.5 microns or less in diameter, which is roughly 1/28 the diameter of a human hair. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as sulfur oxides (SO_x), NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017a).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017a).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO_2 in the atmosphere and can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for $PM_{2.5}$.

Volatile Organic Compounds. Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O_3 are referred to and regulated as VOCs (also referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate ambient air quality standards for VOCs as a group.

2.1.2.2 Non-Criteria Air Pollutants

Toxic Air Contaminants. A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic non-cancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the state of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs

into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

Examples include certain aromatic and chlorinated hydrocarbons, certain metals, and asbestos. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and non-carcinogenic effects. Non-carcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC.

Diesel Particulate Matter. Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70 the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2019f). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2019f). The CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) (17 CCR 93000) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines, including trucks, buses, and cars, and off-road diesel engines, including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2019f). Those most vulnerable to non-cancer health effects are children, whose lungs are still developing, and older people, who often have chronic health problems.

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. When fungal spores are present, any activity that disturbs the soil, such as digging, grading, or other earth-moving operations, can cause the spores to become airborne and thereby increase the risk of exposure. The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline sandy soils.

The reported number of cases in California was 7,515 cases in 2018, with the Coccidioidomycosis incidence rate of 18.8 per 100,000 population in 2018 (CDPH 2019). Valley Fever is not considered highly endemic to San Diego. Per the San Diego County Health and Human Services Agency, the 10-year average (2010–2019) for Coccidioidomycosis cases in the County of San Diego is 6.3 cases per 100,000 people per year. Similarly, among the total reported incidents of Valley Fever from 2010 through 2019, only 0.9% of the cases reported in the County were in in the City's zip code that includes the project site (92078) (County of San Diego 2021).

Even if present at a site, earth-moving activities may not result in increased incidence of Valley Fever. Propagation of *Coccidioides immitis* is dependent on climatic conditions, with the potential for growth and surface exposure

highest following early seasonal rains and long dry spells. *Coccidioides immitis* spores can be released when filaments are disturbed by earth-moving activities, although receptors must be exposed to and inhale the spores to be at increased risk of developing Valley Fever. Moreover, exposure to *Coccidioides immitis* does not guarantee that an individual will become ill—approximately 60% of people exposed to the fungal spores are asymptomatic and show no signs of an infection (USGS 2000).

Odorous Compounds. Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. In a phenomenon known as odor fatigue, a person can become desensitized to almost any odor, and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

2.1.3 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The SDAPCD identifies sensitive receptors as those who are especially susceptible to adverse health effects from exposure to TACs, such as children, the elderly, and the ill. Sensitive receptors include schools (grades Kindergarten through 12), day care centers, nursing homes, retirement homes, health clinics, and hospitals within two kilometers of the facility (SDAPCD 2019).

As depicted in Figure 1, the nearest existing sensitive receptors are located to the west of the Project site, with multifamily residential (520 feet away) and Bradley Park (550 feet away) the most proximate.

2.2 Regulatory Setting

2.2.1 Federal Regulations

2.2.1.1 Criteria Air Pollutants

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; setting hazardous air pollutant (HAP) standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the

NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the NAAQS within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 187 substances and chemical families were identified as HAPs.

2.2.2 State Regulations

2.2.2.1 Criteria Air Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. As stated previously, an ambient air quality standard defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below the relevant CAAQS before a basin can attain the corresponding CAAQS. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded.

California air districts have based their thresholds of significance for CEQA purposes on the levels that scientific and factual data demonstrate that the air basin can accommodate without affecting the attainment date for the NAAQS or CAAQS. Since an ambient air quality standard is based on maximum pollutant levels in outdoor air that would not harm the public's health, and air district thresholds pertain to attainment of the ambient air quality standard, this means that the thresholds established by air districts are also protective of human health.

All others are not to be equaled or exceeded. The NAAQS and CAAQS are presented in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
O_3	1 hour	0.09 ppm (180 μg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 μg/m³)	0.070 ppm (137 μg/m³)[f]	

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	*Primary*[c,d]	*Secondary*[c,e]
NO_2[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
CO	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
SO_2[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 µg/m³	150 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m³	—	
$PM_{2.5}$[i]	24 hours	—	35 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day Average	1.5 µg/m³	—	—
	Calendar Quarter	—	1.5 µg/m³ (for certain areas)[k]	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m³	
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m³)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m³)	—	—
Sulfates	24 hours	25 µg/m³	—	—
Visibility reducing particles	8 hours (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: µg/m³ = micrograms per cubic meter; mg/m³= milligrams per cubic meter; ppm = parts per million by volume; O_3 = ozone; NO_2 = nitrogen dioxide; CO = carbon monoxide; SO_2 = sulfur dioxide; PM_{10} = particulate matter with an aerodynamic diameter less than or equal to 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than or equal to 2.5 microns.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter (PM_{10}, $PM_{2.5}$), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration

measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based on a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the national 8-hour O_3 primary and secondary standards were lowered from 0.075 to 0.070 ppm.

[g] To attain the national 1-hour standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards, the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the national 1-hour standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m³ to 12.0 µg/m³. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m³, as was the annual secondary standard of 15 µg/m³. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m³ were also retained. The form of the annual primary and secondary standards is the annual mean averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under AB 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs. In 1987, the Legislature enacted the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) to address public concern over the release of TACs into the atmosphere. AB 2588 law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years. TAC emissions from individual facilities are quantified and prioritized. "High-priority" facilities are required to perform a health risk assessment, and if specific thresholds are exceeded, the facility operator is required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines (CARB 2000). The regulation is anticipated to result in an 80% decrease in statewide diesel health risk in 2020 compared with the diesel risk in 2000. Additional regulations include Airborne Toxic Control Measures (ATCMs), several of which are described below.

Idling of Commercial Heavy Duty Trucks (13 CCR 2485)

In July 2004, CARB adopted an Airborne Toxic Control Measure (ATCM) to control emissions from idling trucks. The ATCM prohibits idling for more than five minutes for all commercial trucks with a gross vehicle weight rating over 10,000 pounds. The ATCM contains an exception that allows trucks to idle while queuing or involved in operational activities.

In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.)

In July 2007, CARB adopted an ATCM for in-use off-road diesel vehicles. This regulation requires that specific fleet average requirements are met for NO_x emissions and for particulate matter emissions. Where average requirements cannot be met, best available control technology requirements apply. The regulation also includes several recordkeeping and reporting requirements.

In response to AB 8 2X, the regulations were revised in July 2009 (effective December 3, 2009) to allow a partial postponement of the compliance schedule in 2011 and 2012 for existing fleets. On December 17, 2010, CARB adopted additional revisions to further delay the deadlines reflecting reductions in diesel emissions due to the poor economy and overestimates of diesel emissions in California. The revisions delayed the first compliance date until no earlier than January 1, 2014, for large fleets, with final compliance by January 1, 2023. The compliance dates for medium fleets were delayed until an initial date of January 1, 2017, and final compliance date of January 1, 2023. The compliance dates for small fleets were delayed until an initial date of January 1, 2019, and final compliance date of January 1, 2028. Correspondingly, the fleet average targets were made more stringent in future compliance years. The revisions also accelerated the phaseout of older equipment with newer equipment added to existing large and medium fleets over time, requiring the addition of Tier 2 or higher engines starting on March 1, 2011, with some exceptions: Tier 2 or higher engines on January 1, 2013, without exception; and Tier 3 or higher engines on January 1, 2018 (January 1, 2023, for small fleets).

On October 28, 2011 (effective December 14, 2011), the Executive Officer approved amendments to the regulation. The amendments included revisions to the applicability section and additions and revisions to the definition. The initial date for requiring the addition of Tier 2 or higher engines for large and medium fleets, with some exceptions, was revised to January 1, 2012. New provisions also allow for the removal of emission control devices for safety or visibility purposes. The regulation also was amended to combine the particulate matter and NO_x fleet average targets under one, instead of two, sections. The amended fleet average targets are based on the fleet's NO_x fleet average, and the previous section regarding particulate matter performance requirements was deleted completely. The best available control technology requirements, if a fleet cannot comply with the fleet average requirements, were restructured and clarified. Other amendments to the regulations included minor administrative changes to the regulatory text.

In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025)

On December 12, 2008, CARB adopted an ATCM to reduce NO_x and particulate matter emissions from most in-use on-road diesel trucks and buses with a gross vehicle weight rating greater than 14,000 pounds. The original ATCM regulation required fleets of on-road trucks to limit their NO_x and particulate matter emissions through a combination of exhaust retrofit equipment and new vehicles. The regulation limited particulate matter emissions for most fleets by 2011, and limited NO_x emissions for most fleets by 2013. The regulation did not require any vehicle to be replaced before 2012 and never required all vehicles in a fleet be replaced.

In December 2009, the CARB Governing Board directed staff to evaluate amendments that would provide additional flexibility for fleets adversely affected by the struggling California economy. On December 17, 2010, CARB revised this ATCM to delay its implementation along with limited relaxation of its requirements. Starting on January 1, 2015, lighter trucks with a gross vehicle weight rating of 14,001 to 26,000 pounds with 20-year-old or older engines need to be replaced with newer trucks (2010 model year emissions equivalent as defined in the regulation). Trucks with a gross vehicle weight rating greater than 26,000 pounds with 1995 model year or older engines needed to be replaced as of January 1, 2015. Trucks with 1996 to 2006 model year engines must install a Level 3 (85% control) diesel particulate filter starting on January 1, 2012, to January 1, 2014, depending on the model year, and then must be replaced after eight years. Trucks with 2007 to 2009 model year engines have no requirements until 2023, at which time they must be replaced with 2010 model year emissions-equivalent engines, as defined in the regulation. Trucks with 2010 model year engines would meet the final compliance requirements. The ATCM provides a phase-in option under which a fleet operator would equip a percentage of trucks in the fleet with diesel particulate filters, starting at 30% as of January 1, 2012, with 100% by January 1, 2016. Under each option, delayed compliance is granted to fleet operators who have or will comply with requirements before the required deadlines.

On September 19, 2011 (effective December 14, 2011), the Executive Officer approved amendments to the regulations, including revisions to the compliance schedule for vehicles with a gross vehicle weight rating of 26,000 pounds or less to clarify that *all* vehicles must be equipped with 2010 model year emissions equivalent engines by 2023. The amendments included revised and additional credits for fleets that have downsized; implement early particulate matter retrofits; incorporate hybrid vehicles, alternative-fueled vehicles, and vehicles with heavy-duty pilot ignition engines; and implement early addition of newer vehicles. The amendments included provisions for additional flexibility, such as for low-usage construction trucks, and revisions to previous exemptions, delays, and extensions. Other amendments to the regulations included minor administrative changes to the regulatory text, such as recordkeeping and reporting requirements related to other revisions.

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This Section also applies to sources of objectionable odors.

2.2.3 Local Regulations

2.2.3.1 San Diego Air Pollution Control District

San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The Project site is located within the SDAB, which is under the jurisdiction of the SDAPCD, and is therefore, subject to the guidelines and regulations of SDAPCD. Federal and State attainment plans adopted by the SDAPCD are summarized below.

Federal Attainment Plans

SDAPCD has prepared the 2020 Plan for Attaining the National Ambient Air Quality Standards for Ozone in San Diego County (2020 Attainment Plan) that demonstrates how the region will further reduce air pollutant emissions in order to attain the current NAAQS for ozone. The 2020 Attainment Plan was approved by the SDAPCD on October 14, 2020. On November 19, 2020, CARB adopted the 2020 Attainment Plan for attaining the Federal 8-hour 75 ppb and 70 ppb Ozone standards and projects attainment for the standards by 2026 and 2032, respectively (SDAPCD 2020a). The 2020 Attainment Plan was submitted to the EPA as a revision to the California State Implementation Plan (SIP) for attaining the ozone NAAQS.

As described in the 2020 Attainment Plan, although San Diego County has experienced substantial growth in gross regional product, population, vehicle miles traveled, and energy consumption between 2000-2018, the O_3 emission levels declined, and air quality continued to improve. Total regionwide NO_x and VOC emissions were reduced by over 60% and 50%, respectively, between 2000-2018. These improvements were the result of a combination of regulatory and incentive-based approaches at local, State, and federal government levels. Ongoing implementation of these strategies will continue reducing total O_3 precursor emissions as new lower emitting sources replace older, higher-emitting sources at the end of their useful lives (SDAPCD 2020a).

State Attainment Plans

SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated every 3 years, most recently in 2016 (SDAPCD 2016b). The RAQS is periodically updated as required by state law as new measures to improve air quality and protect public health and the climate become feasible and cost-effective. The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans (SANDAG 2017a, 2017b).

In December 2016, SDAPCD adopted the revised RAQS for the County. Since 2007, the San Diego region has reduced daily VOC emissions and NO_x emissions by 3.9% and 7.0%, respectively; SDAPCD expects to continue reductions through 2035 (SDAPCD 2016b). These reductions were achieved through implementation of six VOC control measures and three NO_x control measures adopted in SDAPCD's 2009 RAQS (SDAPCD 2009a); in addition, SDAPCD is considering additional measures, including three VOC measures and four control measures to reduce 0.3 daily tons of VOCs and 1.2 daily tons of NO_x, provided they are found to be feasible region-wide. In addition, SDAPCD has implemented nine incentive-based programs, has worked with SANDAG to implement regional transportation control measures, and has reaffirmed the state emission offset repeal. Notably, the SDAPCD has prepared the Draft 2022 Regional Air Quality Strategy (2022 RAQS), which contains proposed and scheduled measures that would provide additional direct emission reductions of O_3 precursors, as well as indirect reductions of particulate matter and greenhouse gas (GHG) emissions. The SDAPCD has adopted and/or amended seven existing measures since 2016, proposed and scheduled eight measures in the next three years, and proposed 14 additional measures for further study in the next three years. All proposed measures will further reduce air pollution beyond levels established in the 2016 RAQS. Together, the proposed control measures scheduled for consideration

are estimated to reduce VOC emissions by approximately 0.04 tons per day and NO_x emissions by 0.59 tons per day (SDAPCD 2022).

In regard to particulate matter emissions reduction efforts, in December 2005, SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill (SB) 656 in San Diego County (SB 656 required additional controls to reduce ambient concentrations of PM_{10} and $PM_{2.5}$) (SDAPCD 2005). In the report, SDAPCD evaluated the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

SDAPCD Rules and Regulations

As stated previously, SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD:

- **SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions.** Prohibits any activity causing air contaminant emissions darker than 20% opacity for more than an aggregate of 3 minutes in any consecutive 60-minute time period. In addition, Rule 50 prohibits any diesel pile-driving hammer activity causing air contaminant emissions for a period or periods aggregating more than 4 minutes during the driving of a single pile (SDAPCD 1997).
- **SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance.** Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1976).
- **SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust.** Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009b).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings.** Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015a).
- **SDAPCD Regulation IV: Prohibitions; Rule 67.7: Cutback and Emulsified Asphalts.** This rule prohibits manufacturers, distributors, and end users of cutback and emulsified asphalt materials for the paving, construction or maintenance of parking lots, driveways, streets and highways from applying asphalt material or road oils which contain more than 0.5 percent by volume VOC which evaporate at 260° C (500 ° F) or less (SDAPCD 1979).

2.2.3.2 San Diego Association of Governments

SANDAG is the regional planning agency for the County and serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SANDAG serves as the federally designated metropolitan planning organization for the County. With respect to air quality planning and other regional

issues, SANDAG has prepared San Diego Forward: The Regional Plan (Regional Plan) for the San Diego region (SANDAG 2015). The Regional Plan combines the big-picture vision for how the region will grow over the next 35 years with an implementation program to help make that vision a reality. The Regional Plan, including its Sustainable Communities Strategy (SCS), is built on an integrated set of public policies, strategies, and investments to maintain, manage, and improve the transportation system so that it meets the diverse needs of the San Diego region through 2050. The Regional Plan was updated in 2021, which was the result of years of planning, data analysis, and community engagement to reimagine the San Diego region with a transformative transportation system, a sustainable pattern of growth and development, and innovative demand and management strategies (SANDAG 2021). The 2021 Regional Plan includes a SCS, which describes coordinated transportation and land use planning that exceeds the state's target for reducing per capita GHG emissions set by CARB. The state-mandated target is a 19% reduction—compared with 2005—in per capita GHG emissions from cars and light-duty trucks by 2035. The 2021 Regional Plan achieves a 20% reduction by then. The 2021 Regional Plan also puts forth a forecasted development pattern that is driven by regional goals for sustainability, mobility, housing affordability, and economic prosperity.

2.2.3.3 City of San Marcos

The City's General Plan (City of San Marcos 2012) includes various policies related to reducing Air Quality and GHG emissions. Air quality policies that would be applicable to the Project include:

Land Use and Community Design Element

Policy LU-2.1: Promote compact development patterns that reduce air pollution and automobile dependence and facilitate walking, bicycling, and transit use.

Policy LU-3.1: Require that new development and redevelopment incorporate connections and reduce barriers between neighborhoods, transit corridors, and activity centers within the City.

Mobility Element

Policy M-2.1: Work with new development to design roadways that minimize traffic volumes and/or speed, as appropriate within residential neighborhoods; while maintaining the City's desire to provide connectivity on the roadway network.

Conservation and Open Space Element

Policy COS-4.6: Promote efficient use of energy and conservation of available resources in the design, construction, maintenance and operation of public and private facilities, infrastructure and equipment.

Policy COS-4.8: Encourage and support the generation, transmission and use of renewable energy.

2.3 Regional and Local Air Quality Conditions

2.3.1 San Diego Air Basin Attainment Designation

Pursuant to the 1990 federal Clean Air Act amendments, the EPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as "attainment" for that pollutant. If an area exceeds the standard, the area is classified as "nonattainment" for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as "unclassified" or "unclassifiable." The designation of "unclassifiable/attainment" means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are re-designated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as "attainment" or "nonattainment," but based on CAAQS rather than the NAAQS. Table 2 depicts the current attainment status of the Project site with respect to the NAAQS and CAAQS, as well as the attainment classifications for the criteria pollutants are outlined in Table 2.

Table 2. San Diego Air Basin Attainment Status

Pollutant	Designation/Classification	
	National Standards	*State Standards*
Ozone (O_3) – 1-hour	Attainment (maintenance)[a]	**Nonattainment**
Ozone (O_3) – 8-hour	**Nonattainment (severe)**	**Nonattainment**
Nitrogen dioxide (NO_2)	Unclassifiable/attainment[b]	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO_2)	Unclassifiable/attainment	Attainment
Respirable particulate matter (PM_{10})	Unclassifiable/attainment	**Nonattainment**
Fine particulate matter ($PM_{2.5}$)	Unclassifiable/attainment	**Nonattainment**
Lead (Pb)	Attainment	Attainment
Sulfates (SO_4)	No national standard	Attainment
Hydrogen sulfide (H_2S)	No national standard	Unclassified
Vinyl chloride	No national standard	No designation
Visibility-reducing particles	No national standard	Unclassified

Sources: EPA 2021a (national); CARB 2020 (state).
Definitions: Attainment = meets the standards; attainment/maintenance = achieve the standards after a nonattainment designation; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify; unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.
Notes: SDAB = San Diego; O_3 = ozone; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide.

[a] The national 1-hour standard of 0.12 parts per million (ppm) was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in SIPs.

[b] The western and central portions of the SDAB are designated attainment, while the eastern portion is designated unclassifiable/ attainment.

In summary, the EPA has designated the SDAB as a nonattainment area for the federal 8-hour O_3 standard, and CARB has designated the SDAB as a nonattainment area for the state 1-hour and 8-hour O_3 standards. The SDAB has been designated as a nonattainment area for the state 24-hour and annual PM_{10} standards and as a nonattainment area for the state annual $PM_{2.5}$ standard. The SDAB is designated as unclassified or attainment for all other criteria air pollutants.

2.3.2 Local Ambient Air Quality

CARB, air districts, and other agencies monitor ambient air quality at approximately 250 air quality monitoring stations across the state. SDAPCD operates a network of ambient air monitoring stations throughout San Diego County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The SDAPCD monitors air quality conditions at 11 locations throughout the SDAB. Escondido – East Valley Parkway monitoring station cease to collect data post-2015; thus, due to proximity to the site and similar geographic and climactic characteristics, the Camp Pendleton, San Diego-Rancho Carmel Drive, San Diego–Kearny Villa Road, and El Cajon-Lexington Elementary School monitoring station concentrations for all pollutants are considered most representative of the Project site. Ambient concentrations of pollutants from 2018 through 2020 are presented in Table 3.

Table 3. Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2018	*2019*	*2020*	*2018*	*2019*	*2020*
Ozone (O_3) – Camp Pendleton									
Maximum 1-hour concentration	ppm	State	0.12	0.084	0.075	0.094	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.069	0.065	0.074	0	0	3
		Federal	0.070	0.068	0.064	0.074	0	0	3
Nitrogen Dioxide (NO_2) – San Diego – Rancho Carmel Drive									
Maximum 1-hour concentration	ppm	State	0.18	0.055	0.054	0.054	0	0	0
		Federal	0.100	0.055	0.054	0.054	0	0	0
Annual concentration	ppm	State	0.030	0.015	0.014	0.014	—	—	—
		Federal	0.053	0.015	0.014	0.014	—	—	—
Carbon Monoxide (CO) – San Diego – Rancho Carmel Drive									
Maximum 1-hour concentration	ppm	State	20	1.9	4.1	3.3	0	0	0
		Federal	35	1.9	4.1	3.3	0	0	0
Maximum 8-hour concentration	ppm	State	9.0	1.4	2.5	1.7	0	0	0
		Federal	9	1.4	2.5	1.7	0	0	0
Sulfur Dioxide (SO_2) – El Cajon-Lexington Elementary School									
Maximum 1-hour concentration	ppm	Federal	0.075	0.0035	0.0008	0.0017	0	0	0

Table 3. Local Ambient Air Quality Data

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2018	*2019*	*2020*	*2018*	*2019*	*2020*
Maximum 24-hour concentration	ppm	Federal	0.14	0.0004	0.0003	0.0004	0	0	0
Annual concentration	ppm	Federal	0.030	0.0001	0.00007	0.00009	—	—	—
Coarse Particulate Matter (PM_{10})[a] – San Diego – Kearny Villa Road									
Maximum 24-hour concentration	µg/m³	State	50	38.0	ND	ND	0.0 (0)	ND (0)	ND (0)
		Federal	150	38.0	ND	ND	0.0 (0)	ND (0)	ND (0)
Annual concentration	µg/m³	State	20	18.4	ND	ND	—	—	—
Fine Particulate Matter ($PM_{2.5}$)[a] – San Diego – Kearny Villa Road									
Maximum 24-hour concentration	µg/m³	Federal	35	32.2	16.2	47.5	0.0 (0)	0.0 (0)	5.8 (2)
Annual concentration	µg/m³	State	12	8.3	ND	ND	—	—	—
		Federal	12.0	8.3	7.0	8.7	—	—	—

Sources: CARB 2022a; EPA 2021b.

Notes: ppm = parts per million by volume; ND = insufficient data available to determine the value; — = not available; µg/m³ = micrograms per cubic meter.

Data taken from CARB iADAM (http://www.CARB.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour ozone, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

The Camp Pendleton monitoring station is located at 21441 West B Street, Camp Pendleton, California.

The San Diego-Rancho Carmel Drive monitoring station is located at 11403 Rancho Carmel Drive, San Diego, California.

The El Cajon-Lexington Elementary School monitoring station is located at 533 First Street, El Cajon, California.

The San Diego-Kearny Villa Road monitoring station is located at 6125A Kearny Villa Road, San Diego, California.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

2.4 Significance Criteria and Methodology

2.4.1 Thresholds of Significance

The significance criteria used to evaluate the Project impacts to air quality is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this air quality analysis, a significant impact would occur if the Project would (14 CCR 15000 et seq.):

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.

4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to determine whether the Project would have a significant impact on air quality.

County of San Diego and SDAPCD

Neither the City of San Marcos nor the SDAPCD have developed CEQA thresholds of significance for air quality; however, the County of San Diego has established CEQA screening-level thresholds for air quality impact analyses based on the SDAPCD Air Quality Impact Assessments trigger levels, which are based on emissions levels identified under the New Source Review program. As part of its air quality permitting process, SDAPCD has established thresholds in Rule 20.2 and Rule 20.3 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources (non-major and major stationary sources, respectively) (SDAPCD 2020b, 2021). SDAPCD sets forth quantitative emission thresholds below which a stationary source would not have a significant impact on ambient air quality. Because SDAPCD Rules 20.2 and 20.3 do not identify a VOC threshold, the County of San Diego established a VOC threshold based on the South Coast Air Quality Management District's VOC threshold.

For CEQA purposes, the screening-level thresholds established by the County of San Diego can be used as numeric methods to demonstrate that a project's total emissions would not result in a significant impact to air quality for projects within San Diego County. Accordingly, the thresholds listed in Table 4 are used to evaluate whether Project-related emissions could cause a significant impact on air quality. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 4, the Project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus, could have a significant impact on the ambient air quality; conversely, emissions below the screening-level thresholds would not cause a significant impact. A project that involves a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

Table 4. Air Quality Significance Thresholds

Construction and Operational Emissions			
	Total Emissions		
Pollutant	*Pounds per Hour*	*Pounds per Day*	*Tons per Year*
Respirable particulate matter (PM_{10})	—	100	15
Fine particulate matter ($PM_{2.5}$)	—	55	10
Oxides of nitrogen (NO_x)	25	250	40
Sulfur oxides (SO_x)	25	250	40
Carbon monoxide (CO)	100	550	100
Lead and lead compounds	—	3.2	0.6
Volatile organic compounds (VOC)	—	75[a]	13.7

Source: SDAPCD Rules 20.2(d)(2) and 20.3(d)(2).

[a] VOC threshold based on South Coast Air Quality Management District (SCAQMD) levels for Coachella Valley, which have similar federal and state attainment status to San Diego.

2.4.2 Approach and Methodology

2.4.2.1 Construction Emissions

Emissions from the construction phase of the Project were estimated using CalEEMod Version 2020.4.0. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the Project applicant and CalEEMod default values when Project specifics were not known.

For purposes of estimating Project emissions, and based on information provided by the Project applicant, it is assumed that construction of the Project would commence in September 2023[4] and would last approximately 12 months, ending in August 2024. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Site Preparation: 3 days (September 2023)
- Grading: 6 days (September 2023)
- Building Construction: 220 days (September 2023 – July 2024)
- Paving: 10 days (July 2024)
- Architectural Coating: 10 days (August 2024)

Grading was assumed to require 17,000 cubic yards of soil for import. The construction equipment mix and vehicle trips used for estimating the Project-generated construction emissions are shown in Table 5.

Table 5. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Daily Usage Hours*
Site Preparation	8	2	0	Graders	1	8
				Scrapers	1	8
				Tractors/Loaders/ Backhoes	1	7
Grading	10	2	2,125	Graders	1	8
				Rubber Tired Dozers	1	8
				Tractors/Loaders/ Backhoes	2	7
Building Construction	52	20	0	Cranes	1	8
				Forklifts	2	7
				Generator Sets	1	8
				Tractors/Loaders/ Backhoes	1	6

[4] The analysis assumes a construction start date of September 2023, which represents the earliest date construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years.

Table 5. Construction Scenario Assumptions

Construction Phase	One-Way Vehicle Trips			Equipment		
	Average Daily Worker Trips	*Average Daily Vendor Truck Trips*	*Total Haul Truck Trips*	*Equipment Type*	*Quantity*	*Daily Usage Hours*
				Welders	3	8
Paving	16	0	0	Cement and Mortar Mixers	1	8
				Pavers	1	8
				Paving Equipment	1	8
				Rollers	2	8
				Tractors/Loaders/ Backhoes	1	8
Architectural Coating	10	0	0	Air Compressors	1	6

Notes: See Appendix A for details.

Construction of project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. This rule requires that construction of project components include steps to restrict visible emissions of fugitive dust beyond the property line (SDAPCD 2009b). Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. To reflect implementation of proposed dust control strategies, it was assumed that the exposed areas would be watered two times per day (55% reduction in PM_{10} and $PM_{2.5}$). In addition, the Project applicant has committed that all diesel-powered off-road equipment over 50 horsepower will meet the U.S. EPA Tier 4 Final emission standards for off-road equipment, which is included in the analysis as Project Design Feature (PDF) AQ-1. Finally, as specified in PDF-AQ-2, only low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC) will be used for the interiors and exteriors of the buildings.

2.4.2.2 Operational Emissions

Emissions from the operational phase of the Project were estimated using CalEEMod Version 2020.4.0. Operational year 2025 was assumed as the first full year after completion of Project construction.

Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating and water heating are calculated in the building energy use module of CalEEMod, as described in the following text.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2021). Consumer product VOC emissions are estimated in CalEEMod based on the floor area of nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates

VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day.

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building maintenance. CalEEMod calculates the VOC evaporative emissions from application of nonresidential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings, and SDAPCD Rule 67.0.1 (Architectural Coatings) governs the VOC (or ROG) content for interior and exterior coatings. However, as identified in PDF-AQ-2, only low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC) will be used for the interiors and exteriors of the buildings. The CalEEMod default of 250 grams per liter was assumed for parking area coatings. The model default reapplication rate of 10% of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the nonresidential surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating (CAPCOA 2021). For the parking lot, the architectural coating area is assumed to be 6% of the total square footage, consistent with the supporting CalEEMod studies provided as an appendix to the CalEEMod User's Guide (CAPCOA 2021).

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of nonresidential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For San Diego County, the average annual "summer" days are estimated to 365 days; however, it is assumed that landscaping equipment would likely only operate during the week (not weekends), so operational days were assumed to be 180 days per year in CalEEMod (CAPCOA 2021).

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, because criteria pollutant emissions occur at the site of the power plant, which is typically off-site. Therefore, for the purposes of the air quality analysis, the energy source parameters focus on criteria air pollutants generated as a result of natural gas consumption within the built environment. Natural gas consumption is attributed to systems like heating, ventilation, and air conditioning and water heating. CalEEMod assumes compliance with the 2019 Title 24 code.

Mobile Sources

Mobile sources for the Project would be motor vehicles (e.g., automobiles, trucks, and buses) traveling to and from the Project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. The trip rates for the proposed Project are based on driveway counts for the existing Hughes Circuits facility conducted by Chen Ryan in March 2022, adjusted to account for the 2-shift per weekday schedule for the Project versus the 3-shifts per weekday for the existing facility (Chen Ryan 2022). Based on this data, there would be approximately 348 total vehicle trips per day, 5 of which are heavy trucks (3- or more axle) and buses and the remaining 343 are passenger vehicles and 2-axle trucks. CalEEMod default data, including temperature, trip characteristics, variable start information, and emissions factors, were conservatively used for the model inputs. Project-related

traffic was assumed to include a mixture of vehicles in accordance with the associated use (as discussed below), as modeled within CalEEMod, which is based on the CARB EMFAC2017 model. Emission factors representing the vehicle mix and emissions for year 2025 were used to estimate emissions associated with vehicular sources. Two land uses in CalEEMod were used to model emissions from mobile sources. The "unrefrigerated warehouse-rail" land use was used to model heavy vehicles and the "manufacturing" land use was used to model passenger cars and 2-axle trucks. The trips (as stated above) were apportioned to each land use. The fleet mix for trucks was determined based on driveway counts and included the following vehicle categories: 3-axle trucks (LHD1, LHD2, and MHD), 4-axle trucks (HHD), and buses (OBUS). The fleet mix for passenger vehicles was assumed consistent with the EMFAC fleet mix for the County for the following vehicle categories: LDA, LDT1, LDT2, and MDV. Employee trip lengths were assumed to be 16.8 miles based on the Transportation Impact Study prepared for the Project (Chen Ryan 2022). Truck trip lengths were also assumed to be 16.8 miles, which is a conservative assumption for this Project since the majority of trucks are anticipated to be pass-by trips by delivery trucks (such as UPS single unit 2-axle trucks) that are already on routes on the local roadway network, including to the existing Hughes manufacturing facility. As pass-by trips are assumed to be 0.1 miles in CalEEMod, the 16.8 mile assumption incorporated in this analysis overestimates emissions for the majority of trucks.

Off-road Sources

Based on information from the applicant, one compressed natural gas (CNG) forklift is included in the Project's emission inventory. The equipment was modeled in CalEEMod as an 89-horsepower CNG forklift that would operate 16 hours per day, 260 days per year.

2.4.3 Project Design Features

PDFs that are relevant to the air quality analysis are presented below. This impact analysis assumes that all PDFs would be implemented as conditions of approval, as defined below.

PDF-AQ-1. The Project applicant will employ off-road equipment that meets the U.S. EPA's Tier 4 Final emission standards for nonroad engines over 50 horsepower.

PDF-AQ-2. The Project applicant will use low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC content) for building interiors and exteriors.

2.5 Impact Analysis

Threshold 1: Would the Project conflict with or obstruct implementation of the applicable air quality plan?

As mentioned in Section 2.3, Regulatory Setting, the SDAPCD is responsible for developing and implementing the clean air plans for attainment and maintenance of the ambient air quality standards in the basin—specifically, the SIP and RAQS.[5] SANDAG is responsible for developing forecasts and data that are used by SDAPCD in preparing the SIP and RAQS. The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2012. The SIP includes

[5] For the purpose of this discussion, the relevant federal air quality plan is the Ozone Maintenance Plan (SDAPCD 2012). The RAQS is the applicable plan for purposes of State air quality planning. Both plans reflect growth projections in the basin.

a demonstration that current strategies and tactics will maintain acceptable air quality in the basin based on the NAAQS. The RAQS outlines SDAPCD's plans and control measures designed to attain the state air quality standards for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions as well as information regarding projected growth in the County as a whole and the cities in the County, to project future emissions and determine the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans.

While the SDAPCD and City do not provide guidance regarding the analysis of impacts associated with air quality plan conformance, the County's *Guidelines for Determining Significance and Report and Format and Content Requirements – Air Quality* does discuss conformance with the RAQS (County of San Diego 2007). The guidance indicates that, if the Project, in conjunction with other projects, contributes to growth projections that would not exceed SANDAG's growth projections for the City, the Project would not be in conflict with the RAQS (County of San Diego 2007). If a project includes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the Project might be in conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality.

The Project site is designated as Light Industrial (LI) in the City's General Plan and is zoned Light Manufacturing (L-I). The Project would be consistent with these designations. As described in Section 3.12, Population and Housing, the City of San Marcos is forecasted to grow from 94,258 persons and 41,096 employees in 2016 to 119,098 persons and 63,031 employees in 2050, which is a population and employment increase of 24,840 and 21,935, respectively (SANDAG 2021). As such, the project-related increase of approximately 60 employees would represent a nominal percentage of the City's projected future population and employees. Additionally, the Project would not induce population growth to the area. Per CEQA Guideline Section 15206(b), the Project would not be considered regionally significant because it would not have the potential to substantially affect housing, employment, or population projections within the San Diego region, which are the basis of the RAQS projections. As such, the Project would not conflict with or obstruct implementation of the RAQS. Furthermore, the Project would not result in substantial construction or operational emissions that would conflict with the local Air Quality plan.

Therefore, implementation of the Project would not conflict with the RAQS or SIP and proposed development would be consistent with the growth in the region. Impacts would be **less than significant**.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 2: Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project

region is non-attainment under an applicable federal or state ambient air quality standard?

Past, present, and future development projects may contribute to the SDAB adverse air quality impacts on a cumulative basis. By its nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SDAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the applied significance thresholds, it would have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.

Construction and operation of the Project would result in emissions of criteria air pollutants, which may result in a cumulatively considerable net increase in emissions of criteria air pollutants for which the SDAB is designated as nonattainment under the NAAQS or CAAQS. As discussed previously, the SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The following discussion quantitatively evaluates potential short-term construction and long-term operational impacts that would result from implementation of the Project.

Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing from architectural coatings and asphalt pavement application) and off-site sources (i.e., on-road haul trucks, delivery trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions. Therefore, such emissions levels can only be estimated, with a corresponding uncertainty in precise ambient air quality impacts.

As discussed under 2.4.2.1, criteria air pollutant emissions associated with construction activity were quantified using CalEEMod. Construction emissions were calculated for the estimated worst-case day over the construction period associated with each phase and reported as the maximum daily emissions estimated during each year of construction (2023–2024). Construction schedule assumptions, including phase type, duration, and sequencing, were based on information provided by the applicant or CalEEMod defaults and are intended to represent a reasonable scenario based on the best information available. NO_x and CO emissions would primarily result from the use of construction equipment and motor vehicles. Notably, as outlined in PDF-AQ-1, the Project applicant will employ off-road equipment that meets the U.S. EPA's Tier 4 Final emission standards for nonroad engines over 50 horsepower.

Fugitive dust (PM_{10} and $PM_{2.5}$) emissions would primarily result from grading and site preparation activities. The Project would be required to comply with SDAPCD Rule 55, Fugitive Dust Control, and Rule 50, Visible Emissions. These rules require that the Project take steps to restrict visible emissions and fugitive dust beyond the property line. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) generated during grading and construction activities. To account for dust control measures in the calculations, it was assumed that the Project would ensure that active sites be watered at least two times daily. The application of architectural coatings, such as exterior application/interior paint and other finishes would produce VOC emissions; however, per PDF-AQ-2, only low-VOC coatings will be used for the

building interiors and exteriors. The contractor would also be required to comply with the requirements of SDAPCD's Rule 67.7, Cutback and Emulsified Asphalt, which would limit VOC emissions from asphalt off-gassing.

Table 6 presents the estimated maximum daily construction emissions generated during construction of the Project. Details of the emission calculations are provided in Appendix A.

Table 6. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions - Unmitigated

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
2023	1.14	49.40	24.05	0.23	10.09	3.70
2024	33.30	5.98	16.90	0.03	0.74	0.33
Maximum daily emissions	**33.30**	**49.40**	**24.05**	**0.23**	**10.09**	**3.70**
Emission threshold	75	250	550	250	100	55
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter equal to or less than 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter equal to or less than 2.5 microns.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. Although not considered mitigation, these estimates reflect the "mitigated" CalEEMod results in order to account for SDAPCD Rule 55 - Fugitive Dust Control, assuming watering of the project site two times per day, use of low-VOC architectural coatings (i.e., no more than 50 grams per liter VOC content) for building interiors and exteriors, and that all diesel-powered off-road equipment over 50 horsepower would meet Tier 4 Final emission standards.

As shown in Table 6, maximum daily construction emissions would not exceed the significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction.

Operational Emissions

Following the completion of construction activities, the Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources, including vehicular traffic; energy sources from natural gas usage; area sources, (including the use of landscaping equipment, consumer products, and from architectural coatings); and off-road equipment (one CNG forklift). As discussed in Section 2.4.2.2, Operational Emissions, pollutant emissions associated with long-term operations were quantified using CalEEMod using a combination of Project-specific information and CalEEMod default values.

Table 7 presents the maximum daily area, energy, and mobile source emissions associated with Project operation. Details of the emission calculations are provided in Appendix A.

Table 7. Estimated Operational Criteria Air Pollutant Emissions - Unmitigated

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
Area	1.55	<0.01	0.01	0.00	<0.01	<0.01
Energy	0.01	0.07	0.06	<0.01	0.01	0.01
Mobile	0.50	0.88	9.60	0.04	4.47	1.20
Off-road	0.04	1.92	19.12	<0.01	0.04	0.04
Total	**2.10**	**2.86**	**28.79**	**0.04**	**4.51**	**1.24**

Table 7. Estimated Operational Criteria Air Pollutant Emissions - Unmitigated

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per day					
Emission Threshold	75	250	550	250	100	55
Threshold Exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = particulate matter with an aerodynamic diameter equal to or less than 10 microns; $PM_{2.5}$ = particulate matter with an aerodynamic diameter equal to or less than 2.5 microns; <0.01 = reported value less than 0.01; negative values are presented in parentheses.
See Appendix A for complete results. Totals may not sum due to rounding.

As shown in Table 7, the maximum daily emissions of the Project would not exceed the significance thresholds for any criteria air pollutants.

As discussed in Section 2.3, Regional and Local Air Quality Conditions, the SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SDAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Construction and operation of the Project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Tables 6 and 7, Project-generated construction and operational emissions would not exceed the emission-based significance thresholds for VOC, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts would potentially occur if a construction project were to occur concurrently with another off-site project. Construction schedules for potential future projects near the Project area are currently unknown; therefore, potential construction impacts associated with two or more simultaneous projects would be considered speculative. However, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation if the project would exceed applied thresholds. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SDAPCD. For example, cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SDAPCD Rule 55 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SDAB. In addition, cumulative VOC emissions would be subject to SDAPCD Rule 67.0.1 (Architectural Coatings).

Based on the Project-generated construction and operational emissions of VOC, NO_x, PM_{10}, and $PM_{2.5}$, the Project would not result in a cumulatively considerable increase in emissions of nonattainment pollutants. Therefore, the Project's cumulative air quality impact would be **less than significant**.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 3: Would the Project expose sensitive receptors to substantial pollutant concentrations?

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. Reduced visibility, eye irritation, and adverse health impacts on those persons termed "sensitive receptors" are the most serious hazards of existing air quality conditions in the area. Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by CARB, include children, older adults, athletes, and people with cardiovascular and chronic respiratory diseases; however, for the purposes of this analysis, residents are also considered sensitive receptors. As such, sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. As depicted in Figure 1, the nearest existing sensitive receptors are located to the west of the Project site, with multifamily residential (520 feet away) and Bradley Park (550 feet away) the most proximate.

Health Impacts of Carbon Monoxide

Mobile source impacts occur on two scales of motion. Regionally, Project-related travel would add to regional trip generation and increase the vehicle miles traveled within the local airshed and the SDAB. Locally, project generated traffic would be added to the County's roadway system near the Project site. If such traffic occurs during periods of poor atmospheric ventilation, is composed of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and is operating on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO hotspots in the area immediately around points of congested traffic. Because of continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SDAB is steadily decreasing.

CO transport is extremely limited and CO disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, school children, hospital patients, and the elderly. Typically, high CO concentrations are associated with urban roadways or intersections operating at an unacceptable level of service (LOS). Projects contributing to adverse traffic impacts may result in the formation of CO hotspots.

To verify that the Project would not cause or contribute to a violation of the CO standards, a screening evaluation of the potential for CO hotspots was conducted using the County of San Diego screening threshold of 3,000 peak trips (County of San Diego 2007). The trip rates for the proposed Project are based on driveway counts for the existing Hughes Circuits facility conducted by Chen Ryan in March 2022. Based on this data, there would be approximately 40 trips during the AM peak-hour and 43 trips during the PM peak-hour, which would be minimal in comparison to the screening threshold of 3,000 peak trips. Therefore, the Project would not result in a CO hotspot and would result in a **less than significant** impact.

Health Effects of Other Criteria Air Pollutants

Project construction and operation would not exceed significance thresholds for VOC, NO_x, CO, SO_x, $PM_{10,}$ or $PM_{2.5}$. VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS. The health effects associated with O_3 are generally associated with reduced lung function. The contribution

of ROGs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 CAAQS/NAAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of reliable and meaningful quantitative methods to assess this impact. The Project would not exceed the significance thresholds for VOC or NO_x; therefore, implementation of the Project would contribute minimally to regional O_3 concentrations and the associated health effects.

In addition to O_3, NO_x emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2 (since NO_2 is a constituent of NO_x). Health effects that result from NO_2 and NO_x include respiratory irritation, which could be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, Project construction would be relatively short term, and off-road construction equipment would be operating at various portions of the site and would not be concentrated in one portion of the site at any one time. In addition, existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Because Project generated NO_x emissions would not exceed the significance threshold, the Project would not result in potential health effects associated with NO_2 and NO_x.

CO tends to be a localized impact associated with congested intersections. The associated potential for CO hotspots were discussed previously and were determined to be a less-than-significant impact. Furthermore, the existing CO concentrations in the area are well below the NAAQS and CAAQS standards. Thus, the Project's CO emissions would not contribute to significant health effects associated with this pollutant.

Construction and operation of the Project would also not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter or would obstruct the SDAB from coming into attainment for these pollutants. Additionally, the Project would implement dust control strategies and be required to comply with SDAPCD Rule 55, Fugitive Dust Control, which limits the amount of fugitive dust generated during construction. Due to the minimal contribution of particulate matter during construction and operation, the Project is not anticipated to result in health effects associated with PM_{10} or $PM_{2.5}$.

In summary, the Project would not result in any potentially significant contribution to local or regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Impacts would be **less than significant**. Furthermore, there are numerous scientific and technological complexities associated with correlating criteria air pollutant emissions from an individual project to specific health effects or potential additional nonattainment days, and there are currently no modeling tools that could provide reliable and meaningful additional information regarding health effects from criteria air pollutants generated by individual projects.

Health Impacts of Toxic Air Contaminants

In addition to impacts from criteria pollutants, project impacts may include emissions of pollutants identified by the state and federal government as TACs or hazardous air pollutants. State law has established the framework for California's TAC identification and control program, which is generally more stringent than the federal program and aimed at TACs that are a problem in California. The state has formally identified more than 200 substances as TACs, including the federal hazardous air pollutants, and is adopting appropriate control measures for sources of these TACs. The greatest potential for TAC emissions during construction would be diesel particulate emissions from

heavy equipment operations and heavy-duty trucks and the associated health impacts to sensitive receptors. The following measures are required by state law to reduce DPM emissions:

- Fleet owners of mobile construction equipment are subject to the CARB Regulation for In-use Off-road Diesel Vehicles (13 CCR 2449), the purpose of which is to reduce DPM and criteria pollutant emissions from in-use (existing) off-road diesel-fueled vehicles.
- All commercial diesel vehicles are subject to Title 13, Section 2485 of the California Code of Regulations, limiting engine idling time. Idling of heavy-duty diesel construction equipment and trucks during loading and unloading shall be limited to five minutes; electric auxiliary power units should be used whenever possible.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends an incremental cancer risk threshold of 10 in a million (SDAPCD 2015b). "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology (OEHHA 2015). The Project would not require the extensive operation of heavy-duty construction equipment, which is subject to a CARB Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions and would not involve extensive use of diesel trucks, which are also subject to a CARB Airborne Toxics Control Measure. Furthermore, the Project would implement PDF-AQ-1, which requires all equipment greater than 50 horsepower to be Tier 4 Final compliant, which can reduce construction diesel exhaust by 93 to 96% compare to equipment with engines meeting Tier 1 or Tier 2 emission standards.[6]

As shown in Table 6, maximum daily PM_{10} or $PM_{2.5}$ emissions generated by construction equipment operation and haul-truck trips during construction, which is based on exhaust and fugitive dust generated by equipment operation and vehicle travel, would be well below the significance thresholds. Moreover, total construction of the Project would last approximately 12 months, after which Project-construction TAC emissions would cease. Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. In regards to long-term TAC emissions, the Project would result in a minimal increase in daily truck traffic on the roadway network and would not require stationary sources (such as diesel emergency generators). Therefore, the exposure of Project-related TAC emission impacts to proximate sensitive receptors would be **less than significant**.

Valley Fever

As discussed above in Section 2.1.2.2, the average incidence rate within the County is below the statewide average. Furthermore, construction of the Project would comply with SDAPCD Rule 55, Fugitive Dust Control, which limits the amount of fugitive dust generated during construction. SDAPCD Rule 55 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. Based on the low incidence rate of coccidioidomycosis on the Project site and in the County, and with the Project's implementation of dust control strategies, it is not anticipated that earth-moving activities during project construction

[6] Particulate matter (PM) emissions benefits are estimated by comparing off-road PM emission standards for Tier 1 and Tier 2 with Tier 4 final emissions standards. Tier 1 PM emissions standards were established for equipment with 25 -< 50 horsepower and equipment with horsepower < 175. Tier 1 emissions standards for these engines were compared against Tier 4 Final emissions standards, resulting in a 96 percent reduction in PM. The U.S. EPA established PM standards for engines with horsepower between 50 -< 175 as part of the Tier 2 emission standards. For these engines Tier 2 emissions standards were compared against Tier 4 Final emissions standards, resulting in between 93 and 95 percent reduction in PM.

would result in exposure of nearby sensitive receptors to Valley Fever. Therefore, the Project would have a **less-than-significant** impact with respect to Valley Fever exposure for sensitive receptors.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

Threshold 4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Based on available information, the Project is not anticipated to result in other emissions that have not been addressed under Threshold 1 through Threshold 3 above. As such, this analysis focuses on the potential for the Project to generate odors. The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints. Odors would also be controlled through compliance with SDAPCD Rule 51 (Nuisance), which prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.

Odors would be generated from vehicles and/or equipment exhaust emissions during construction of the Project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment and architectural coatings. Such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with odors during construction would be considered **less than significant**.

Land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The Project would not engage in any of these activities. Therefore, the Project would result in an odor impact that is **less than significant**.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

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3 Greenhouse Gas Emissions

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (i.e., decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth, the Earth emits a portion of this energy in the form of long-wave radiation, and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that, in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-twentieth century and is the most significant driver of observed climate change (IPCC 2013; EPA 2017). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2013). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.3.2, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code, Section 38505(g), for purposes of administering many of the State's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). (See also CEQA Guidelines, Section 15364.5.) Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2,

include fluorinated gases, such as HFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[7]

Carbon Dioxide. CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane. CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide. N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (e.g., rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., chlorofluorocarbons [CFCs], hydrochlorofluorocarbons [HCFCs], and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF_3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons. CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

[7] The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2015a), and EPA's "Glossary of Climate Change Terms" (2016c).

Hydrochlorofluorocarbons. HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone. Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (EPA 2017). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of carbon dioxide equivalent (CO_2e).The current version of CalEEMod (Version 2020.4.0) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Project.

3.2 Regulatory Setting

3.2.1 Federal Regulations

Massachusetts v. EPA. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

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

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

Federal Vehicle Standards. In *Massachusetts v. EPA* (April 2007), the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In December 2009, the administrator signed a final rule with the following two distinct findings regarding GHGs under section 202(a) of the federal Clean Air Act:

- The administrator found that elevated concentrations of GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."

- The administrator further found that the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act (42 U.S.C. § 7401).

In 2007, in response to the *Massachusetts v. EPA* U.S. Supreme Court ruling, the Bush Administration issued Executive Order (EO) 13432 directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. In 2009, the NHTSA issued a final rule regulating fuel efficiency and GHG emissions from cars and light-duty trucks for model year 2011; and, in 2010, the EPA and NHTSA issued a final rule regulating cars and light-duty trucks for model years 2012 through 2016 (75 Fed. Reg. 25324–25728).

In 2010, President Obama issued a memorandum directing the Department of Transportation, Department of Energy, EPA, and NHTSA to establish additional standards regarding fuel efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for model years 2017 through 2025 light-duty vehicles. The proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for model years 2017 through 2021 (77 Fed. Reg. 62624–63200). On January 12, 2017, the EPA finalized its decision to maintain the current GHG emissions standards for model years 2022–2025 cars and light trucks.

In addition to the regulations applicable to cars and light-duty trucks described above, in 2011, the EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for model years 2014 through 2018. The standards for CO_2 emissions and fuel consumption are tailored to three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the EPA, this regulatory program will reduce GHG emissions and fuel consumption for the affected vehicles by 6% to 23% over the 2010 baselines (76 Fed. Reg. 57106–57513).

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

In August 2018, EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards then in place, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2% to 3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of one degree Celsius by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures and have committed to cooperating with other countries to implement global climate change initiatives.

In 2019, the EPA and NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1), which revoked California's authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued which set CO_2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026.

In response to EO 13990 (Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis, January 2021), on December 21, 2021, NHTSA finalized the CAFE Preemption rulemaking to withdraw its portions of the Part One Rule. The final rule concluded that the Part One Rule overstepped the agency's legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests. Then, in March 2022, NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025, and 10% annually for model year 2026. Also in March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's March 2022 action concludes its reconsideration of the 2019 SAFE-1 rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

The Inflation Reduction Act of 2022. The Inflation Reduction Act was signed into law by President Biden in August 2022. The bill includes specific investment in energy and climate reform and is projected to reduce GHG emissions within the United States by 40% as compared to 2005 levels by 2030. The bill allocates funds to boost renewable energy infrastructure (e.g., solar panels and wind turbines), includes tax credits for the purchase of electric vehicles, and includes measures that will make homes more energy efficient.

3.2.2 State Regulations

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes EOs, Assembly Bills (ABs), Senate Bills (SBs), and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

The state has taken a number of actions to address climate change. These include EOs, legislation, and CARB plans and requirements. These are summarized below.

EO S-3-05. EO S-3-05 (June 2005) established California's GHG emissions reduction targets and laid out responsibilities among the state agencies for implementing the EO and for reporting on progress toward the targets. This EO established the following targets:

- By 2010, reduce GHG emissions to 2000 levels
- By 2020, reduce GHG emissions to 1990 levels
- By 2050, reduce GHG emissions to 80% below 1990 levels

EO S-3-05 also directed the California Environmental Protection Agency to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water

supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2016).

AB 32. In furtherance of the goals established in EO S-3-05, the Legislature enacted AB 32 (Núñez and Pavley). The bill is referred to as the California Global Warming Solutions Act of 2006 (September 27, 2006). AB 32 provided initial direction on creating a comprehensive multiyear program to limit California's GHG emissions at 1990 levels by 2020 and initiate the transformations required to achieve the state's long-range climate objectives.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills. SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to the Board as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and, requires CARB to identify specific information for GHG emissions reduction measures when updating the scoping plan.

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in S-3-05. To facilitate achieving this goal, EO B-30-15 called for CARB to update the Scoping Plan to express the 2030 target in terms of million metric tons (MMT) CO_2e. The EO also called for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets.

EO B-55-18. EO B-55-18 (September 2018) establishes a new statewide goal "to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net negative emissions thereafter." This EO directs CARB to "work with relevant state agencies to ensure future Scoping Plans identify and recommend measures to achieve the carbon neutrality goal."

AB 1279. The Legislature enacted AB 1279, the California Climate Crisis Act, in September 2022. The bill declares the policy of the state to achieve net zero GHG emissions as soon as possible, but no later than 2045, and achieve and maintain net negative GHG emissions thereafter. Additionally, the bill requires that by 2045, statewide anthropogenic GHG emissions be reduced to at least 85% below 1990 levels.

AB 1757. AB 1757 (September 2022) requires the CNRA to determine a range of targets for natural carbon sequestration, and for nature-based climate solutions that reduce GHG emissions for future years 2030, 2038, and 2045. These targets are to be determined by no later than January 1, 2024 and are established to support the state's goals to achieve carbon neutrality and foster climate adaptation and resilience.

CARB's 2007 Statewide Limit. In 2007, in accordance with California Health and Safety Code, Section 38550, CARB approved a statewide limit on the GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO_2e).

CARB's Climate Change Scoping Plan. One specific requirement of AB 32 is for CARB to prepare a "scoping plan" for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (California

Health and Safety Code Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan: The *Climate Change Proposed Scoping Plan: A Framework for Change* (Scoping Plan). The Scoping Plan included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission-reduction programs calculated to meet the 2020 statewide GHG emission limit and initiate the transformations needed to achieve the state's long-range climate objectives.

In 2014, CARB approved the first update to the Scoping Plan. The *First Update to the Climate Change Scoping Plan: Building on the Framework* (First Update) defined the state's GHG emission reduction priorities for the next 5 years and laid the groundwork to start the transition to the post-2020 goals set forth in EOs S-3-05 and B-16-2012 (CARB 2014). The First Update concluded that California was on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050 including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies.

In December 2017, CARB released the *2017 Climate Change Scoping Plan Update* (Second Update) for public review and comment (CARB 2017b). The Second Update builds on the successful framework established in the initial Scoping Plan and First Update, while identifying new technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target and define the state's climate change priorities to 2030 and beyond. The strategies' "known commitments" include implementing renewable energy and energy efficiency (including the mandates of SB 350), increased stringency of the Low Carbon Fuel Standard, measures identified in the Mobile Source and Freight Strategies, measures identified in the proposed Short-Lived Climate Pollutant Plan, and increased stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, the Second Update recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%. The Second Update was approved by CARB's Governing Board on December 14, 2017.

The Proposed Final 2022 Scoping Plan for Achieving Carbon Neutrality (Third Update) was issued on November 16, 2022 (CARB 2022b). The Third Update lays out a path not just to carbon neutrality by 2045 but also to the 2030 GHG emissions reduction target. The modeling indicates that, if the plan described in the Proposed Scenario is fully implemented, and done so on schedule, the State would cut GHG emissions by 85% below 1990 levels, result in a 71% reduction in smog-forming air pollution, reduce fossil fuel consumption by 94%, create 4 million new jobs, among other benefits (CARB 2022b). The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands, or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical and refrigerants with high global warming potential (GWP); providing communities with sustainable options for walking, biking, and

public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen[8] (CARB 2022b).

The Third Update also emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration, and to achieve the state's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon. Strategies for carbon removal and sequestration include carbon capture and storage (CCS) from anthropogenic point sources, where CO_2 is captured as it leaves a facility's smokestack and is injected into geologic formations or used in industrial materials (e.g., concrete); and carbon dioxide removal (CDR) from ambient air, through mechanical (e.g., direct air capture with sequestration [DACS]) or nature-based (e.g., management of natural and working lands) applications.

The Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, SB 32, and the EOs; it also establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. A project is considered consistent with the statutes and EOs if it would meet the general policies in reducing GHG emissions in order to facilitate the achievement of the state's goals and would not impede attainment of those goals.

CARB's Regulations for the Mandatory Reporting of Greenhouse Gas Emissions. CARB's Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (17 CCR 95100–95157) incorporated by reference certain requirements that EPA promulgated in its Final Rule on Mandatory Reporting of Greenhouse Gases (Title 40, CFR, Part 98). Specifically, Section 95100(c) of the Mandatory Reporting Regulation incorporated those requirements that EPA promulgated in the Federal Register on October 30, 2009; July 12, 2010; September 22, 2010; October 28, 2010; November 30, 2010; December 17, 2010; and April 25, 2011. In general, entities subject to the Mandatory Reporting Regulation that emit over 10,000 MT CO_2e per year are required to report annual GHGs through the California Electronic GHG Reporting Tool. Certain sectors, such as refineries and cement plants, are required to report regardless of emission levels. Entities that emit more than the 25,000 MT CO_2e per year threshold are required to have their GHG emission report verified by a CARB-accredited third-party verified.

SB 605 and SB 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants (SLCPs) in the state; and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for methane and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its *Short-Lived Climate Pollutant Reduction Strategy* (*SLCP Reduction Strategy*) in March 2017. The *SLCP Reduction Strategy* establishes a framework for the statewide reduction of emissions of black carbon, methane, and fluorinated gases (CARB 2017c).

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings

[8] Green hydrogen refers to hydrogen that is generated by renewable energy or from low-carbon power, and has significantly lower associated carbon emissions than grey hydrogen, which is produced using natural gas and makes up the majority of hydrogen production. For the purposes of the *Draft 2022 Scoping Plan*, the term "green hydrogen" is not limited to only electrolytic hydrogen produced from renewables.

in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402[b][1]). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402[d]) and cost effectiveness (California Public Resources Code, Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment. The 2022 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2023. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses:

- Encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units
- Establishing electric-ready requirements for single-family homes to position owners to use cleaner electric heating, cooking, and electric vehicle (EV) charging options whenever they choose to adopt those technologies
- Expanding solar photovoltaic (PV) system and battery storage standards to make clean energy available on site and complement the state's progress toward a 100% clean electricity grid
- Strengthening ventilation standards to improve indoor air quality

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen, and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The 2022 CALGreen standards, which are the current standards, became effective January 1, 2023. For nonresidential projects, some of the key mandatory CALGreen standards involve requirements related to bicycle parking, requirements for EV capable spaces and EV charging stations, shade trees, water conserving plumbing fixtures and fittings, outdoor potable water use in landscaped areas, construction waste management, excavated soil and land clearing debris, and commissioning (24 CCR Part 11).

Title 20. Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. The CEC certifies an appliance based on a manufacturer's demonstration that the appliance meets the standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low-voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of

standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

SB 1. SB 1 (Murray) (August 2006) established a $3 billion rebate program to support the goal of the state to install rooftop solar energy systems with a generation capacity of 3,000 megawatts through 2016. SB 1 added sections to the Public Resources Code, including Chapter 8.8 (California Solar Initiative), that require building projects applying for ratepayer-funded incentives for photovoltaic systems to meet minimum energy efficiency levels and performance requirements. Section 25780 established that it is a goal of the state to establish a self-sufficient solar industry. The goals included establishing solar energy systems as a viable mainstream option for both homes and businesses within 10 years of adoption, and placing solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed "Go Solar California," was previously titled "Million Solar Roofs."

California AB 1470 (Solar Water Heating). This bill established the Solar Water Heating and Efficiency Act of 2007. The bill makes findings and declarations of the Legislature relating to the promotion of solar water heating systems and other technologies that reduce natural gas demand. The bill defines several terms for purposes of the act. The bill requires the commission to evaluate the data available from a specified pilot program, and, if it makes a specified determination, to design and implement a program of incentives for the installation of 200,000 solar water heating systems in homes and businesses throughout the state by 2017.

Renewable Energy and Energy Procurement

SB 1078. SB 1078 (Sher) (September 2002) established the Renewable Portfolio Standard (RPS) program, which required an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107, EO S-14-08, and S-21-09).

SB 1368. SB 1368 (September 2006), required the CEC to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC).

AB 1109. Enacted in 2007, AB 1109 required the CEC to adopt minimum energy efficiency standards for general-purpose lighting, to reduce electricity consumption 50% for indoor residential lighting and 25% for indoor commercial lighting.

EO S-14-08. EO S-14-08 (November 2008) focused on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. This EO required that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the EO directed state agencies to take appropriate actions to facilitate reaching this target. The California Natural Resources Agency (CNRA), through collaboration with the CEC and California Department of Fish and Wildlife (formerly the California Department of Fish and Game), was directed to lead this effort.

EO S-21-09 and SBX1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the CPUC and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and

impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

SB X1 2 expanded the Renewables Portfolio Standard by establishing a renewable energy target of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020, and in subsequent years. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation (30 megawatts or less), digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

SB X1-2 applies to all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must meet the renewable energy goals previously listed.

SB 350. SB 350 (October 2015, Clean Energy and Pollution Reduction Act) further expanded the RPS by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 included the goal to double the energy efficiency savings in electricity and natural gas final end uses (e.g., heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the California Public Utilities Commission, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. Regarding mobile sources, as one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code Section 740.12).

SB 100. SB 100 (2018) increased the standards set forth in SB 350 establishing that 44% of the total electricity sold to retail customers in California per year by December 31, 2024, 52% by December 31, 2027, and 60% by December 31, 2030, be secured from qualifying renewable energy sources. SB 100 states that it is the policy of the state that eligible renewable energy resources and zero-carbon resources supply 100% of the retail sales of electricity to California. This bill requires that the achievement of 100% zero-carbon electricity resources do not increase the carbon emissions elsewhere in the western grid and that the achievement not be achieved through resource shuffling.

SB 1020. SB 1020 (September 2022) revises the standards from SB 100, requiring the following percentage of retail sales of electricity to California end-use customers to come from eligible renewable energy resources and zero-carbon resources: 90% by December 31, 2035, 95% by December 31, 2040, and 100% by December 31, 2045.

Mobile Sources

State Vehicle Standards (AB 1493 and EO B-16-12). AB 1493 (July 2002) was enacted in a response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB

adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. It ordered CARB, CEC, California Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare. As explained under the "Federal Vehicle Standards" description in Section 3.2.1, Federal Regulations, EPA and NHTSA approved the SAFE Vehicles Rule Part One and Two, which revoked California's authority to set its own GHG emissions standards and set ZEV mandates in California.

As also explained in Section 3.2.1, in March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate and found that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

Heavy Duty Diesel. CARB adopted the final Heavy-Duty Truck and Bus Regulation, Title 13, Division 3, Chapter 1, Section 2025, on December 31, 2014, to reduce PM and NO_x emissions from heavy-duty diesel vehicles. The rule requires PM filters be applied to newer heavier trucks and buses by January 1, 2012, with older vehicles required to comply by January 1, 2015. The rule will require nearly all diesel trucks and buses to be compliant with the 2010 model year engine requirement by January 1, 2023. CARB also adopted an Airborne Toxic Control Measure to limit idling of diesel-fueled commercial vehicles on December 12, 2013. This rule requires diesel-fueled vehicles with gross vehicle weights greater than 10,000 pounds to idle no more than 5 minutes at any location (13 CCR 2485).

EO S-1-07. EO S-1-07 (January 2007, implementing regulation adopted in April 2009) sets a declining LCFS for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The target of the LCFS is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020 (17 CCR 95480 et seq.). The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered.

SB 375. SB 375 (Steinberg) (September 2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 requires CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035 and to update those targets every 8 years. SB 375 requires the state's 18 regional metropolitan planning organizations (MPOs) to prepare a Sustainable Communities Strategy (SCS) as part of their Regional Transportation Plan (RTP) that will achieve the GHG reduction targets set by CARB. If a MPO is unable to devise an SCS to achieve the GHG reduction target, the MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

A SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a city's or county's land use policies and regulations, including those in a general plan, be consistent with it (California Government Code Section 65080[b][2][K]). Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets adopted for SANDAG in 2010 are a 7% reduction in per-capita passenger-vehicle GHG emissions by 2020 and a 13% reduction by 2035, measured relative to 2005 GHG emissions. In 2018, CARB adopted the second round of SB 375 reduction targets, and increased SANDAG's 2020 target to a 15% reduction in per-capita passenger-vehicle GHG emissions, and the 2035 target to a 19% reduction using the same 2005 baseline.

SANDAG completed and adopted its 2050 RTP/SCS in October 2011. In November 2011, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others (*Cleveland National Forest Foundation v. San Diego Association of Governments* (2017) 3 Cal. 5th 497). regarding analysis of EO S-3-05's 2050 goal of an 80% reduction in GHG emissions from 1990 levels. The Supreme Court of California held that the Environmental Impact Report at issue was sufficient to inform the public, based on the information available at the time, about the regional plan's GHG impacts and its potential inconsistency with state climate change goals without including an explicit analysis of the consistency of projected 2050 GHG emissions with the goals in the executive order.

In 2015, SANDAG adopted the next iteration of its RTP/SCS in accordance with statutorily mandated timelines and no subsequent litigation challenge was filed. More specifically, in October 2015, SANDAG adopted San Diego Forward: The Regional Plan (Regional Plan) (SANDAG 2015). Like the 2050 RTP/SCS, San Diego Forward: Regional Plan meets CARB's 2020 and 2035 reduction targets for the region (SANDAG 2015). In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. The Regional Plan was updated in 2021, which was the result of years of planning, data analysis, and community engagement to reimagine the San Diego region with a transformative transportation system, a sustainable pattern of growth and development, and innovative demand and management strategies (SANDAG 2021).

Advanced Clean Cars Program and Zero-Emissions Vehicle Program. The Advanced Clean Cars (ACC) I program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package of regulations: the Low-Emission Vehicle (LEV) regulation for criteria air pollutant and GHG emissions and a technology forcing regulation for zero-emission vehicles (ZEV) that contributes to both types of emission reductions (CARB 2021a). The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75 percent less smog-forming pollution than the average new car sold in 2015. The ZEV program will act as the focused technology of the ACC I program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid EVs in the 2018 to 2025 model years.

The ACC II program is currently in development to establish the next set of LEV and ZEV requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2021a). The main objectives of ACC II are:

1. Maximize criteria and GHG emission reductions through increased stringency and real-world reductions.

2. Accelerate the transition to ZEVs through both increased stringency of requirements and associated actions to support wide-scale adoption and use.

The ACC II rulemaking package was adopted by CARB on August 25, 2022.

EO N-79-20. EO N-79-20 (September 2020) requires CARB to develop regulations as follows: (1) Passenger vehicle and truck regulations requiring increasing volumes of new ZEVs sold in the State towards the target of 100% of in-state sales by 2035; (2) medium- and heavy-duty vehicle regulations requiring increasing volumes of new zero-emission trucks and buses sold and operated in the State towards the target of 100% of the fleet transitioning to zero-emission vehicles by 2045 everywhere feasible and for all drayage trucks to be zero emission by 2035; and (3) strategies, in coordination with other State agencies, the EPA and local air districts, to achieve 100% zero-emission from off-road vehicles and equipment operations in the State by 2035. EO N-79-20 called for the development of a Zero-Emissions Vehicle Market Development Strategy, which was released February 2021, to be updated every 3 years, that ensures coordination and implementation of the EO and outlines actions to support new and used ZEV markets. In addition, the EO specifies identification of near-term actions, and investment strategies, to improve clean transportation, sustainable freight, and transit options; and calls for development of strategies, recommendations, and actions by July 15, 2021, to manage and expedite the responsible closure and remediation of former oil extraction sites as the State transitions to a carbon-neutral economy.

Advanced Clean Trucks Regulation. The Advanced Clean Trucks (ACT) Regulation was also approved by CARB in 2020. The purpose of the ACT Regulation is to accelerate the market for zero-emission vehicles in the medium- and heavy-duty truck sector and to reduce air pollutant emissions generated from on-road mobile sources (CARB 2021b). The regulation has two components including (1) a manufacturer sales requirement and (2) a reporting requirement:

1. Zero-emission truck sales: Manufacturers who certify Class 2b-8 chassis or complete vehicles with combustion engines will be required to sell zero-emission trucks as an increasing percentage of their annual California sales from 2024 to 2035. By 2035, zero-emission truck/chassis sales would need to be 55% of Class 2b – 3 truck sales, 75% of Class 4 – 8 straight truck sales, and 40% of truck tractor sales.

2. Company and fleet reporting: Large employers including retailers, manufacturers, brokers and others will be required to report information about shipments and shuttle services. Fleet owners, with 50 or more trucks, will be required to report about their existing fleet operations. This information will help identify future strategies to ensure that fleets purchase available zero-emission trucks and place them in service where suitable to meet their needs.

Water

EO B-29-15. In response to the ongoing drought in California, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements

for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

EO B-37-16. Issued May 2016, EO B-37-16 directed the State Water Resources Control Board (SWRCB) to adjust emergency water conservation regulations through the end of January 2017 to reflect differing water supply conditions across the state. The SWRCB also developed a proposal to achieve a mandatory reduction of potable urban water usage that builds off the mandatory 25% reduction called for in EO B-29-15. The SWRCB and Department of Water Resources will develop new, permanent water use targets that build upon the existing state law requirements that the state achieve 20% reduction in urban water usage by 2020. EO B-37-16 also specifies that the SWRCB permanently prohibit water-wasting practices such as hosing off sidewalks, driveways, and other hardscapes; washing automobiles with hoses not equipped with a shut-off nozzle; using non-recirculated water in a fountain or other decorative water feature; watering lawns in a manner that causes runoff, or within 48 hours after measurable precipitation; and irrigating ornamental turf on public street medians.

EO N-10-21. In response to a state of emergency due to severe drought conditions, EO N-10-21 (July 2021) called on all Californians to voluntarily reduce their water use by 15% from their 2020 levels. Actions suggested in EO N-10-21 include reducing landscape irrigation, running dishwashers and washing machines only when full, finding and fixing leaks, installing water-efficient showerheads, taking shorter showers, using a shut-off nozzle on hoses, and taking cars to commercial car washes that use recycled water.

Solid Waste

AB 939, AB 341, AB 1826, and SB 1383. In 1989, AB 939, known as the Integrated Waste Management Act (California Public Resources Code, Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that it believes would assist the state in reaching the 75% goal by 2020.

AB 1826 (Chapter 727, Statutes of 2014, effective 2016) requires businesses to recycle their organic waste (i.e., food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste) depending on the amount of waste they generate per week. This law also requires local jurisdictions across the state to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. The minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

SB 1383 (2016) requires a 50% reduction in organic waste disposal from 2014 levels by 2020, and a 75% reduction by 2025—essentially requiring the diversion of up to 27 million tons of organic waste—to reduce GHG

emissions. SB 1383 also requires that not less than 20% of edible food that is currently disposed be recovered for human consumption by 2025.

Other State Actions

SB 97. SB 97 (Dutton) (August 2007) directed the Governor's Office of Planning and Research to develop guidelines under CEQA for the mitigation of GHG emissions. In 2008, the Governor's Office of Planning and Research issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The CNRA adopted the CEQA Guidelines amendments in December 2009, which became effective in March 2010.

Under the amended Guidelines, a lead agency has the discretion to determine whether to use a quantitative or qualitative analysis or apply performance standards to determine the significance of GHG emissions resulting from a particular project (14 CCR 15064.4(a)). The Guidelines require a lead agency to consider the extent to which the Project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The Guidelines also allow a lead agency to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures. The adopted amendments do not establish a GHG emission threshold, instead allowing a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The CNRA also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

With respect to GHG emissions, the CEQA Guidelines state in Section 15064.4(a) that lead agencies should "make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions. The CEQA Guidelines note that an agency may identify emissions by either selecting a "model or methodology" to quantify the emissions or by relying on "qualitative analysis or other performance-based standards" (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a 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; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

EO S-13-08. EO S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: Agriculture, Biodiversity and Habitat, Emergency Management, Energy, Forestry, Ocean and Coastal Ecosystems and Resources, Public Health, Transportation, and Water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). In January 2018, the CNRA released

the Safeguarding California Plan: 2018 Update, which communicates current and needed actions that state government should take to build climate change resiliency (CNRA 2018).

3.2.3 Local Regulations

3.2.3.1 San Diego County Air Pollution Control District

The SDAPCD does not have established GHG rules, regulations, or policies.

3.2.3.2 City of San Marcos

City of San Marcos Climate Action Plan

The City adopted its CAP on December 8, 2020 (City of San Marcos 2020). The CAP acts as a roadmap to address challenges of climate change within the City. The CAP builds on the efforts and strategies identified in the City's 2013 CAP and establishes GHG emission reduction targets and identifies achievable, locally based actions to reduce GHG emissions from municipal and community activities. The CAP includes a baseline GHG emissions inventory for 2012, GHG emissions forecasts for 2020 and 2030, local GHG emissions reduction strategies and measures to help the City achieve the 2030 target, climate adaptation measures for the City, and implementation and monitoring mechanisms to ensure the City's measures and targets are achieved. The CAP established GHG emissions reduction goals of 4% below 2012 levels by 2020 and 42% below 2012 levels by 2030 (City of San Marcos 2020). The CAP was prepared in accordance with the requirements within CEQA Guidelines Section 15183.5, and the CAP Consistency Checklist was used to evaluate the Project's significance with respect to GHG emissions.

City of San Marcos General Plan

The City's General Plan (City of San Marcos 2012) includes various policies related to reducing Air Quality and GHG emissions. Applicable policies include the following:

Land Use and Community Design Element

Policy LU-2.1: Promote compact development patterns that reduce air pollution and automobile dependence and facilitate walking, bicycling, and transit use.

Policy LU-2.3: Promote landscaping (e.g., native, drought tolerant plants) that minimizes demands on water supply.

Policy LU-2.7: Promote the instillation of trees to reduce the urban heat-island effect and green infrastructure to reduce storm water runoff.

Policy LU-3.1: Require that new development and redevelopment incorporate connections and reduce barriers between neighborhoods, transit corridors, and activity centers within the City.

Mobility Element

Policy M-2.1: Work with new development to design roadways that minimize traffic volumes and/or speed, as appropriate within residential neighborhoods; while maintaining the City's desire to provide connectivity on the roadway network.

Conservation and Open Space Element

Policy COS-4.5: Encourage energy conservation and the use of alternative energy sources within the community.

Policy COS-4.6: Promote efficient use of energy and conservation of available resources in the design, construction, maintenance and operation of public and private facilities, infrastructure and equipment.

Policy COS-4.8: Encourage and support the generation, transmission and use of renewable energy.

Policy COS-4.9: Encourage use and retrofitting of existing buildings under Title 24 of the California Building Energy Code.

3.3 Greenhouse Gas Inventories and Climate Change Conditions

3.3.1 Sources of Greenhouse Gas Emissions

Anthropogenic GHG emissions worldwide in 2019 (the most recent year for which data is available) totaled approximately 52,400 MMT of CO_2e, excluding land use change and forestry (PBL 2020). The top six GHG emitters include China, the United States, the Russian Federation, India, Japan, and the European Union, which accounted for approximately 62% of the total global emissions, or approximately 32,500 MMT CO_2e (PBL 2020).

Per the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2019 (EPA 2021c), total United States GHG emissions were approximately 6,558.3 MMT CO_2e in 2019 (EPA 2021c). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 80.1% of total GHG emissions (5,255.8 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 92.4% of CO_2 emissions in 2019 (4,856.7 MMT CO_2e). Relative to 1990, gross United States GHG emissions in 2019 were 1.8% higher; however, the gross emissions were down from a high of 15.6% above 1990 levels in 2007. GHG emissions decreased from 2018 to 2019 by 1.7% (113.1 MMT CO_2e) and overall, net emissions in 2019 were 13% below 2005 levels (EPA 2021c).

According to California's 2000–2019 GHG emissions inventory (2021 edition), California emitted approximately 418 MMT CO2e in 2019, including emissions resulting from out-of-state electrical generation (CARB 2021c). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high-GWP substances, and recycling and waste. Table 8 presents California GHG emission source categories and their relative contributions to the emissions inventory in 2019. Between 2000 and 2019, per-capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.5 MT per person in 2019, representing an approximate 25% decrease. In addition, total GHG emissions in 2019 were approximately 7 MMT CO_2e lower than 2018 emissions (CARB 2021c).

Table 8. Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total
Transportation	166.1	39.7%
Industrial	88.2	21.1%
Electric power	58.8	14.1%
Commercial and residential	43.8	10.5%
Agriculture	31.8	7.6%
High global-warming potential substances	20.6	4.9%
Recycling and waste	8.9	2.1%
Totals	**418.2**	**100%**

Source: CARB 2021c.
Notes: GHG = greenhouse gas; GWP = global warming potential; MMT CO_2e = million metric tons of carbon dioxide equivalent. Emissions reflect 2019 California GHG inventory.
Totals may not sum due to rounding.

The City has established a goal to reduce its community-wide GHG to reduce GHG emissions 40% below 1990 levels by 2030 (City of San Marcos 2020). The City's community-wide GHG emissions inventory for baseline year 2012 is presented in Table 9 for informational purposes.

Table 9. City of San Marcos (Year 2012) Communitywide Greenhouse Gas Emissions Inventory

Community Sector	Total MT CO_2e/year	CO_2e (%)
On-Road Transportation	322,000	54%
Electricity	162,000	27%
Natural Gas	75,000	12%
Solid Waste	15,000	3%
Off-Road Transportation	14,000	2%
Water	9,000	1%
Wastewater	3,000	<1%
Total	**599,000**	**100%**

Source: City of San Marcos 2020.
Note: GHG = greenhouse gas; MT CO_2e = metric tons of carbon dioxide equivalent per year
Totals may not sum due to rounding.

3.3.2 Potential Effects of Climate Change

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed mean surface temperature for the decade 2006–2015 was 0.87°C (likely between 0.75°C and 0.99°C) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The Office of Environmental Health Hazard Assessment identified various indicators of climate change in California, which are scientifically based measurements that track trends in various aspects of climate change. Many indicators reveal discernible evidence that climate change is occurring in California and is having significant, measurable impacts in the state. Changes in the state's climate have been observed, including an increase in annual average air temperature with record warmth from 2012 to 2016, more frequent extreme heat events, more extreme drought, a decline in winter chill, an increase in cooling degree days and a decrease in heating degree days, and an increase in variability of statewide precipitation (OEHHA 2018).

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the Sierra Nevada and southern Cascade Mountains provide approximately one-third of the state's annual water supply. Impacts of climate on physical systems have been observed, such as high variability of snow-water content (i.e., amount of water stored in snowpack), decrease in snowmelt runoff, glacier change (loss in area), rise in sea levels, increase in average lake water temperature and coastal ocean temperature, and a decrease in dissolved oxygen in coastal waters (OEHHA 2018).

Impacts of climate change on biological systems, including humans, wildlife, and vegetation, have also been observed, including climate change impacts on terrestrial, marine, and freshwater ecosystems. As with global observations, species responses include those consistent with warming: elevational or latitudinal shifts in range, changes in the timing of key plant and animal life cycle events, and changes in the abundance of species and in community composition. Humans are better able to adapt to a changing climate than plants and animals in natural ecosystems. Nevertheless, climate change poses a threat to public health, as warming temperatures and changes in precipitation can affect vector-borne pathogen transmission and disease patterns in California as well as the variability of heat-related deaths and illnesses. In addition, since 1950, the area burned by wildfires each year has been increasing.

The CNRA has released four California Climate Change Assessments (2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments need for information to support action in their communities, the Fourth Assessment includes reports for nine regions of the state, including the San Diego Region, where the Project is located. Key projected climate changes for the San Diego Region include the following (CNRA 2019):

- Temperature is projected to increase substantially, along with mean temperature, heat wave frequency will increase, with more intensity and longer duration.
- Precipitation will remain highly variable but will change in character, with wetter winters, drier springs, and more frequent and severe droughts punctuated by more intense individual precipitation events.
- Wildfire risk will increase in the future as climate warms. The risk for large catastrophic wildfires driven by Santa Ana wind events will also likely increase as a result of a drier autumns leading to low antecedent precipitation before the height of the Santa Ana wind season.
- The sea level along San Diego County is expected to rise. High tides combined with elevated shoreline water levels produced by locally and distantly driven wind-driven waves will drive extreme events. Longer-term

sea level will increase rapidly in the second half of the century and will be punctuated by short periods of storm-driven extreme sea levels that will imperil existing infrastructure, structures, and ecosystems with increasing frequency.

Agriculture. Some of the specific challenges faced by the agricultural sector and farmers include more drastic and unpredictable precipitation and weather patterns; extreme weather events that range from severe flooding to extreme drought, to destructive storm events; significant shifts in water availably and water quality; changes in pollinator lifecycles; temperature fluctuations, including extreme heat stress and decreased chill hours; increased risks from invasive species and weeds, agricultural pests and plant diseases; and disruptions to the transportation and energy infrastructure supporting agricultural production.

Biodiversity and Habitat. Specific climate change challenges to biodiversity and habitat include species migration in response to climatic changes, range shift and novel combinations of species; pathogens, parasites and disease; invasive species; extinction risks; changes in the timing of seasonal life-cycle events; food web disruptions; threshold effects (i.e., a change in the ecosystem that results in a "tipping point" beyond which irreversible damage or loss has occurred).

Energy. Specific climate change challenges for the energy sector include temperature, fluctuating precipitation patterns, increasing extreme weather events, and sea-level rise.

Forestry. The most significant climate change related risk to forests is accelerated risk of wildfire and more frequent and severe droughts. Droughts have resulted in more large-scale mortalities and combined with increasing temperatures have led to an overall increase in wildfire risks. Increased wildfire intensity subsequently increases public safety risks, property damage, fire suppression and emergency response costs, watershed and water quality impacts, and vegetation conversions.

Ocean and Coastal Ecosystems and Resources. Sea-level rise, changing ocean conditions, and other climate change stressors are likely to exacerbate long-standing challenges related to ocean and coastal ecosystems in addition to threatening people and infrastructure located along the California coastline and in coastal communities. Sea-level rise, in addition to more frequent and severe coastal storms and erosion, are threatening vital infrastructure such as roads, bridges, power plants, ports and airports, gasoline pipes, and emergency facilities, as well as negatively impacting the coastal recreational assets such as beaches and tidal wetlands.

Public Health. Climate change can impact public health through various environmental changes and is the largest threat to human health in the twenty-first century. Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as heat, floods, droughts, and wildfires. Increased frequency, intensity, and duration of extreme heat and heat waves are likely to increase the risk of mortality due to heat-related illness, as well as exacerbate existing chronic health conditions. Other extreme weather events are likely to negatively impact air quality and increase or intensify respiratory illness, such as asthma and allergies.

Transportation. Although the transportation industry is a source of GHG emissions, it is also vulnerable to climate change risks. Increasing temperatures and extended periods of extreme heat threaten the integrity of the roadways and rail lines. High temperatures cause the road surfaces to expand, which leads to increased pressure and pavement buckling. High temperatures can also cause rail breakages, which could lead to train derailment. Other forms of extreme weather events, such as extreme storm events, can negatively impact infrastructure, which can impair movement of peoples and goods, or potentially block evacuation routes and emergency access roads. Increased wildfires, flooding, erosion risks, landslides, mudslides, and rockslides can all profoundly impact the transportation system and pose a serious risk to public safety.

Water. Climate change could seriously impact the timing, form, amount of precipitation, runoff patterns, and frequency and severity of precipitation events. Higher temperatures reduce the amount of snowpack and lead to earlier snowmelt, which can impact water supply availability, natural ecosystems, and winter recreation. Water supply availability during the intense dry summer months is heavily dependent on the snowpack accumulated during the winter time. Increased risk of flooding has a variety of public health concerns, including water quality, public safety, property damage, displacement, and post-disaster mental health problems. Prolonged and intensified droughts can also negatively groundwater reserves and result in increased overdraft and subsidence. The higher risk of wildfires can lead to increased erosion, which can negatively impact watersheds and result in poor water quality.

3.4 Significance Criteria and Methodology

3.4.1 Thresholds of Significance

The significance criteria used to evaluate the Project's GHG emissions impacts is based on the recommendations provided in Appendix G of the CEQA Guidelines. For the purposes of this GHG emissions analysis, the Project would have a significant environmental impact if it would (14 CCR 15000 et seq.):

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs?

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project, such as the Project, would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change. In addition, while GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008), GHG emissions impacts must also be evaluated on a project-level under CEQA.

The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009a).

The City adopted the Final CAP on December 8, 2020. The CAP relies on a screening threshold and a CAP Consistency Checklist to determine whether a project's emissions would be consistent with GHG emissions estimated within the City's CAP. Projects that are consistent with the City's CAP, as determined through the CAP Consistency Checklist, would result in a less-than-significant cumulative impact regarding GHG emissions. If a project is not consistent with the City's CAP, as determined through the CAP Consistency Checklist, potentially significant cumulative GHG impacts would occur.

3.4.2 Approach and Methodology

3.4.2.1 Construction

CalEEMod Version 2020.4.0 was used to estimate potential Project-generated GHG emissions during construction. Construction of the Project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. All details for construction criteria air pollutants discussed in Section 2.4.2.1, are also applicable for the estimation of construction-related GHG emissions. As such, see Section 2.4.2.1 for a discussion of construction emissions calculation methodology and assumptions.

3.4.2.2 Operation

As with Air Quality, emissions from the operational phase of the Project were estimated using CalEEMod Version 2020.4.0. Operational year 2025 was assumed as the first full year after completion of Project construction.

Area Sources

CalEEMod was used to estimate GHG emissions from the Project's area sources, which include operation of gasoline-powered landscape maintenance equipment, which produce minimal GHG emissions. See Section 2.4.2.2, for a discussion of landscaping equipment emissions calculations.

Energy Sources

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. Although the Project will need to comply with the currently applicable 2022 Title 24 code (as of January 1, 2023), CalEEMod default energy usage assume compliance with the 2019 Title 24 code, which means that the analysis herein is conservative in that it does not account for any energy benefits associated with compliance with the 2022 Title 24 code. The estimation of operational energy emissions for the Project were based on CalEEMod land use defaults and total area (i.e., square footage) of the Project's land use.

Furthermore, pursuant to PDF-GHG-1, the Project would incorporate approximately 9,700 square feet of solar PV panels. Based on the Project location, this area of PV panels would produce approximately 226,347 kilowatt-hours of energy per year (NREL 2022).

CalEEMod default energy intensity factors (CO_2, CH_4, and N_2O mass emissions per kilowatt-hour) for San Diego Gas and Electric (SDG&E) is based on the value for SDG&E's energy mix in 2021. These default intensity values were used for the Project analysis.

Mobile Sources

All details for criteria air pollutants discussed in Section 2.4.2.2 are also applicable for the estimation of operational mobile source GHG emissions.

Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles

determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the Project's motor vehicles. The effectiveness of fuel economy improvements was evaluated for motor vehicles in 2025 to the extent it was captured in CalEEMod.

Off-road Sources

Based on information from the applicant, one CNG forklift is included in the Project's emission inventory. The equipment was modeled in CalEEMod as an 89-horsepower CNG forklift that would operate 16 hours per day, 260 days per year.

Solid Waste

The Project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste for the Project. However, consistent with AB 939, a 50% waste diversion was assumed.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the Project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the Project requires the use of electricity for conveyance and treatment, and GHG emissions will be generated during wastewater treatment. Water consumption estimates for both indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using CalEEMod default values. The electricity use for water supply, treatment, distribution, and wastewater treatment are based on the electricity intensity factors from CalEEMod for the County and the indoor and outdoor water use default values in CalEEMod. Regarding indoor water use, the Project would install low-flow water fixtures pursuant to CALGreen standards, which would reduce the Project's water consumption.

3.4.3 Project Design Features

PDFs that are relevant to the GHG analysis are presented below. This impact analysis assumes that all PDFs would be implemented as conditions of approval, as defined below.

PDF-GHG-1. The Project applicant will install a minimum of 9,700 square-feet of photovoltaic panels.

3.5 Impact Analysis

This section evaluates the GHG emissions impacts associated with the Project. The significance criteria described in Section 3.4.1, Thresholds of Significance, were used to evaluate impacts associated with the construction and operation of the Project.

Threshold 1: Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Threshold 2: Would the Project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Construction of the Project would result in GHG emissions, which are primarily associated with the use of off-road construction equipment, haul trucks, on-road vendor trucks, and worker vehicles. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario. On-site sources of GHG emissions include off-road equipment and off-site sources including trucks and worker vehicles. CalEEMod was also used to estimate potential operational GHG emissions from area sources (landscaping equipment), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment for the Project. In addition, GHGs generated by a CNG forklift was estimated for the Project. These emissions were quantified to determine the increase in GHGs from the Project and are included below for disclosure and to provide a full understanding of the Project's potential contribution to climate change. However, as discussed in Section 3.4.1, the significance thresholds are based on whether the project is consistent with the City's CAP, which is also detailed below.

Construction and Operational GHG Emissions

Table 10 presents construction emissions for the Project in 2023 and 2024 from on-site and off-site emission sources.

Table 10. Estimated Annual Construction Greenhouse Gas Emissions - Unmitigated

	CO_2	CH_4	N_2O	CO_2e
Year	*Metric Tons per Year*			
2023	180.99	0.02	0.01	185.35
2024	209.36	0.03	<0.01	211.56
Total	**390.36**	**0.05**	**0.02**	**396.91**
Amortized Construction Emissions Over 30-years				*13.23*

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; <0.01 = reported value less than 0.01. See Appendix A for complete results. Totals may not add due to rounding.

As shown in Table 10, the estimated total GHG emissions during construction of would be approximately 397 MT CO_2e over the construction period. Estimated Project-generated construction emissions amortized over 30 years would be approximately 13 MT CO_2e per year. As with Project-generated construction criteria air pollutant emissions, GHG emissions generated during construction of the Project would be short-term in nature, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions. Amortized construction emissions were added to operational emissions of the Project for this assessment.

Table 11 presents the increase in GHG emissions from the Project.

Table 11. Estimated Annual Operational Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	metric tons per year			
Area	<0.01	<0.01	0.00	<0.01
Energy	38.21	<0.01	<0.01	38.38
Mobile	431.09	0.01	0.01	434.64
Off-Road	45.59	0.01	0.00	45.96
Solid waste	6.89	0.41	0.00	17.07
Water supply and wastewater	44.63	0.41	0.01	61.76
Total	**559.52**	**0.84**	**0.02**	**597.81**
Amortized Construction Emissions Over 30-Years				*13.23*
Project Operations + Amortized Construction Total				**611.04**

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; <0.01 = reported value less than 0.01.
See Appendix A for complete results. Totals may not add due to rounding.
The values shown are the annual emissions reflected in the CalEEMod "mitigated" output in order to account for implementation of PDF-GHG-1 (PV panels) and consistency with regulations, specifically AB 939 (50% waste diversion) and CALGreen (low-flow fixtures requirement).

As shown in Table 11, the estimated GHG emissions from operation of the Project would be approximately 611 MT CO_2e per year, including amortized construction emissions.

City of San Marcos' Climate Action Plan Consistency

This section evaluates the Project's impacts to GHG in accordance with the City's 2020 CAP Consistency Checklist. A completed CAP Checklist is included as Appendix B. New discretionary development projects subject to CEQA review that are below the applicable screening size listed in the CAP Checklist would emit less than 500 MT CO_2e annually and would not contribute considerably to cumulative climate change impacts, and therefore, would be considered consistent with the CAP and associated emissions projections.

For projects that are subject to CAP consistency review, the next step in determining consistency is to assess the project's consistency with the growth projections used in development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1

Question 1

Step 1 of the CAP Checklist determines land use consistency. Question 1 of Step 1 asks if a project is less than a certain size. If so, it is deemed consistent with the City's CAP by emitting fewer than 500 MT CO_2e per year and would be less than significant. The Project exceeds the screening size of 58,000 SF for General Light Industrial identified in the CAP Consistency Checklist and therefore would answer "Yes" to this question and must proceed to Question 2 of Step 1.

Question 2

Question 2 of Step 1 asks if the project is consistent with the existing General Plan land use designation. The Project site is designated as Light Industrial (LI) in the City's General Plan and is zoned Light Manufacturing (L-I). The Project would be consistent with these designations. The Project would answer "Yes" to Question 2 of Step 1 and can proceed to Step 2 of the Checklist.

Step 2

The second step of CAP consistency review is to evaluate a project's consistency with the applicable strategies and measures of the CAP. Each checklist item is associated with a specific GHG reduction measure in the City's CAP. "N/A" should only be checked based on the direction provided in each checklist item question. All projects for which the measure is applicable must demonstrate that the project would implement measures consistent with the checklist item, or fully substantiate how the item would be infeasible for project implementation. "N/A" responses are subject to Planning Division review and approval. If "No" is provided as a response to a question, the project would be determined to be inconsistent with the CAP and would result in a significant GHG impact.

Checklist Item 1. Electric Vehicle Charging Stations (Measure T-2)

This checklist item applies to multi-family residential and non-residential projects. It asks if the project will install electric vehicle charging stations (Level 2 or better) in at least 5% of the total parking spaces provided on site.

The Project would answer "Yes" to this question. By Project design, there are four EV Level 2 charging stations and three additional EV ready spaces proposed in compliance with the 2022 CALGreen code at 10% of the total 72 space parking on-site.

Checklist Item 2. Bicycle Infrastructure (Measure T-8)

This checklist item applies to residential and non-residential projects. It asks if the following conditions are met, would the project pay its fair-share contribution to bicycle infrastructure improvements of the following:

- Intersection or roadway segment improvements are proposed as part of the project.
- The City's General Plan Mobility Element identifies bicycle infrastructure improvements at any intersection(s) or roadway segment(s) that would be improved as part of the project.

The Project would answer "N/A" to this checklist question. According to the General Plan, Pacific Street is not a Mobility Element roadway, nor does it call for bike infrastructure in this roadway segment.

Checklist Item 3. Transportation Demand Management (Measure T-9)

This checklist item applies to residential and non-residential projects. Will the project develop and implement a Transportation Demand Management (TDM) Plan that includes, at a minimum, all of the TDM strategies listed below?

- Provide discounted monthly transit pass or provide at least 25 percent transit fare subsidy to residents/employees.
- Provide designated car-share, carpool, vanpool, and/or park-and-ride parking spaces.

- Provide pedestrian connections between all internal uses and to all existing or planned external streets around the project site(s).
- Provide secure bicycle parking spaces or bicycle racks, showers, and clothes lockers.
- Encourage telecommuting for employees (allow one telecommute day per week or compressed work weeks) or provide a telecommute work center with common office space and equipment available to residents.

-or

- Would the project implement and monitor for four (4) years a TDM program that demonstrates an alternative transportation (i.e. carpool, public transit, bicycle, walk, telecommute) mode share of at least 29 percent for all residents?

The Project would answer "Yes" to this checklist question. The Project would comply with all feasible and appropriate TDM strategies as indicated in Appendix B; however, as a manufacturing facility on a 2-shift/5-day per week schedule, employees are not able to work remotely. Additionally, transit routes are limited in relation to the workforce, especially with late night shiftwork, but transit passes will be offered as part of the TDM program. Based on the preceding considerations, this measure would not apply in its entirety to the proposed Project.

Checklist Item 4. Reduce Parking Near Transit (Measure T-12)

This checklist item applies to multi-family residential projects. If located within one-half mile of a major transit stop, would the project provide at least 27% fewer parking spaces than required for the same use based on the City's municipal code parking requirements?

The Project would answer "N/A" this checklist item. As an industrial facility, this measure would not apply to the proposed Project.

Checklist Item 5. Water Heaters (Measure E-1)

This checklist item applies to residential projects and asks if the project would install one of, or a combination of, the following water heater types in place of natural gas water heaters:

- Electric heat pump water heater
- Instantaneous electric water heater
- Electric tank
- Solar water heater with heat pump water heater backup
- Solar water heater with electric tank backup

The Project would answer "N/A" this checklist item. As an industrial facility, this measure would not apply to the proposed Project.

Checklist Item 6. Photovoltaic Installation (Measure E-2)

This checklist item applies to non-residential projects and asks if the project would install photovoltaic systems with a minimum capacity of two watts per square foot of gross floor area?

The Project would answer "Yes" to this checklist item. The Project will install a photovoltaic system to meet the City's requirement.

Checklist Item 7. Landscaping Water Use (Measure W-1)

This checklist item applies to residential and non-residential projects and asks if the project would comply with the City's Water Efficient Landscape Ordinance.

The Project would answer "Yes" to this checklist item. As identified in the landscape plans, the Project design will comply with the City's Water Efficient Landscape Ordinance.

Checklist Item 8. Urban Tree Canopy (Measure C-2)

This checklist item applies to residential and non-residential projects and asks if the project is providing more than 10 parking spaces, will the project plant at least one tree per five parking spaces provided?

The Project would answer "Yes" to this checklist item. As identified in the landscape plans, the Project would design meets the requirement of at least one tree per five parking spaces and would provide a total of 59 trees across the site.

Summary

The Project was shown to implement all applicable checklist items within the City's CAP. Therefore, the Project would be consistent with the City's CAP, and impacts to GHG emissions would be less than significant.

Consistency with Other Plans and Regulations

Numerous plans, policies, and regulations have been adopted for the purpose of reducing GHG emissions. The principal overall state plan and policy are AB 32, SB 32, and AB 1279. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020 and the goal of SB 32 is to reduce GHG emissions to 40% below 1990 levels by 2030. AB 1279 requires GHG emissions be reduced to 85 percent below 1990 levels by 2045 and that the state achieve net zero GHG emissions by no later than 2045 and achieve and maintain net negative GHG emissions thereafter. The City's CAP outlines the measures for the City to achieve its share of state GHG reductions. As discussed above, the Project would be consistent with the CAP and, therefore, would be consistent with state GHG reduction goals.

At the regional level, the SANDAG's RTP/SCS has been adopted for the purpose of reducing GHG emissions attributable to passenger vehicles in the San Diego region. In October 2015, SANDAG adopted its Regional Plan, which was subsequently updated in 2021. The RTP/SCS is not directly applicable to the Project because the underlying purpose of the RTP/SCS is to provide direction and guidance on future regional growth (i.e., the location of new residential and nonresidential land uses) and transportation patterns throughout the City and greater San Diego County, as stipulated under Senate Bill 375. CARB has recognized that the approved RTP/SCS is consistent with Senate Bill 375. The SANDAG Regional Plan is generally consistent with the local government plans. Since the Project is within the scope of development that was anticipated in the General Plan (see Section 2.5, Threshold 1), it would not result in growth that would conflict with the Regional Plan.

Based on the preceding considerations, the Project would not conflict with an applicable plan adopted for the purpose of reducing GHG emissions or generate GHG emissions that would have a significant impact on the environment; therefore, the Project's impacts on GHG emissions would be **less than significant**.

Mitigation Measures

No mitigation is required.

Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

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5 List of Preparers

Jennifer Reed, Air Quality Services Manager
Matthew Morales, Air Quality Specialist

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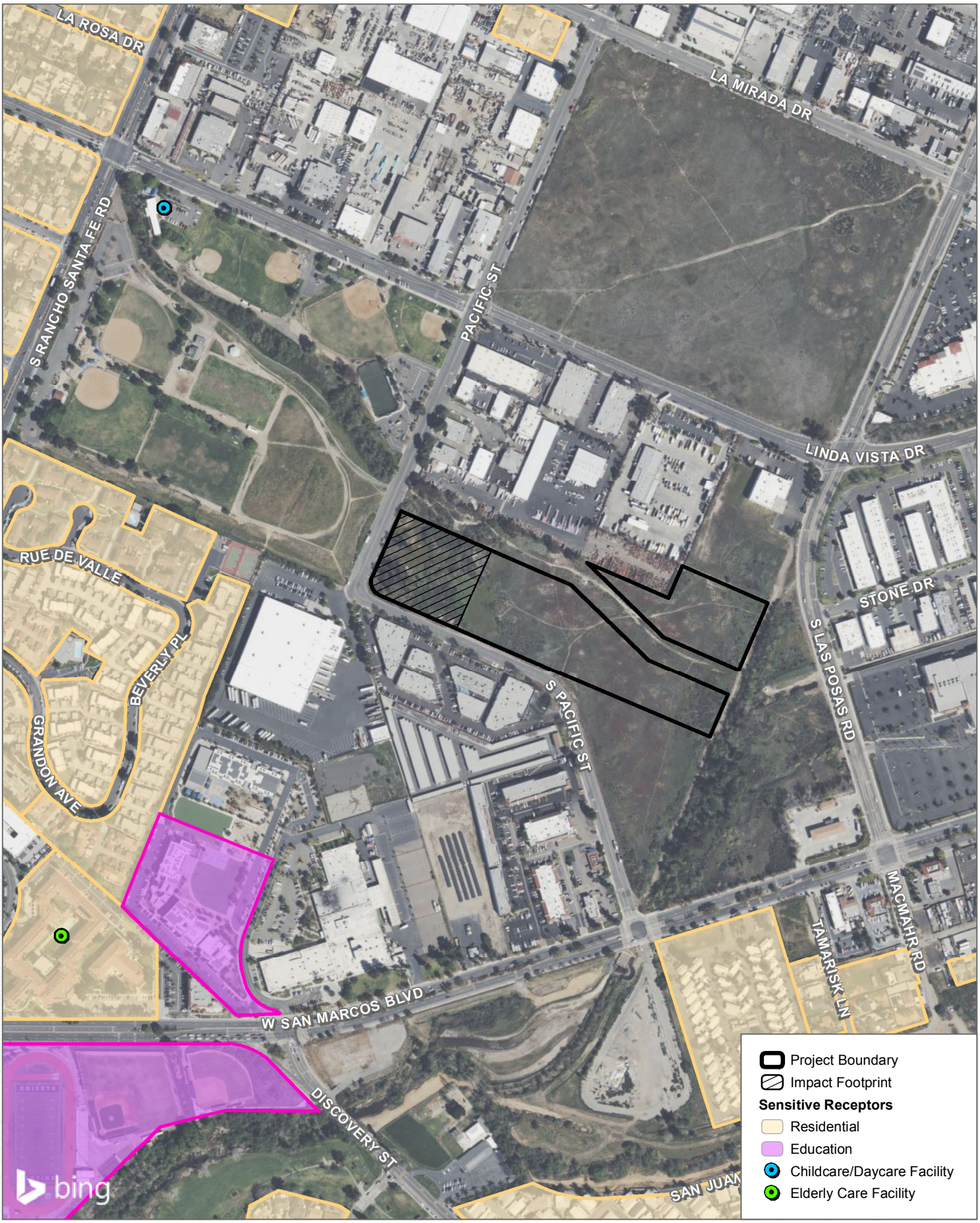

SOURCE: Bing Maps 2022; SanGIS 2022

DUDEK

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FIGURE 1

Sensitive Receptors

Hughes Circuits Project Environmental Impact Report

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Appendix A

CalEEMod Output Files

Hughes Circuits Warehouse Project - San Diego County, Summer

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

Hughes Circuits Warehouse Project

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	15.00	1000sqft	0.34	15,000.00	0
Unrefrigerated Warehouse-No Rail	52.41	1000sqft	1.20	52,410.00	0
Parking Lot	72.00	Space	0.51	28,800.00	0
City Park	0.56	Acre	0.56	24,393.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Community Power				
CO2 Intensity (lb/MWhr)	580.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses based on project Site Plan. Adjusted parking size to match total lot acreage. 64,710 sf building total, with ~52,410 sf warehouse and ~15,000 sf manufacturing. City park used as surrogate for landscaped are

Construction Phase - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Hughes Circuits Warehouse Project - San Diego County, Summer

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

Trips and VMT - Rounded trips up to even numbers. Added 2 vendor trips per day to account for water trucks during Site Preparation and Grading

On-road Fugitive Dust - Default

Grading - 17,000 CY soil to be imported

Architectural Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Vehicle Trips - Adjusted based on existing facility driveway counts and triplengths per Traffic Impact Study

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Consumer Products - Default

Area Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Landscape Equipment - Default

Energy Use - Default

Water And Wastewater - Default

Solid Waste - Zeroed out waste for landscaped area (i.e., City Park). Defaults for all other uses.

Construction Off-road Equipment Mitigation - Watering exposed area 2x per day assumed. Equipment >50 hp Tier 4F based on project design feature

Energy Mitigation - Estimated kWh/year based on PVWatts calculator based on ~9,700 SF of panels

Water Mitigation - Low flow fixtures and water-efficient irrigation systems assumed

Waste Mitigation - 50% waste diversion consistent with Assembly Bill 939

Operational Off-Road Equipment - 1 CNG forklift assumed per applicant input

Fleet Mix - Adjusted based on driveway counts at existing facility with manufacturing used to model passenger vehicles/2-axle trucks and warehouse used to model heavy vehicles.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblFleetMix	HHD	6.2980e-003	0.00
tblFleetMix	HHD	6.2980e-003	0.13
tblFleetMix	LDA	0.56	0.61
tblFleetMix	LDA	0.56	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.18	0.19
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.00

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

tblFleetMix	LHD1	0.02	0.38
tblFleetMix	LHD2	6.3170e-003	0.00
tblFleetMix	LHD2	6.3170e-003	0.10
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.14
tblFleetMix	OBUS	7.0500e-004	0.00
tblFleetMix	OBUS	7.0500e-004	0.25
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblGrading	MaterialImported	0.00	17,000.00
tblLandUse	LotAcreage	0.65	0.51
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	16.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	0.05	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	51.00	52.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	CC_TL	7.30	16.80
tblVehicleTrips	CC_TL	7.30	16.80

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

tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	3.93	22.87
tblVehicleTrips	WD_TR	1.74	0.09

2.0 Emissions Summary

Hughes Circuits Warehouse Project - San Diego County, Summer

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

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					
2023	2.1648	60.9004	21.7016	0.2337	13.7709	0.9985	14.7694	5.2086	0.9331	6.1417	0.0000	25,533.4296	25,533.4296	1.8291	3.7327	26,691.4859
2024	33.4533	13.7543	15.5661	0.0327	0.5626	0.5455	1.1081	0.1523	0.5223	0.6746	0.0000	3,093.0108	3,093.0108	0.5449	0.0718	3,125.6403
Maximum	**33.4533**	**60.9004**	**21.7016**	**0.2337**	**13.7709**	**0.9985**	**14.7694**	**5.2086**	**0.9331**	**6.1417**	**0.0000**	**25,533.4296**	**25,533.4296**	**1.8291**	**3.7327**	**26,691.4859**

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					
2023	1.1275	47.5254	23.9049	0.2337	9.6565	0.4278	10.0843	3.2919	0.4107	3.7026	0.0000	25,533.4296	25,533.4296	1.8291	3.7327	26,691.4859
2024	33.3022	5.9316	16.9020	0.0327	0.5626	0.1762	0.7389	0.1523	0.1758	0.3281	0.0000	3,093.0108	3,093.0108	0.5449	0.0718	3,125.6403
Maximum	**33.3022**	**47.5254**	**23.9049**	**0.2337**	**9.6565**	**0.4278**	**10.0843**	**3.2919**	**0.4107**	**3.7026**	**0.0000**	**25,533.4296**	**25,533.4296**	**1.8291**	**3.7327**	**26,691.4859**

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	N20	CO2e
Percent Reduction	**3.34**	**28.39**	**-9.50**	**0.00**	**28.70**	**60.88**	**31.83**	**35.75**	**59.70**	**40.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Energy	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
Mobile	0.5010	0.7991	9.5989	0.0378	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,826.4860	3,826.4860	0.0658	0.0908	3,855.1800
Offroad	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**2.0952**	**2.7841**	**28.7903**	**0.0413**	**4.4502**	**0.0641**	**4.5143**	**1.1814**	**0.0624**	**1.2438**	**0.0000**	**4,296.6901**	**4,296.6901**	**0.1925**	**0.0923**	**4,329.0086**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Energy	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
Mobile	0.5010	0.7991	9.5989	0.0378	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,826.4860	3,826.4860	0.0658	0.0908	3,855.1800
Offroad	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**2.0952**	**2.7841**	**28.7903**	**0.0413**	**4.4502**	**0.0641**	**4.5143**	**1.1814**	**0.0624**	**1.2438**	**0.0000**	**4,296.6901**	**4,296.6901**	**0.1925**	**0.0923**	**4,329.0086**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2023	9/5/2023	5	3	
2	Grading	Grading	9/6/2023	9/13/2023	5	6	
3	Building Construction	Building Construction	9/14/2023	7/17/2024	5	220	
4	Paving	Paving	7/18/2024	7/31/2024	5	10	

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

5	Architectural Coating	Architectural Coating	8/1/2024	8/14/2024	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 101,115; Non-Residential Outdoor: 33,705; Striped Parking Area: 1,728 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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

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
Site Preparation	3	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	2,125.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

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

3.2 Site Preparation - 2023

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	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0219	0.0136	0.1920	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.2000e-004	0.0178		58.6931	58.6931	1.5900e-003	1.4600e-003	59.1689
Total	**0.0243**	**0.0993**	**0.2229**	**9.9000e-004**	**0.0793**	**8.7000e-004**	**0.0801**	**0.0213**	**8.2000e-004**	**0.0222**		**102.9025**	**102.9025**	**2.9300e-003**	**7.8600e-003**	**105.3193**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	0.3008	1.3034	11.8595	0.0245		0.0401	0.0401		0.0401	0.0401	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**0.3008**	**1.3034**	**11.8595**	**0.0245**	**0.7158**	**0.0401**	**0.7559**	**0.0773**	**0.0401**	**0.1174**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

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

3.2 Site Preparation - 2023

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	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0219	0.0136	0.1920	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.2000e-004	0.0178		58.6931	58.6931	1.5900e-003	1.4600e-003	59.1689
Total	**0.0243**	**0.0993**	**0.2229**	**9.9000e-004**	**0.0793**	**8.7000e-004**	**0.0801**	**0.0213**	**8.2000e-004**	**0.0222**		**102.9025**	**102.9025**	**2.9300e-003**	**7.8600e-003**	**105.3193**

3.3 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					7.4807	0.0000	7.4807	3.4850	0.0000	3.4850			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4807**	**0.6044**	**8.0851**	**3.4850**	**0.5560**	**4.0410**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

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

3.3 Grading - 2023

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	0.8021	46.3300	12.7269	0.2119	6.1945	0.3932	6.5877	1.6979	0.3762	2.0741		23,420.2391	23,420.2391	1.1803	3.7244	24,559.6240
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0273	0.0170	0.2400	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		73.3664	73.3664	1.9900e-003	1.8300e-003	73.9611
Total	**0.8318**	**46.4328**	**12.9978**	**0.2131**	**6.2902**	**0.3942**	**6.6843**	**1.7236**	**0.3771**	**2.1007**		**23,537.8149**	**23,537.8149**	**1.1837**	**3.7327**	**24,679.7356**

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					3.3663	0.0000	3.3663	1.5683	0.0000	1.5683			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.3663**	**0.0336**	**3.4000**	**1.5683**	**0.0336**	**1.6019**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

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

3.3 Grading - 2023

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	0.8021	46.3300	12.7269	0.2119	6.1945	0.3932	6.5877	1.6979	0.3762	2.0741		23,420.2391	23,420.2391	1.1803	3.7244	24,559.6240
Vendor	2.3900e-003	0.0857	0.0309	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2094	44.2094	1.3400e-003	6.4000e-003	46.1504
Worker	0.0273	0.0170	0.2400	7.3000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		73.3664	73.3664	1.9900e-003	1.8300e-003	73.9611
Total	**0.8318**	**46.4328**	**12.9978**	**0.2131**	**6.2902**	**0.3942**	**6.6843**	**1.7236**	**0.3771**	**2.1007**		**23,537.8149**	**23,537.8149**	**1.1837**	**3.7327**	**24,679.7356**

3.4 Building Construction - 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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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

3.4 Building Construction - 2023

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	0.0239	0.8574	0.3090	4.1000e-003	0.1355	5.2200e-003	0.1407	0.0390	5.0000e-003	0.0440		442.0939	442.0939	0.0134	0.0640	461.5044
Worker	0.1421	0.0883	1.2480	3.7700e-003	0.4272	2.2900e-003	0.4295	0.1133	2.1100e-003	0.1154		381.5053	381.5053	0.0103	9.5100e-003	384.5979
Total	**0.1660**	**0.9456**	**1.5569**	**7.8700e-003**	**0.5626**	**7.5100e-003**	**0.5701**	**0.1523**	**7.1100e-003**	**0.1594**		**823.5992**	**823.5992**	**0.0237**	**0.0735**	**846.1023**

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	0.9615	5.1202	15.4788	0.0250		0.1918	0.1918		0.1918	0.1918	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**0.9615**	**5.1202**	**15.4788**	**0.0250**		**0.1918**	**0.1918**		**0.1918**	**0.1918**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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

3.4 Building Construction - 2023

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	0.0239	0.8574	0.3090	4.1000e-003	0.1355	5.2200e-003	0.1407	0.0390	5.0000e-003	0.0440		442.0939	442.0939	0.0134	0.0640	461.5044
Worker	0.1421	0.0883	1.2480	3.7700e-003	0.4272	2.2900e-003	0.4295	0.1133	2.1100e-003	0.1154		381.5053	381.5053	0.0103	9.5100e-003	384.5979
Total	**0.1660**	**0.9456**	**1.5569**	**7.8700e-003**	**0.5626**	**7.5100e-003**	**0.5701**	**0.1523**	**7.1100e-003**	**0.1594**		**823.5992**	**823.5992**	**0.0237**	**0.0735**	**846.1023**

3.4 Building Construction - 2024

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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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

3.4 Building Construction - 2024

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	0.0230	0.8515	0.3017	4.0200e-003	0.1355	5.2500e-003	0.1407	0.0390	5.0200e-003	0.0440		434.3861	434.3861	0.0137	0.0629	453.4706
Worker	0.1334	0.0794	1.1642	3.6500e-003	0.4272	2.1800e-003	0.4294	0.1133	2.0100e-003	0.1153		368.9705	368.9705	9.4100e-003	8.8900e-003	371.8543
Total	**0.1564**	**0.9309**	**1.4660**	**7.6700e-003**	**0.5626**	**7.4300e-003**	**0.5701**	**0.1523**	**7.0300e-003**	**0.1593**		**803.3567**	**803.3567**	**0.0231**	**0.0718**	**825.3249**

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	0.9057	5.0008	15.4361	0.0250		0.1688	0.1688		0.1688	0.1688	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**0.9057**	**5.0008**	**15.4361**	**0.0250**		**0.1688**	**0.1688**		**0.1688**	**0.1688**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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

3.4 Building Construction - 2024

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	0.0230	0.8515	0.3017	4.0200e-003	0.1355	5.2500e-003	0.1407	0.0390	5.0200e-003	0.0440		434.3861	434.3861	0.0137	0.0629	453.4706
Worker	0.1334	0.0794	1.1642	3.6500e-003	0.4272	2.1800e-003	0.4294	0.1133	2.0100e-003	0.1153		368.9705	368.9705	9.4100e-003	8.8900e-003	371.8543
Total	**0.1564**	**0.9309**	**1.4660**	**7.6700e-003**	**0.5626**	**7.4300e-003**	**0.5701**	**0.1523**	**7.0300e-003**	**0.1593**		**803.3567**	**803.3567**	**0.0231**	**0.0718**	**825.3249**

3.5 Paving - 2024

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	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1336					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9761**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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

3.5 Paving - 2024

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	0.0411	0.0244	0.3582	1.1200e-003	0.1314	6.7000e-004	0.1321	0.0349	6.2000e-004	0.0355		113.5294	113.5294	2.9000e-003	2.7300e-003	114.4167
Total	**0.0411**	**0.0244**	**0.3582**	**1.1200e-003**	**0.1314**	**6.7000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**113.5294**	**113.5294**	**2.9000e-003**	**2.7300e-003**	**114.4167**

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	0.2691	1.2799	13.2821	0.0179		0.0424	0.0424		0.0424	0.0424	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1336					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4028**	**1.2799**	**13.2821**	**0.0179**		**0.0424**	**0.0424**		**0.0424**	**0.0424**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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

3.5 Paving - 2024

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	0.0411	0.0244	0.3582	1.1200e-003	0.1314	6.7000e-004	0.1321	0.0349	6.2000e-004	0.0355		113.5294	113.5294	2.9000e-003	2.7300e-003	114.4167
Total	**0.0411**	**0.0244**	**0.3582**	**1.1200e-003**	**0.1314**	**6.7000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**113.5294**	**113.5294**	**2.9000e-003**	**2.7300e-003**	**114.4167**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.2469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**33.4276**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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

3.6 Architectural Coating - 2024

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	0.0257	0.0153	0.2239	7.0000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		70.9559	70.9559	1.8100e-003	1.7100e-003	71.5104
Total	**0.0257**	**0.0153**	**0.2239**	**7.0000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**70.9559**	**70.9559**	**1.8100e-003**	**1.7100e-003**	**71.5104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.2469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**33.2766**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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

3.6 Architectural Coating - 2024

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	0.0257	0.0153	0.2239	7.0000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		70.9559	70.9559	1.8100e-003	1.7100e-003	71.5104
Total	**0.0257**	**0.0153**	**0.2239**	**7.0000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**70.9559**	**70.9559**	**1.8100e-003**	**1.7100e-003**	**71.5104**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Hughes Circuits Warehouse Project - San Diego County, Summer

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					
Mitigated	0.5010	0.7991	9.5989	0.0378	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,826.4860	3,826.4860	0.0658	0.0908	3,855.1800
Unmitigated	0.5010	0.7991	9.5989	0.0378	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,826.4860	3,826.4860	0.0658	0.0908	3,855.1800

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Manufacturing	343.05	0.00	0.00	1,498,442	1,498,442
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4.72	0.00	0.00	20,603	20,603
Total	347.77	0.00	0.00	1,519,046	1,519,046

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Manufacturing	16.80	16.80	16.80	59.00	28.00	13.00	100	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.80	16.80	16.80	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Manufacturing	0.611447	0.067938	0.192673	0.127942	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.380966	0.100980	0.143054	0.125000	0.250000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
NaturalGas Unmitigated	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	473.425	5.1100e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003		55.6970	55.6970	1.0700e-003	1.0200e-003	56.0280
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	236.922	2.5600e-003	0.0232	0.0195	1.4000e-004		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003		27.8732	27.8732	5.3000e-004	5.1000e-004	28.0388
Total		**7.6700e-003**	**0.0696**	**0.0585**	**4.2000e-004**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**		**83.5702**	**83.5702**	**1.6000e-003**	**1.5300e-003**	**84.0668**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0.473425	5.1100e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003		55.6970	55.6970	1.0700e-003	1.0200e-003	56.0280
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.236922	2.5600e-003	0.0232	0.0195	1.4000e-004		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003		27.8732	27.8732	5.3000e-004	5.1000e-004	28.0388
Total		**7.6700e-003**	**0.0696**	**0.0585**	**4.2000e-004**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**		**83.5702**	**83.5702**	**1.6000e-003**	**1.5300e-003**	**84.0668**

6.0 Area Detail

6.1 Mitigation Measures Area

Hughes Circuits Warehouse Project - San Diego County, Summer

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					
Mitigated	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Unmitigated	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326

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	0.0911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3100e-003	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Total	**1.5464**	**1.3000e-004**	**0.0143**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0306**	**0.0306**	**8.0000e-005**		**0.0326**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3100e-003	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Total	**1.5464**	**1.3000e-004**	**0.0143**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0306**	**0.0306**	**8.0000e-005**		**0.0326**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	16.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**0.0401**	**1.9153**	**19.1187**	**3.0600e-003**		**0.0372**	**0.0372**		**0.0372**	**0.0372**	**0.0000**	**386.6032**	**386.6032**	**0.1250**		**389.7291**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hughes Circuits Warehouse Project - San Diego County, Winter

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

Hughes Circuits Warehouse Project

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	15.00	1000sqft	0.34	15,000.00	0
Unrefrigerated Warehouse-No Rail	52.41	1000sqft	1.20	52,410.00	0
Parking Lot	72.00	Space	0.51	28,800.00	0
City Park	0.56	Acre	0.56	24,393.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Community Power				
CO2 Intensity (lb/MWhr)	580.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses based on project Site Plan. Adjusted parking size to match total lot acreage. 64,710 sf building total, with ~52,410 sf warehouse and ~15,000 sf manufacturing. City park used as surrogate for landscaped are

Construction Phase - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Hughes Circuits Warehouse Project - San Diego County, Winter

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

Trips and VMT - Rounded trips up to even numbers. Added 2 vendor trips per day to account for water trucks during Site Preparation and Grading

On-road Fugitive Dust - Default

Grading - 17,000 CY soil to be imported

Architectural Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Vehicle Trips - Adjusted based on existing facility driveway counts and triplengths per Traffic Impact Study

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Consumer Products - Default

Area Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Landscape Equipment - Default

Energy Use - Default

Water And Wastewater - Default

Solid Waste - Zeroed out waste for landscaped area (i.e., City Park). Defaults for all other uses.

Construction Off-road Equipment Mitigation - Watering exposed area 2x per day assumed. Equipment >50 hp Tier 4F based on project design feature

Energy Mitigation - Estimated kWh/year based on PVWatts calculator based on ~9,700 SF of panels

Water Mitigation - Low flow fixtures and water-efficient irrigation systems assumed

Waste Mitigation - 50% waste diversion consistent with Assembly Bill 939

Operational Off-Road Equipment - 1 CNG forklift assumed per applicant input

Fleet Mix - Adjusted based on driveway counts at existing facility with manufacturing used to model passenger vehicles/2-axle trucks and warehouse used to model heavy vehicles.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblFleetMix	HHD	6.2980e-003	0.00
tblFleetMix	HHD	6.2980e-003	0.13
tblFleetMix	LDA	0.56	0.61
tblFleetMix	LDA	0.56	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.18	0.19
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.00

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

tblFleetMix	LHD1	0.02	0.38
tblFleetMix	LHD2	6.3170e-003	0.00
tblFleetMix	LHD2	6.3170e-003	0.10
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.14
tblFleetMix	OBUS	7.0500e-004	0.00
tblFleetMix	OBUS	7.0500e-004	0.25
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblGrading	MaterialImported	0.00	17,000.00
tblLandUse	LotAcreage	0.65	0.51
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	16.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	0.05	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	51.00	52.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	CC_TL	7.30	16.80
tblVehicleTrips	CC_TL	7.30	16.80

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

tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	3.93	22.87
tblVehicleTrips	WD_TR	1.74	0.09

2.0 Emissions Summary

Hughes Circuits Warehouse Project - San Diego County, Winter

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

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					
2023	2.1190	62.7747	21.8492	0.2338	13.7709	0.9993	14.7702	5.2086	0.9338	6.1425	0.0000	25,552.2182	25,552.2182	1.8264	3.7366	26,711.3792
2024	33.4555	13.8001	15.5197	0.0325	0.5626	0.5455	1.1081	0.1523	0.5223	0.6746	0.0000	3,073.4120	3,073.4120	0.5451	0.0727	3,106.3145
Maximum	**33.4555**	**62.7747**	**21.8492**	**0.2338**	**13.7709**	**0.9993**	**14.7702**	**5.2086**	**0.9338**	**6.1425**	**0.0000**	**25,552.2182**	**25,552.2182**	**1.8264**	**3.7366**	**26,711.3792**

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					
2023	1.1388	49.3997	24.0525	0.2338	9.6565	0.4286	10.0850	3.2919	0.4115	3.7033	0.0000	25,552.2182	25,552.2182	1.8264	3.7366	26,711.3792
2024	33.3045	5.9774	16.8555	0.0325	0.5626	0.1763	0.7389	0.1523	0.1759	0.3282	0.0000	3,073.4120	3,073.4120	0.5451	0.0727	3,106.3145
Maximum	**33.3045**	**49.3997**	**24.0525**	**0.2338**	**9.6565**	**0.4286**	**10.0850**	**3.2919**	**0.4115**	**3.7033**	**0.0000**	**25,552.2182**	**25,552.2182**	**1.8264**	**3.7366**	**26,711.3792**

Hughes Circuits Warehouse Project - San Diego 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	N20	CO2e
Percent Reduction	**3.18**	**27.68**	**-9.47**	**0.00**	**28.70**	**60.85**	**31.83**	**35.75**	**59.67**	**40.86**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Energy	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
Mobile	0.4735	0.8784	8.9704	0.0358	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,629.7193	3,629.7193	0.0686	0.0964	3,660.1577
Offroad	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**2.0677**	**2.8635**	**28.1618**	**0.0393**	**4.4502**	**0.0641**	**4.5143**	**1.1814**	**0.0624**	**1.2438**	**0.0000**	**4,099.9234**	**4,099.9234**	**0.1953**	**0.0979**	**4,133.9862**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Energy	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
Mobile	0.4735	0.8784	8.9704	0.0358	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,629.7193	3,629.7193	0.0686	0.0964	3,660.1577
Offroad	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**2.0677**	**2.8635**	**28.1618**	**0.0393**	**4.4502**	**0.0641**	**4.5143**	**1.1814**	**0.0624**	**1.2438**	**0.0000**	**4,099.9234**	**4,099.9234**	**0.1953**	**0.0979**	**4,133.9862**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2023	9/5/2023	5	3	
2	Grading	Grading	9/6/2023	9/13/2023	5	6	
3	Building Construction	Building Construction	9/14/2023	7/17/2024	5	220	
4	Paving	Paving	7/18/2024	7/31/2024	5	10	

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

5	Architectural Coating	Architectural Coating	8/1/2024	8/14/2024	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 101,115; Non-Residential Outdoor: 33,705; Striped Parking Area: 1,728 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

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

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
Site Preparation	3	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	2,125.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					1.5908	0.0000	1.5908	0.1718	0.0000	0.1718			0.0000			0.0000
Off-Road	1.3027	14.2802	9.7820	0.0245		0.5419	0.5419		0.4985	0.4985		2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**1.3027**	**14.2802**	**9.7820**	**0.0245**	**1.5908**	**0.5419**	**2.1326**	**0.1718**	**0.4985**	**0.6703**		**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

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

3.2 Site Preparation - 2023

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	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0237	0.0153	0.1824	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.2000e-004	0.0178		55.4671	55.4671	1.6900e-003	1.5800e-003	55.9810
Total	**0.0260**	**0.1046**	**0.2143**	**9.6000e-004**	**0.0793**	**8.7000e-004**	**0.0801**	**0.0213**	**8.2000e-004**	**0.0222**		**99.7394**	**99.7394**	**3.0200e-003**	**8.0000e-003**	**102.1986**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7158	0.0000	0.7158	0.0773	0.0000	0.0773			0.0000			0.0000
Off-Road	0.3008	1.3034	11.8595	0.0245		0.0401	0.0401		0.0401	0.0401	0.0000	2,374.8634	2,374.8634	0.7681		2,394.0654
Total	**0.3008**	**1.3034**	**11.8595**	**0.0245**	**0.7158**	**0.0401**	**0.7559**	**0.0773**	**0.0401**	**0.1174**	**0.0000**	**2,374.8634**	**2,374.8634**	**0.7681**		**2,394.0654**

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

3.2 Site Preparation - 2023

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	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0237	0.0153	0.1824	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.2000e-004	0.0178		55.4671	55.4671	1.6900e-003	1.5800e-003	55.9810
Total	**0.0260**	**0.1046**	**0.2143**	**9.6000e-004**	**0.0793**	**8.7000e-004**	**0.0801**	**0.0213**	**8.2000e-004**	**0.0222**		**99.7394**	**99.7394**	**3.0200e-003**	**8.0000e-003**	**102.1986**

3.3 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					7.4807	0.0000	7.4807	3.4850	0.0000	3.4850			0.0000			0.0000
Off-Road	1.3330	14.4676	8.7038	0.0206		0.6044	0.6044		0.5560	0.5560		1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**1.3330**	**14.4676**	**8.7038**	**0.0206**	**7.4807**	**0.6044**	**8.0851**	**3.4850**	**0.5560**	**4.0410**		**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

Hughes Circuits Warehouse Project - San Diego County, Winter

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

3.3 Grading - 2023

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	0.7540	48.1986	12.8855	0.2121	6.1945	0.3940	6.5884	1.6979	0.3769	2.0748		23,442.9974	23,442.9974	1.1775	3.7282	24,583.4350
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0296	0.0191	0.2281	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		69.3339	69.3339	2.1200e-003	1.9800e-003	69.9763
Total	**0.7860**	**48.3071**	**13.1454**	**0.2132**	**6.2902**	**0.3949**	**6.6851**	**1.7236**	**0.3778**	**2.1014**		**23,556.6035**	**23,556.6035**	**1.1809**	**3.7366**	**24,699.6289**

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					3.3663	0.0000	3.3663	1.5683	0.0000	1.5683			0.0000			0.0000
Off-Road	0.2522	1.0927	10.9071	0.0206		0.0336	0.0336		0.0336	0.0336	0.0000	1,995.6147	1,995.6147	0.6454		2,011.7503
Total	**0.2522**	**1.0927**	**10.9071**	**0.0206**	**3.3663**	**0.0336**	**3.4000**	**1.5683**	**0.0336**	**1.6019**	**0.0000**	**1,995.6147**	**1,995.6147**	**0.6454**		**2,011.7503**

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

3.3 Grading - 2023

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	0.7540	48.1986	12.8855	0.2121	6.1945	0.3940	6.5884	1.6979	0.3769	2.0748		23,442.9974	23,442.9974	1.1775	3.7282	24,583.4350
Vendor	2.3200e-003	0.0893	0.0318	4.1000e-004	0.0136	5.2000e-004	0.0141	3.9000e-003	5.0000e-004	4.4000e-003		44.2722	44.2722	1.3300e-003	6.4200e-003	46.2176
Worker	0.0296	0.0191	0.2281	6.9000e-004	0.0822	4.4000e-004	0.0826	0.0218	4.1000e-004	0.0222		69.3339	69.3339	2.1200e-003	1.9800e-003	69.9763
Total	**0.7860**	**48.3071**	**13.1454**	**0.2132**	**6.2902**	**0.3949**	**6.6851**	**1.7236**	**0.3778**	**2.1014**		**23,556.6035**	**23,556.6035**	**1.1809**	**3.7366**	**24,699.6289**

3.4 Building Construction - 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	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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

3.4 Building Construction - 2023

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	0.0232	0.8934	0.3183	4.1000e-003	0.1355	5.2500e-003	0.1407	0.0390	5.0200e-003	0.0440		442.7224	442.7224	0.0133	0.0642	462.1759
Worker	0.1541	0.0992	1.1859	3.5700e-003	0.4272	2.2900e-003	0.4295	0.1133	2.1100e-003	0.1154		360.5362	360.5362	0.0110	0.0103	363.8767
Total	**0.1773**	**0.9927**	**1.5042**	**7.6700e-003**	**0.5626**	**7.5400e-003**	**0.5702**	**0.1523**	**7.1300e-003**	**0.1594**		**803.2587**	**803.2587**	**0.0243**	**0.0745**	**826.0526**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9615	5.1202	15.4788	0.0250		0.1918	0.1918		0.1918	0.1918	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**0.9615**	**5.1202**	**15.4788**	**0.0250**		**0.1918**	**0.1918**		**0.1918**	**0.1918**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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

3.4 Building Construction - 2023

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	0.0232	0.8934	0.3183	4.1000e-003	0.1355	5.2500e-003	0.1407	0.0390	5.0200e-003	0.0440		442.7224	442.7224	0.0133	0.0642	462.1759
Worker	0.1541	0.0992	1.1859	3.5700e-003	0.4272	2.2900e-003	0.4295	0.1133	2.1100e-003	0.1154		360.5362	360.5362	0.0110	0.0103	363.8767
Total	**0.1773**	**0.9927**	**1.5042**	**7.6700e-003**	**0.5626**	**7.5400e-003**	**0.5702**	**0.1523**	**7.1300e-003**	**0.1594**		**803.2587**	**803.2587**	**0.0243**	**0.0745**	**826.0526**

3.4 Building Construction - 2024

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	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

Hughes Circuits Warehouse Project - San Diego County, Winter

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

3.4 Building Construction - 2024

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	0.0223	0.8874	0.3110	4.0200e-003	0.1355	5.2700e-003	0.1407	0.0390	5.0400e-003	0.0440		435.0214	435.0214	0.0136	0.0630	454.1477
Worker	0.1451	0.0892	1.1085	3.4500e-003	0.4272	2.1800e-003	0.4294	0.1133	2.0100e-003	0.1153		348.7365	348.7365	0.0100	9.6100e-003	351.8515
Total	**0.1674**	**0.9767**	**1.4195**	**7.4700e-003**	**0.5626**	**7.4500e-003**	**0.5701**	**0.1523**	**7.0500e-003**	**0.1594**		**783.7579**	**783.7579**	**0.0237**	**0.0727**	**805.9991**

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	0.9057	5.0008	15.4361	0.0250		0.1688	0.1688		0.1688	0.1688	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**0.9057**	**5.0008**	**15.4361**	**0.0250**		**0.1688**	**0.1688**		**0.1688**	**0.1688**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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

3.4 Building Construction - 2024

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	0.0223	0.8874	0.3110	4.0200e-003	0.1355	5.2700e-003	0.1407	0.0390	5.0400e-003	0.0440		435.0214	435.0214	0.0136	0.0630	454.1477
Worker	0.1451	0.0892	1.1085	3.4500e-003	0.4272	2.1800e-003	0.4294	0.1133	2.0100e-003	0.1153		348.7365	348.7365	0.0100	9.6100e-003	351.8515
Total	**0.1674**	**0.9767**	**1.4195**	**7.4700e-003**	**0.5626**	**7.4500e-003**	**0.5701**	**0.1523**	**7.0500e-003**	**0.1594**		**783.7579**	**783.7579**	**0.0237**	**0.0727**	**805.9991**

3.5 Paving - 2024

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	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1336					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9761**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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

3.5 Paving - 2024

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	0.0446	0.0275	0.3411	1.0600e-003	0.1314	6.7000e-004	0.1321	0.0349	6.2000e-004	0.0355		107.3036	107.3036	3.0900e-003	2.9600e-003	108.2620
Total	**0.0446**	**0.0275**	**0.3411**	**1.0600e-003**	**0.1314**	**6.7000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**107.3036**	**107.3036**	**3.0900e-003**	**2.9600e-003**	**108.2620**

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	0.2691	1.2799	13.2821	0.0179		0.0424	0.0424		0.0424	0.0424	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1336					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.4028**	**1.2799**	**13.2821**	**0.0179**		**0.0424**	**0.0424**		**0.0424**	**0.0424**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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

3.5 Paving - 2024

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	0.0446	0.0275	0.3411	1.0600e-003	0.1314	6.7000e-004	0.1321	0.0349	6.2000e-004	0.0355		107.3036	107.3036	3.0900e-003	2.9600e-003	108.2620
Total	**0.0446**	**0.0275**	**0.3411**	**1.0600e-003**	**0.1314**	**6.7000e-004**	**0.1321**	**0.0349**	**6.2000e-004**	**0.0355**		**107.3036**	**107.3036**	**3.0900e-003**	**2.9600e-003**	**108.2620**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.2469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**33.4276**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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

3.6 Architectural Coating - 2024

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	0.0279	0.0172	0.2132	6.6000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		67.0647	67.0647	1.9300e-003	1.8500e-003	67.6637
Total	**0.0279**	**0.0172**	**0.2132**	**6.6000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**67.0647**	**67.0647**	**1.9300e-003**	**1.8500e-003**	**67.6637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	33.2469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**33.2766**	**0.1288**	**1.8324**	**2.9700e-003**		**3.9600e-003**	**3.9600e-003**		**3.9600e-003**	**3.9600e-003**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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

3.6 Architectural Coating - 2024

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	0.0279	0.0172	0.2132	6.6000e-004	0.0822	4.2000e-004	0.0826	0.0218	3.9000e-004	0.0222		67.0647	67.0647	1.9300e-003	1.8500e-003	67.6637
Total	**0.0279**	**0.0172**	**0.2132**	**6.6000e-004**	**0.0822**	**4.2000e-004**	**0.0826**	**0.0218**	**3.9000e-004**	**0.0222**		**67.0647**	**67.0647**	**1.9300e-003**	**1.8500e-003**	**67.6637**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Hughes Circuits Warehouse Project - San Diego 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					
Mitigated	0.4735	0.8784	8.9704	0.0358	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,629.7193	3,629.7193	0.0686	0.0964	3,660.1577
Unmitigated	0.4735	0.8784	8.9704	0.0358	4.4502	0.0216	4.4718	1.1814	0.0199	1.2013		3,629.7193	3,629.7193	0.0686	0.0964	3,660.1577

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Manufacturing	343.05	0.00	0.00	1,498,442	1,498,442
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4.72	0.00	0.00	20,603	20,603
Total	347.77	0.00	0.00	1,519,046	1,519,046

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Manufacturing	16.80	16.80	16.80	59.00	28.00	13.00	100	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.80	16.80	16.80	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Manufacturing	0.611447	0.067938	0.192673	0.127942	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.380966	0.100980	0.143054	0.125000	0.250000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668
NaturalGas Unmitigated	7.6600e-003	0.0696	0.0585	4.2000e-004		5.2900e-003	5.2900e-003		5.2900e-003	5.2900e-003		83.5702	83.5702	1.6000e-003	1.5300e-003	84.0668

Hughes Circuits Warehouse Project - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	473.425	5.1100e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003		55.6970	55.6970	1.0700e-003	1.0200e-003	56.0280
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	236.922	2.5600e-003	0.0232	0.0195	1.4000e-004		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003		27.8732	27.8732	5.3000e-004	5.1000e-004	28.0388
Total		**7.6700e-003**	**0.0696**	**0.0585**	**4.2000e-004**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**		**83.5702**	**83.5702**	**1.6000e-003**	**1.5300e-003**	**84.0668**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	0.473425	5.1100e-003	0.0464	0.0390	2.8000e-004		3.5300e-003	3.5300e-003		3.5300e-003	3.5300e-003		55.6970	55.6970	1.0700e-003	1.0200e-003	56.0280
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.236922	2.5600e-003	0.0232	0.0195	1.4000e-004		1.7700e-003	1.7700e-003		1.7700e-003	1.7700e-003		27.8732	27.8732	5.3000e-004	5.1000e-004	28.0388
Total		**7.6700e-003**	**0.0696**	**0.0585**	**4.2000e-004**		**5.3000e-003**	**5.3000e-003**		**5.3000e-003**	**5.3000e-003**		**83.5702**	**83.5702**	**1.6000e-003**	**1.5300e-003**	**84.0668**

6.0 Area Detail

6.1 Mitigation Measures Area

Hughes Circuits Warehouse Project - San Diego 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					
Mitigated	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Unmitigated	1.5464	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326

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	0.0911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3100e-003	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Total	**1.5464**	**1.3000e-004**	**0.0143**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0306**	**0.0306**	**8.0000e-005**		**0.0326**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0911					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.4540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.3100e-003	1.3000e-004	0.0143	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0306	0.0306	8.0000e-005		0.0326
Total	**1.5464**	**1.3000e-004**	**0.0143**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0306**	**0.0306**	**8.0000e-005**		**0.0326**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	16.00	260	89	0.20	CNG

UnMitigated/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
Equipment Type	lb/day										lb/day					
Forklifts	0.0401	1.9153	19.1187	3.0600e-003		0.0372	0.0372		0.0372	0.0372	0.0000	386.6032	386.6032	0.1250		389.7291
Total	**0.0401**	**1.9153**	**19.1187**	**3.0600e-003**		**0.0372**	**0.0372**		**0.0372**	**0.0372**	**0.0000**	**386.6032**	**386.6032**	**0.1250**		**389.7291**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hughes Circuits Warehouse Project - San Diego County, Annual

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

Hughes Circuits Warehouse Project

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Manufacturing	15.00	1000sqft	0.34	15,000.00	0
Unrefrigerated Warehouse-No Rail	52.41	1000sqft	1.20	52,410.00	0
Parking Lot	72.00	Space	0.51	28,800.00	0
City Park	0.56	Acre	0.56	24,393.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2025
Utility Company	San Diego Community Power				
CO2 Intensity (lb/MWhr)	580.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Land uses based on project Site Plan. Adjusted parking size to match total lot acreage. 64,710 sf building total, with ~52,410 sf warehouse and ~15,000 sf manufacturing. City park used as surrogate for landscaped are

Construction Phase - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

Off-road Equipment - Default

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

Trips and VMT - Rounded trips up to even numbers. Added 2 vendor trips per day to account for water trucks during Site Preparation and Grading

On-road Fugitive Dust - Default

Grading - 17,000 CY soil to be imported

Architectural Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Vehicle Trips - Adjusted based on existing facility driveway counts and triplengths per Traffic Impact Study

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Vehicle Emission Factors - Default

Consumer Products - Default

Area Coating - Only Low-Volatile Organic Compounds (VOC) paints (no more than 50 gram/liter of VOC) will be used for the buildings as a Project Design Feature

Landscape Equipment - Default

Energy Use - Default

Water And Wastewater - Default

Solid Waste - Zeroed out waste for landscaped area (i.e., City Park). Defaults for all other uses.

Construction Off-road Equipment Mitigation - Watering exposed area 2x per day assumed. Equipment >50 hp Tier 4F based on project design feature

Energy Mitigation - Estimated kWh/year based on PVWatts calculator based on ~9,700 SF of panels

Water Mitigation - Low flow fixtures and water-efficient irrigation systems assumed

Waste Mitigation - 50% waste diversion consistent with Assembly Bill 939

Operational Off-Road Equipment - 1 CNG forklift assumed per applicant input

Fleet Mix - Adjusted based on driveway counts at existing facility with manufacturing used to model passenger vehicles/2-axle trucks and warehouse used to model heavy vehicles.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	50
tblAreaCoating	Area_EF_Nonresidential_Interior	250	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

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

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblFleetMix	HHD	6.2980e-003	0.00
tblFleetMix	HHD	6.2980e-003	0.13
tblFleetMix	LDA	0.56	0.61
tblFleetMix	LDA	0.56	0.00
tblFleetMix	LDT1	0.06	0.07
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT2	0.18	0.19
tblFleetMix	LDT2	0.18	0.00
tblFleetMix	LHD1	0.02	0.00

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

tblFleetMix	LHD1	0.02	0.38
tblFleetMix	LHD2	6.3170e-003	0.00
tblFleetMix	LHD2	6.3170e-003	0.10
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MDV	0.12	0.13
tblFleetMix	MDV	0.12	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MH	4.7510e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.00
tblFleetMix	MHD	8.9490e-003	0.14
tblFleetMix	OBUS	7.0500e-004	0.00
tblFleetMix	OBUS	7.0500e-004	0.25
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	SBUS	9.5500e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblFleetMix	UBUS	5.7700e-004	0.00
tblGrading	MaterialImported	0.00	17,000.00
tblLandUse	LotAcreage	0.65	0.51
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	16.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblSolidWaste	SolidWasteGenerationRate	0.05	0.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	51.00	52.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblVehicleTrips	CC_TL	7.30	16.80
tblVehicleTrips	CC_TL	7.30	16.80

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

tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CNW_TL	7.30	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	CW_TL	9.50	16.80
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	DV_TP	5.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PB_TP	3.00	0.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	PR_TP	92.00	100.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	ST_TR	6.42	0.00
tblVehicleTrips	ST_TR	1.74	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	SU_TR	5.09	0.00
tblVehicleTrips	SU_TR	1.74	0.00
tblVehicleTrips	WD_TR	0.78	0.00
tblVehicleTrips	WD_TR	3.93	22.87
tblVehicleTrips	WD_TR	1.74	0.09

2.0 Emissions Summary

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

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	0.0807	0.7720	0.6852	2.0000e-003	0.0646	0.0277	0.0923	0.0216	0.0265	0.0480	0.0000	180.9946	180.9946	0.0220	0.0128	185.3491
2024	0.2976	1.0330	1.1796	2.4400e-003	0.0404	0.0413	0.0817	0.0109	0.0395	0.0504	0.0000	209.3609	209.3609	0.0317	4.7200e-003	211.5613
Maximum	**0.2976**	**1.0330**	**1.1796**	**2.4400e-003**	**0.0646**	**0.0413**	**0.0923**	**0.0216**	**0.0395**	**0.0504**	**0.0000**	**209.3609**	**209.3609**	**0.0317**	**0.0128**	**211.5613**

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	0.0470	0.3850	0.7436	2.0000e-003	0.0509	9.0200e-003	0.0600	0.0157	8.9500e-003	0.0246	0.0000	180.9945	180.9945	0.0220	0.0128	185.3490
2024	0.2445	0.4341	1.2831	2.4400e-003	0.0404	0.0128	0.0532	0.0109	0.0128	0.0238	0.0000	209.3607	209.3607	0.0317	4.7200e-003	211.5611
Maximum	**0.2445**	**0.4341**	**1.2831**	**2.4400e-003**	**0.0509**	**0.0128**	**0.0600**	**0.0157**	**0.0128**	**0.0246**	**0.0000**	**209.3607**	**209.3607**	**0.0317**	**0.0128**	**211.5611**

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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	N20	CO2e
Percent Reduction	**22.93**	**54.62**	**-8.68**	**0.00**	**13.01**	**68.33**	**34.96**	**18.12**	**67.00**	**50.86**	**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	**9-1-2023**	**11-30-2023**	0.6677	0.3436
2	**12-1-2023**	**2-29-2024**	0.5163	0.2314
3	**3-1-2024**	**5-31-2024**	0.5102	0.2304
4	**6-1-2024**	**8-31-2024**	0.4795	0.2934
		Highest	0.6677	0.3436

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	0.2821	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-003
Energy	1.4000e-003	0.0127	0.0107	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	97.8581	97.8581	5.0400e-003	8.3000e-004	98.2320
Mobile	0.0609	0.1125	1.1689	4.6900e-003	0.5648	2.8000e-003	0.5676	0.1502	2.5900e-003	0.1528	0.0000	431.0938	431.0938	7.9600e-003	0.0113	434.6442
Offroad	5.2100e-003	0.2490	2.4854	4.0000e-004		4.8300e-003	4.8300e-003		4.8300e-003	4.8300e-003	0.0000	45.5936	45.5936	0.0148	0.0000	45.9623
Waste						0.0000	0.0000		0.0000	0.0000	13.7770	0.0000	13.7770	0.8142	0.0000	34.1319
Water						0.0000	0.0000		0.0000	0.0000	4.9455	55.4441	60.3896	0.5111	0.0124	76.8551
Total	**0.3496**	**0.3742**	**3.6663**	**5.1700e-003**	**0.5648**	**8.6000e-003**	**0.5734**	**0.1502**	**8.3900e-003**	**0.1586**	**18.7225**	**629.9921**	**648.7147**	**1.3531**	**0.0245**	**689.8282**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2821	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-003
Energy	1.4000e-003	0.0127	0.0107	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	38.2093	38.2093	1.6500e-003	4.2000e-004	38.3761
Mobile	0.0609	0.1125	1.1689	4.6900e-003	0.5648	2.8000e-003	0.5676	0.1502	2.5900e-003	0.1528	0.0000	431.0938	431.0938	7.9600e-003	0.0113	434.6442
Offroad	5.2100e-003	0.2490	2.4854	4.0000e-004		4.8300e-003	4.8300e-003		4.8300e-003	4.8300e-003	0.0000	45.5936	45.5936	0.0148	0.0000	45.9623
Waste						0.0000	0.0000		0.0000	0.0000	6.8885	0.0000	6.8885	0.4071	0.0000	17.0660
Water						0.0000	0.0000		0.0000	0.0000	3.9564	44.6268	48.5832	0.4089	9.9000e-003	61.7566
Total	**0.3496**	**0.3742**	**3.6663**	**5.1700e-003**	**0.5648**	**8.6000e-003**	**0.5734**	**0.1502**	**8.3900e-003**	**0.1586**	**10.8449**	**559.5260**	**570.3710**	**0.8404**	**0.0216**	**597.8078**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**42.08**	**11.19**	**12.08**	**37.89**	**11.82**	**13.34**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	9/1/2023	9/5/2023	5	3	
2	Grading	Grading	9/6/2023	9/13/2023	5	6	

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3	Building Construction	Building Construction	9/14/2023	7/17/2024	5	220	
4	Paving	Paving	7/18/2024	7/31/2024	5	10	
5	Architectural Coating	Architectural Coating	8/1/2024	8/14/2024	5	10	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.51

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 101,115; Non-Residential Outdoor: 33,705; Striped Parking Area: 1,728 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

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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
Site Preparation	3	8.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	2.00	2,125.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	52.00	20.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 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					2.3900e-003	0.0000	2.3900e-003	2.6000e-004	0.0000	2.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9500e-003	0.0214	0.0147	4.0000e-005		8.1000e-004	8.1000e-004		7.5000e-004	7.5000e-004	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**1.9500e-003**	**0.0214**	**0.0147**	**4.0000e-005**	**2.3900e-003**	**8.1000e-004**	**3.2000e-003**	**2.6000e-004**	**7.5000e-004**	**1.0100e-003**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

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

3.2 Site Preparation - 2023

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	1.3000e-004	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0602	0.0602	0.0000	1.0000e-005	0.0628
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0762	0.0762	0.0000	0.0000	0.0768
Total	**3.0000e-005**	**1.5000e-004**	**3.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1364**	**0.1364**	**0.0000**	**1.0000e-005**	**0.1397**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.2000e-004	0.0000	1.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.5000e-004	1.9600e-003	0.0178	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.2317	3.2317	1.0500e-003	0.0000	3.2578
Total	**4.5000e-004**	**1.9600e-003**	**0.0178**	**4.0000e-005**	**1.0700e-003**	**6.0000e-005**	**1.1300e-003**	**1.2000e-004**	**6.0000e-005**	**1.8000e-004**	**0.0000**	**3.2317**	**3.2317**	**1.0500e-003**	**0.0000**	**3.2578**

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

3.2 Site Preparation - 2023

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	1.3000e-004	5.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0602	0.0602	0.0000	1.0000e-005	0.0628
Worker	3.0000e-005	2.0000e-005	2.7000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0762	0.0762	0.0000	0.0000	0.0768
Total	**3.0000e-005**	**1.5000e-004**	**3.2000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1364**	**0.1364**	**0.0000**	**1.0000e-005**	**0.1397**

3.3 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					0.0224	0.0000	0.0224	0.0105	0.0000	0.0105	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-003	0.0434	0.0261	6.0000e-005		1.8100e-003	1.8100e-003		1.6700e-003	1.6700e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**4.0000e-003**	**0.0434**	**0.0261**	**6.0000e-005**	**0.0224**	**1.8100e-003**	**0.0243**	**0.0105**	**1.6700e-003**	**0.0121**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

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

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3500e-003	0.1442	0.0384	6.4000e-004	0.0182	1.1800e-003	0.0194	5.0000e-003	1.1300e-003	6.1300e-003	0.0000	63.7654	63.7654	3.2100e-003	0.0101	66.8676
Vendor	1.0000e-005	2.7000e-004	9.0000e-005	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1204	0.1204	0.0000	2.0000e-005	0.1257
Worker	8.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.1904	0.1904	1.0000e-005	1.0000e-005	0.1921
Total	**2.4400e-003**	**0.1445**	**0.0391**	**6.4000e-004**	**0.0185**	**1.1800e-003**	**0.0197**	**5.0700e-003**	**1.1300e-003**	**6.2100e-003**	**0.0000**	**64.0762**	**64.0762**	**3.2200e-003**	**0.0102**	**67.1854**

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					0.0101	0.0000	0.0101	4.7000e-003	0.0000	4.7000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6000e-004	3.2800e-003	0.0327	6.0000e-005		1.0000e-004	1.0000e-004		1.0000e-004	1.0000e-004	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**7.6000e-004**	**3.2800e-003**	**0.0327**	**6.0000e-005**	**0.0101**	**1.0000e-004**	**0.0102**	**4.7000e-003**	**1.0000e-004**	**4.8000e-003**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

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

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.3500e-003	0.1442	0.0384	6.4000e-004	0.0182	1.1800e-003	0.0194	5.0000e-003	1.1300e-003	6.1300e-003	0.0000	63.7654	63.7654	3.2100e-003	0.0101	66.8676
Vendor	1.0000e-005	2.7000e-004	9.0000e-005	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1204	0.1204	0.0000	2.0000e-005	0.1257
Worker	8.0000e-005	6.0000e-005	6.8000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005	0.0000	0.1904	0.1904	1.0000e-005	1.0000e-005	0.1921
Total	**2.4400e-003**	**0.1445**	**0.0391**	**6.4000e-004**	**0.0185**	**1.1800e-003**	**0.0197**	**5.0700e-003**	**1.1300e-003**	**6.2100e-003**	**0.0000**	**64.0762**	**64.0762**	**3.2200e-003**	**0.0102**	**67.1854**

3.4 Building Construction - 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	0.0660	0.5245	0.5473	9.6000e-004		0.0236	0.0236		0.0226	0.0226	0.0000	79.9653	79.9653	0.0151	0.0000	80.3434
Total	**0.0660**	**0.5245**	**0.5473**	**9.6000e-004**		**0.0236**	**0.0236**		**0.0226**	**0.0226**	**0.0000**	**79.9653**	**79.9653**	**0.0151**	**0.0000**	**80.3434**

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

3.4 Building Construction - 2023

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-004	0.0342	0.0121	1.6000e-004	5.1100e-003	2.0000e-004	5.3100e-003	1.4800e-003	1.9000e-004	1.6700e-003	0.0000	15.4501	15.4501	4.7000e-004	2.2400e-003	16.1289
Worker	5.4100e-003	3.7500e-003	0.0456	1.4000e-004	0.0161	9.0000e-005	0.0161	4.2700e-003	8.0000e-005	4.3500e-003	0.0000	12.7039	12.7039	3.8000e-004	3.5000e-004	12.8189
Total	**6.3100e-003**	**0.0379**	**0.0577**	**3.0000e-004**	**0.0212**	**2.9000e-004**	**0.0215**	**5.7500e-003**	**2.7000e-004**	**6.0200e-003**	**0.0000**	**28.1540**	**28.1540**	**8.5000e-004**	**2.5900e-003**	**28.9478**

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	0.0370	0.1971	0.5959	9.6000e-004		7.3800e-003	7.3800e-003		7.3800e-003	7.3800e-003	0.0000	79.9652	79.9652	0.0151	0.0000	80.3433
Total	**0.0370**	**0.1971**	**0.5959**	**9.6000e-004**		**7.3800e-003**	**7.3800e-003**		**7.3800e-003**	**7.3800e-003**	**0.0000**	**79.9652**	**79.9652**	**0.0151**	**0.0000**	**80.3433**

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

3.4 Building Construction - 2023

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-004	0.0342	0.0121	1.6000e-004	5.1100e-003	2.0000e-004	5.3100e-003	1.4800e-003	1.9000e-004	1.6700e-003	0.0000	15.4501	15.4501	4.7000e-004	2.2400e-003	16.1289
Worker	5.4100e-003	3.7500e-003	0.0456	1.4000e-004	0.0161	9.0000e-005	0.0161	4.2700e-003	8.0000e-005	4.3500e-003	0.0000	12.7039	12.7039	3.8000e-004	3.5000e-004	12.8189
Total	**6.3100e-003**	**0.0379**	**0.0577**	**3.0000e-004**	**0.0212**	**2.9000e-004**	**0.0215**	**5.7500e-003**	**2.7000e-004**	**6.0200e-003**	**0.0000**	**28.1540**	**28.1540**	**8.5000e-004**	**2.5900e-003**	**28.9478**

3.4 Building Construction - 2024

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	0.1142	0.9169	1.0082	1.7900e-003		0.0385	0.0385		0.0368	0.0368	0.0000	148.5155	148.5155	0.0277	0.0000	149.2070
Total	**0.1142**	**0.9169**	**1.0082**	**1.7900e-003**		**0.0385**	**0.0385**		**0.0368**	**0.0368**	**0.0000**	**148.5155**	**148.5155**	**0.0277**	**0.0000**	**149.2070**

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

3.4 Building Construction - 2024

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	1.6200e-003	0.0631	0.0219	2.9000e-004	9.5000e-003	3.8000e-004	9.8700e-003	2.7400e-003	3.6000e-004	3.1000e-003	0.0000	28.1932	28.1932	8.9000e-004	4.0800e-003	29.4327
Worker	9.4500e-003	6.2500e-003	0.0792	2.5000e-004	0.0298	1.6000e-004	0.0300	7.9200e-003	1.4000e-004	8.0700e-003	0.0000	22.8203	22.8203	6.4000e-004	6.1000e-004	23.0195
Total	**0.0111**	**0.0693**	**0.1010**	**5.4000e-004**	**0.0393**	**5.4000e-004**	**0.0398**	**0.0107**	**5.0000e-004**	**0.0112**	**0.0000**	**51.0135**	**51.0135**	**1.5300e-003**	**4.6900e-003**	**52.4521**

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	0.0648	0.3576	1.1037	1.7900e-003		0.0121	0.0121		0.0121	0.0121	0.0000	148.5153	148.5153	0.0277	0.0000	149.2068
Total	**0.0648**	**0.3576**	**1.1037**	**1.7900e-003**		**0.0121**	**0.0121**		**0.0121**	**0.0121**	**0.0000**	**148.5153**	**148.5153**	**0.0277**	**0.0000**	**149.2068**

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

3.4 Building Construction - 2024

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	1.6200e-003	0.0631	0.0219	2.9000e-004	9.5000e-003	3.8000e-004	9.8700e-003	2.7400e-003	3.6000e-004	3.1000e-003	0.0000	28.1932	28.1932	8.9000e-004	4.0800e-003	29.4327
Worker	9.4500e-003	6.2500e-003	0.0792	2.5000e-004	0.0298	1.6000e-004	0.0300	7.9200e-003	1.4000e-004	8.0700e-003	0.0000	22.8203	22.8203	6.4000e-004	6.1000e-004	23.0195
Total	**0.0111**	**0.0693**	**0.1010**	**5.4000e-004**	**0.0393**	**5.4000e-004**	**0.0398**	**0.0107**	**5.0000e-004**	**0.0112**	**0.0000**	**51.0135**	**51.0135**	**1.5300e-003**	**4.6900e-003**	**52.4521**

3.5 Paving - 2024

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	4.2100e-003	0.0405	0.0585	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7574	7.7574	2.4600e-003	0.0000	7.8188
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.8800e-003**	**0.0405**	**0.0585**	**9.0000e-005**		**1.9800e-003**	**1.9800e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.7574**	**7.7574**	**2.4600e-003**	**0.0000**	**7.8188**

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

3.5 Paving - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.7000e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.4910	0.4910	1.0000e-005	1.0000e-005	0.4953
Total	**2.0000e-004**	**1.3000e-004**	**1.7000e-003**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.4910**	**0.4910**	**1.0000e-005**	**1.0000e-005**	**0.4953**

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	1.3500e-003	6.4000e-003	0.0664	9.0000e-005		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	7.7573	7.7573	2.4600e-003	0.0000	7.8188
Paving	6.7000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0200e-003**	**6.4000e-003**	**0.0664**	**9.0000e-005**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**7.7573**	**7.7573**	**2.4600e-003**	**0.0000**	**7.8188**

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

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-004	1.3000e-004	1.7000e-003	1.0000e-005	6.4000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.4910	0.4910	1.0000e-005	1.0000e-005	0.4953
Total	**2.0000e-004**	**1.3000e-004**	**1.7000e-003**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.4910**	**0.4910**	**1.0000e-005**	**1.0000e-005**	**0.4953**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.1671**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

3.6 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3069	0.3069	1.0000e-005	1.0000e-005	0.3096
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3069**	**0.3069**	**1.0000e-005**	**1.0000e-005**	**0.3096**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5000e-004	6.4000e-004	9.1600e-003	1.0000e-005		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.1664**	**6.4000e-004**	**9.1600e-003**	**1.0000e-005**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	8.0000e-005	1.0600e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3069	0.3069	1.0000e-005	1.0000e-005	0.3096
Total	**1.3000e-004**	**8.0000e-005**	**1.0600e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3069**	**0.3069**	**1.0000e-005**	**1.0000e-005**	**0.3096**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Hughes Circuits Warehouse Project - San Diego County, Annual

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	tons/yr										MT/yr					
Mitigated	0.0609	0.1125	1.1689	4.6900e-003	0.5648	2.8000e-003	0.5676	0.1502	2.5900e-003	0.1528	0.0000	431.0938	431.0938	7.9600e-003	0.0113	434.6442
Unmitigated	0.0609	0.1125	1.1689	4.6900e-003	0.5648	2.8000e-003	0.5676	0.1502	2.5900e-003	0.1528	0.0000	431.0938	431.0938	7.9600e-003	0.0113	434.6442

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Manufacturing	343.05	0.00	0.00	1,498,442	1,498,442
Parking Lot	0.00	0.00	0.00		
Unrefrigerated Warehouse-No Rail	4.72	0.00	0.00	20,603	20,603
Total	347.77	0.00	0.00	1,519,046	1,519,046

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Manufacturing	16.80	16.80	16.80	59.00	28.00	13.00	100	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Unrefrigerated Warehouse-No	16.80	16.80	16.80	59.00	0.00	41.00	100	0	0

4.4 Fleet Mix

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Manufacturing	0.611447	0.067938	0.192673	0.127942	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Parking Lot	0.561854	0.062428	0.177046	0.117565	0.023832	0.006317	0.008949	0.006298	0.000705	0.000577	0.028723	0.000955	0.004751
Unrefrigerated Warehouse-No Rail	0.000000	0.000000	0.000000	0.000000	0.380966	0.100980	0.143054	0.125000	0.250000	0.000000	0.000000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	24.3733	24.3733	1.3800e-003	1.7000e-004	24.4579
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	84.0221	84.0221	4.7700e-003	5.8000e-004	84.3138
NaturalGas Mitigated	1.4000e-003	0.0127	0.0107	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.8360	13.8360	2.7000e-004	2.5000e-004	13.9182
NaturalGas Unmitigated	1.4000e-003	0.0127	0.0107	8.0000e-005		9.7000e-004	9.7000e-004		9.7000e-004	9.7000e-004	0.0000	13.8360	13.8360	2.7000e-004	2.5000e-004	13.9182

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not 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					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	172800	9.3000e-004	8.4700e-003	7.1200e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.2213	9.2213	1.8000e-004	1.7000e-004	9.2761
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	86476.5	4.7000e-004	4.2400e-003	3.5600e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.6147	4.6147	9.0000e-005	8.0000e-005	4.6421
Total		**1.4000e-003**	**0.0127**	**0.0107**	**8.0000e-005**		**9.6000e-004**	**9.6000e-004**		**9.6000e-004**	**9.6000e-004**	**0.0000**	**13.8360**	**13.8360**	**2.7000e-004**	**2.5000e-004**	**13.9182**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Manufacturing	172800	9.3000e-004	8.4700e-003	7.1200e-003	5.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	9.2213	9.2213	1.8000e-004	1.7000e-004	9.2761
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	86476.5	4.7000e-004	4.2400e-003	3.5600e-003	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004	0.0000	4.6147	4.6147	9.0000e-005	8.0000e-005	4.6421
Total		**1.4000e-003**	**0.0127**	**0.0107**	**8.0000e-005**		**9.6000e-004**	**9.6000e-004**		**9.6000e-004**	**9.6000e-004**	**0.0000**	**13.8360**	**13.8360**	**2.7000e-004**	**2.5000e-004**	**13.9182**

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

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	122700	32.3349	1.8400e-003	2.2000e-004	32.4472
Parking Lot	10080	2.6564	1.5000e-004	2.0000e-005	2.6656
Unrefrigerated Warehouse-No Rail	186056	49.0309	2.7800e-003	3.4000e-004	49.2011
Total		**84.0221**	**4.7700e-003**	**5.8000e-004**	**84.3138**

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	-56586.8	-14.9122	-0.0009	-0.0001	-14.9640
Manufacturing	66113.3	17.4227	9.9000e-004	1.2000e-004	17.4832
Parking Lot	-46506.8	-12.2558	-0.0007	-0.0001	-12.2984
Unrefrigerated Warehouse-No Rail	129469	34.1187	1.9400e-003	2.3000e-004	34.2371
Total		**24.3733**	**1.3800e-003**	**1.7000e-004**	**24.4579**

6.0 Area Detail

6.1 Mitigation Measures Area

Hughes Circuits Warehouse Project - San Diego County, Annual

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	tons/yr										MT/yr					
Mitigated	0.2821	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-003
Unmitigated	0.2821	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-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	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-003
Total	**0.2821**	**1.0000e-005**	**1.2800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.5000e-003**	**2.5000e-003**	**1.0000e-005**	**0.0000**	**2.6600e-003**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0166					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2654					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2800e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.5000e-003	2.5000e-003	1.0000e-005	0.0000	2.6600e-003
Total	**0.2821**	**1.0000e-005**	**1.2800e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.5000e-003**	**2.5000e-003**	**1.0000e-005**	**0.0000**	**2.6600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	48.5832	0.4089	9.9000e-003	61.7566
Unmitigated	60.3896	0.5111	0.0124	76.8551

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.66723	1.9535	1.1000e-004	1.0000e-005	1.9603
Manufacturing	3.46875 / 0	13.0031	0.1137	2.7500e-003	16.6655
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	12.1198 / 0	45.4330	0.3973	9.6100e-003	58.2293
Total		**60.3896**	**0.5111**	**0.0124**	**76.8551**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.626529	1.8344	1.0000e-004	1.0000e-005	1.8407
Manufacturing	2.775 / 0	10.4025	0.0910	2.2000e-003	13.3324
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	9.69585 / 0	36.3464	0.3178	7.6900e-003	46.5835
Total		**48.5832**	**0.4089**	**9.9000e-003**	**61.7566**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.8885	0.4071	0.0000	17.0660
Unmitigated	13.7770	0.8142	0.0000	34.1319

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	18.6	3.7756	0.2231	0.0000	9.3540
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	49.27	10.0014	0.5911	0.0000	24.7780
Total		**13.7770**	**0.8142**	**0.0000**	**34.1319**

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

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Manufacturing	9.3	1.8878	0.1116	0.0000	4.6770
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	24.635	5.0007	0.2955	0.0000	12.3890
Total		**6.8885**	**0.4071**	**0.0000**	**17.0660**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	16.00	260	89	0.20	CNG

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

UnMitigated/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
Equipment Type	tons/yr										MT/yr					
Forklifts	5.2100e-003	0.2490	2.4854	4.0000e-004		4.8300e-003	4.8300e-003		4.8300e-003	4.8300e-003	0.0000	45.5936	45.5936	0.0148	0.0000	45.9623
Total	**5.2100e-003**	**0.2490**	**2.4854**	**4.0000e-004**		**4.8300e-003**	**4.8300e-003**		**4.8300e-003**	**4.8300e-003**	**0.0000**	**45.5936**	**45.5936**	**0.0148**	**0.0000**	**45.9623**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hughes Circuits Warehouse Project

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

San Diego County, Mitigation Report

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.88	-0.01	0.00	0.93	0.93	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.40	0.57	-0.08	0.00	0.68	0.66	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.50	0.21	-0.10	0.00	0.57	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.56	0.84	-0.13	0.00	0.89	0.89	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.76	0.90	-0.21	0.00	0.93	0.92	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Hughes Circuits Warehouse Project

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

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 4 Final	1	1	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	1	No Change	0.00
Cranes	Diesel	Tier 4 Final	1	1	No Change	0.00
Forklifts	Diesel	Tier 4 Final	2	2	No Change	0.00
Generator Sets	Diesel	Tier 4 Final	1	1	No Change	0.00
Graders	Diesel	Tier 4 Final	2	2	No Change	0.00
Pavers	Diesel	Tier 4 Final	1	1	No Change	0.00
Paving Equipment	Diesel	Tier 4 Final	1	1	No Change	0.00
Rollers	Diesel	Tier 4 Final	2	2	No Change	0.00
Rubber Tired Dozers	Diesel	Tier 4 Final	1	1	No Change	0.00
Scrapers	Diesel	Tier 4 Final	1	1	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 4 Final	5	5	No Change	0.00
Welders	Diesel	No Change	0	3	No Change	0.00

Hughes Circuits Warehouse Project

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

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	9.00000E-004	6.09000E-003	9.05000E-003	1.00000E-005	3.00000E-004	3.00000E-004	0.00000E+000	1.27663E+000	1.27663E+000	7.00000E-005	0.00000E+000	1.27842E+000
Cement and Mortar Mixers	2.90000E-004	1.84000E-003	1.54000E-003	0.00000E+000	7.00000E-005	7.00000E-005	0.00000E+000	2.29140E-001	2.29140E-001	2.00000E-005	0.00000E+000	2.29730E-001
Cranes	3.72500E-002	3.97450E-001	1.97520E-001	6.30000E-004	1.65600E-002	1.52300E-002	0.00000E+000	5.57640E+001	5.57640E+001	1.80400E-002	0.00000E+000	5.62149E+001
Forklifts	1.86900E-002	1.75210E-001	2.19690E-001	2.90000E-004	1.03800E-002	9.55000E-003	0.00000E+000	2.58511E+001	2.58511E+001	8.36000E-003	0.00000E+000	2.60601E+001
Generator Sets	3.21600E-002	2.86480E-001	4.03240E-001	7.20000E-004	1.28600E-002	1.28600E-002	0.00000E+000	6.21728E+001	6.21728E+001	2.59000E-003	0.00000E+000	6.22376E+001
Graders	1.73000E-003	2.09400E-002	7.62000E-003	3.00000E-005	6.80000E-004	6.20000E-004	0.00000E+000	2.61618E+000	2.61618E+000	8.50000E-004	0.00000E+000	2.63734E+000
Pavers	9.20000E-004	8.71000E-003	1.44600E-002	2.00000E-005	4.10000E-004	3.70000E-004	0.00000E+000	2.06458E+000	2.06458E+000	6.70000E-004	0.00000E+000	2.08127E+000
Paving Equipment	8.20000E-004	7.48000E-003	1.28500E-002	2.00000E-005	3.60000E-004	3.30000E-004	0.00000E+000	1.78927E+000	1.78927E+000	5.80000E-004	0.00000E+000	1.80373E+000
Rollers	1.46000E-003	1.52400E-002	1.85000E-002	3.00000E-005	8.10000E-004	7.40000E-004	0.00000E+000	2.30557E+000	2.30557E+000	7.50000E-004	0.00000E+000	2.32421E+000
Rubber Tired Dozers	2.05000E-003	2.13800E-002	9.32000E-003	3.00000E-005	9.60000E-004	8.90000E-004	0.00000E+000	2.25073E+000	2.25073E+000	7.30000E-004	0.00000E+000	2.26893E+000
Scrapers	1.18000E-003	1.24300E-002	9.21000E-003	2.00000E-005	4.90000E-004	4.50000E-004	0.00000E+000	2.00052E+000	2.00052E+000	6.50000E-004	0.00000E+000	2.01669E+000
Tractors/Loaders/ Backhoes	1.38000E-002	1.39320E-001	2.10130E-001	2.90000E-004	6.58000E-003	6.06000E-003	0.00000E+000	2.57443E+001	2.57443E+001	8.33000E-003	0.00000E+000	2.59524E+001
Welders	7.99800E-002	4.60240E-001	5.50660E-001	8.40000E-004	1.65500E-002	1.65500E-002	0.00000E+000	6.21128E+001	6.21128E+001	6.49000E-003	0.00000E+000	6.22751E+001

Hughes Circuits Warehouse Project

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

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Mitigated tons/yr						Mitigated mt/yr					
Air Compressors	1.50000E-004	6.40000E-004	9.16000E-003	1.00000E-005	2.00000E-005	2.00000E-005	0.00000E+000	1.27663E+000	1.27663E+000	7.00000E-005	0.00000E+000	1.27842E+000
Cement and Mortar Mixers	2.90000E-004	1.84000E-003	1.54000E-003	0.00000E+000	7.00000E-005	7.00000E-005	0.00000E+000	2.29140E-001	2.29140E-001	2.00000E-005	0.00000E+000	2.29730E-001
Cranes	7.80000E-003	3.37900E-002	2.85920E-001	6.30000E-004	1.04000E-003	1.04000E-003	0.00000E+000	5.57639E+001	5.57639E+001	1.80400E-002	0.00000E+000	5.62148E+001
Forklifts	3.63000E-003	1.57100E-002	2.23600E-001	2.90000E-004	4.80000E-004	4.80000E-004	0.00000E+000	2.58511E+001	2.58511E+001	8.36000E-003	0.00000E+000	2.60601E+001
Generator Sets	7.24000E-003	3.13500E-002	4.46200E-001	7.20000E-004	9.60000E-004	9.60000E-004	0.00000E+000	6.21728E+001	6.21728E+001	2.59000E-003	0.00000E+000	6.22376E+001
Graders	3.70000E-004	1.58000E-003	1.33900E-002	3.00000E-005	5.00000E-005	5.00000E-005	0.00000E+000	2.61618E+000	2.61618E+000	8.50000E-004	0.00000E+000	2.63733E+000
Pavers	2.90000E-004	1.25000E-003	1.78200E-002	2.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.06458E+000	2.06458E+000	6.70000E-004	0.00000E+000	2.08127E+000
Paving Equipment	2.50000E-004	1.09000E-003	1.55100E-002	2.00000E-005	3.00000E-005	3.00000E-005	0.00000E+000	1.78926E+000	1.78926E+000	5.80000E-004	0.00000E+000	1.80373E+000
Rollers	3.20000E-004	1.39000E-003	1.98400E-002	3.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.30557E+000	2.30557E+000	7.50000E-004	0.00000E+000	2.32421E+000
Rubber Tired Dozers	3.10000E-004	1.36000E-003	1.15000E-002	3.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.25072E+000	2.25072E+000	7.30000E-004	0.00000E+000	2.26892E+000
Scrapers	2.80000E-004	1.21000E-003	1.02500E-002	2.00000E-005	4.00000E-005	4.00000E-005	0.00000E+000	2.00052E+000	2.00052E+000	6.50000E-004	0.00000E+000	2.01669E+000
Tractors/Loaders/Backhoes	3.57000E-003	1.54800E-002	2.20300E-001	2.90000E-004	4.80000E-004	4.80000E-004	0.00000E+000	2.57442E+001	2.57442E+001	8.33000E-003	0.00000E+000	2.59524E+001
Welders	7.99800E-002	4.60240E-001	5.50660E-001	8.40000E-004	1.65500E-002	1.65500E-002	0.00000E+000	6.21127E+001	6.21127E+001	6.49000E-003	0.00000E+000	6.22750E+001

Hughes Circuits Warehouse Project

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

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	8.33333E-001	8.94910E-001	-1.21547E-002	0.00000E+000	9.33333E-001	9.33333E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cement and Mortar Mixers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	7.90604E-001	9.14983E-001	-4.47550E-001	0.00000E+000	9.37198E-001	9.31714E-001	0.00000E+000	1.25529E-006	1.25529E-006	0.00000E+000	0.00000E+000	1.24522E-006
Forklifts	8.05778E-001	9.10336E-001	-1.77978E-002	0.00000E+000	9.53757E-001	9.49738E-001	0.00000E+000	1.16049E-006	1.16049E-006	0.00000E+000	0.00000E+000	1.15119E-006
Generator Sets	7.74876E-001	8.90568E-001	-1.06537E-001	0.00000E+000	9.25350E-001	9.25350E-001	0.00000E+000	1.12589E-006	1.12589E-006	0.00000E+000	0.00000E+000	1.12472E-006
Graders	7.86127E-001	9.24546E-001	-7.57218E-001	0.00000E+000	9.26471E-001	9.19355E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.79170E-006
Pavers	6.84783E-001	8.56487E-001	-2.32365E-001	0.00000E+000	9.02439E-001	8.91892E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Paving Equipment	6.95122E-001	8.54278E-001	-2.07004E-001	0.00000E+000	9.16667E-001	9.09091E-001	0.00000E+000	5.58887E-006	5.58887E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	7.80822E-001	9.08793E-001	-7.24324E-002	0.00000E+000	9.50617E-001	9.45946E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	8.48780E-001	9.36389E-001	-2.33906E-001	0.00000E+000	9.58333E-001	9.55056E-001	0.00000E+000	4.44300E-006	4.44300E-006	0.00000E+000	0.00000E+000	4.40736E-006
Scrapers	7.62712E-001	9.02655E-001	-1.12921E-001	0.00000E+000	9.18367E-001	9.11111E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Tractors/Loaders/Backhoes	7.41304E-001	8.88889E-001	-4.83986E-002	0.00000E+000	9.27052E-001	9.20792E-001	0.00000E+000	1.16531E-006	1.16531E-006	0.00000E+000	0.00000E+000	1.15596E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.28798E-006	1.28798E-006	0.00000E+000	0.00000E+000	1.12404E-006

Fugitive Dust Mitigation

Yes/No	Mitigation Measure	Mitigation Input		Mitigation Input		Mitigation Input	
No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		

Hughes Circuits Warehouse Project

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

No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day)	2.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
No	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.06	0.02	0.06	0.02	0.00	0.00
Grading	Fugitive Dust	0.02	0.01	0.01	0.00	0.55	0.55
Grading	Roads	0.02	0.01	0.02	0.01	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.00	0.00	0.00	0.00	0.55	0.54
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Hughes Circuits Warehouse Project

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

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	20.00	19.51	19.55	20.00	19.97	19.65
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.19	0.46		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
No	Land Use	Increase Transit Accessibility	0.25			
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.00			

Hughes Circuits Warehouse Project

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

No	Neighborhood Enhancements	Improve Pedestrian Network				
No	Neighborhood Enhancements	Provide Traffic Calming Measures				
No	Neighborhood Enhancements	Implement NEV Network	0.00			
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00			
No	Parking Policy Pricing	Limit Parking Supply	0.00			
No	Parking Policy Pricing	Unbundle Parking Costs	0.00			
No	Parking Policy Pricing	On-street Market Pricing	0.00			
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00			
No	Transit Improvements	Provide BRT System	0.00			
No	Transit Improvements	Expand Transit Network	0.00			
No	Transit Improvements	Increase Transit Frequency	0.00			
	Transit Improvements	Transit Improvements Subtotal	0.00			
		Land Use and Site Enhancement Subtotal	0.00			
No	Commute	Implement Trip Reduction Program				
No	Commute	Transit Subsidy				
No	Commute	Implement Employee Parking "Cash Out"				
No	Commute	Workplace Parking Charge				
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00			
No	Commute	Market Commute Trip Reduction Option	0.00			
No	Commute	Employee Vanpool/Shuttle	0.00		2.00	

Hughes Circuits Warehouse Project

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

No	Commute	Provide Ride Sharing Program				
	Commute	Commute Subtotal	0.00			
No	School Trip	Implement School Bus Program	0.00			
		Total VMT Reduction	0.00			

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
No	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
No	Use Low VOC Paint (Residential Interior)	250.00
No	Use Low VOC Paint (Residential Exterior)	250.00
No	Use Low VOC Paint (Non-residential Interior)	50.00
No	Use Low VOC Paint (Non-residential Exterior)	50.00
No	Use Low VOC Paint (Parking)	250.00
No	% Electric Lawnmower	
No	% Electric Leafblower	
No	% Electric Chainsaw	

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Exceed Title 24	0.00	

Hughes Circuits Warehouse Project

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

No	Install High Efficiency Lighting	0.00	
Yes	On-site Renewable	226,347.00	0.00

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00
DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy	20.00	20.00
No	Use Reclaimed Water	0.00	0.00
No	Use Grey Water	0.00	
Yes	Install low-flow bathroom faucet	32.00	
Yes	Install low-flow Kitchen faucet	18.00	
Yes	Install low-flow Toilet	20.00	
Yes	Install low-flow Shower	20.00	
No	Turf Reduction	0.00	
Yes	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape	0.00	0.00

Solid Waste Mitigation

Hughes Circuits Warehouse Project

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

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	50.00

Appendix B

CAP Checklist for Project

CLIMATE ACTION PLAN CONSISTENCY REVIEW CHECKLIST

INTRODUCTION

The City of San Marcos (City) adopted an updated Climate Action Plan (CAP) in December, 2020. The CAP outlines strategies and measures that the City will undertake to achieve its proportional share of State greenhouse gas (GHG) emissions reduction targets. The purpose of the CAP Consistency Checklist (Checklist), in conjunction with the CAP, is to provide a streamlined review process for all proposed development projects that are subject to discretionary review and/or trigger environmental review pursuant to the California Environmental Quality Act (CEQA).

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The City's CAP is a qualified greenhouse gas (GHG) emissions reduction plan in accordance with State CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a CAP.

The purpose of this Checklist is to implement GHG reduction measures from the CAP that apply to new discretionary development projects. New development would demonstrate consistency with relevant CAP strategies and would not conflict with the City's ability to achieve the identified GHG reduction targets through implementation of applicable measures. Projects that are consistent with the CAP, as determined through the use of this Checklist, may rely on the CAP for the cumulative impact analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

This Checklist may be updated periodically to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law. Comprehensive updates to this Checklist will be coordinated with each CAP update. Administrative updates to the Checklist may occur regularly, as necessary for the purpose of keeping the Checklist up-to-date and implementable. Updates to the CAP Checklist associated with an update to the City's CAP would also require City Council approval and shall comply with CEQA.

Appendix

APPLICABILITY AND PROCEDURES

This Checklist is required only for discretionary projects[1] that are subject to and not exempt from CEQA. Projects that are exempt from CEQA are deemed to be consistent with the City's CAP, and no further review is necessary, with the exception of a Class 32 "In-Fill Development Projects" categorical exemption (State CEQA Guidelines Section 15332), for which projects are required to demonstrate consistency with the CAP through this Checklist.

General procedures for Checklist compliance and review are described below. Specific guidance is also provided under each of the questions under Steps 1 and 2 of the Checklist.

- The City's Development Services - Planning Division reviews development applications and makes determinations regarding environmental review requirements under CEQA.
- The specific applicable requirements outlined in the Checklist shall be required as conditions of project approval.
- The project must provide written documentation and supporting evidence that demonstrate how the proposed project would implement each applicable Checklist requirement described herein to the satisfaction of the Planning Division.
- If a question in the Checklist is deemed not applicable (N/A) to a project, written documentation and evidence supporting that conclusion shall be provided to the satisfaction of the Planning Division. Each Checklist question provides the scenario(s) where checking N/A may be acceptable. If a measure is deemed not applicable for reasons other than those outlined in each question, supporting evidence will need to be provided and would be subject to Planning Division approval. A project may be determined to be inconsistent with the CAP if the N/A response is deemed to be not supported by credible evidence.
- Development projects requiring discretionary review that cannot demonstrate consistency with the CAP using this Checklist shall prepare a separate, project-level GHG analysis as part of the CEQA document prepared for the project.

[1] In this context, a project is any action that meets the definition of a "Project" in Section 15378 of the State CEQA Guidelines.

Application Information

Contact Information

Project No. and Name: Hughes SMCC, LLC , 500 block of S. Pacific Street, San Marcos, CA

Property Address and APN: 219-223-20-00

Applicant Name and Co.: Hughes SMCC, LLC

Contact Phone: Terry Mathew c/o CCI Contact Email: terry@cciconnect.com

Was a consultant retained to complete this checklist? ☐ Yes ☐ No
If Yes, complete the following:

Consultant Name: Terry Mathew Contact Phone: 760/471-2365

Company Name: CCI Contact Email: terry@cciconnect.com

Project Information

1. What is the size of the project site (acres)? 10.461 acres

2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family dwelling units):
   - ☐ Residential (indicate # of multi-family dwelling units):
   - ☐ Commercial (indicate total square footage):
   - ☒ Industrial (indicate total square footage): 67,410 sf on 25% of acreage
   - ☐ Other (describe):

3. Provide a description of the project proposed. This description should match the basic project description used for the CEQA document. The description may be attached to the Checklist if there are space constraints.

Site development of 67,410 sf light industrial building on 10.461 acres with 25% impact and 75% of sensitive habitat conserved.

STEP 1: LAND USE CONSISTENCY

The first step in this section evaluates a project's GHG emissions consistent with the City's *Guidance to Demonstrating Consistency with the City of San Marcos Climate Action Plan: For Discretionary Projects Subject to CEQA* (Guidance Document). New discretionary development projects subject to CEQA review that emit fewer than 500 metric tons of carbon dioxide equivalent ($MTCO_2e$) annually would not contribute considerably to cumulative climate change impacts as stated in the City's Guidance Document, and therefore, would be considered consistent with the CAP and associated emissions projections.

For projects that are subject to CAP consistency review, the next step in determining consistency is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the city to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency			
	Checklist Item (Check the appropriate box and provide an explanation and supporting documentation for your answer)	**Yes**	**No**
1.	The size and type of projects listed below would emit fewer than 500 $MTCO_2e$ per year. Based on this threshold, does the proposed project exceed these characteristics? ▪ Single Family Housing: 36 dwelling units ▪ Multi-Family Housing: 55 dwelling units ▪ Office: 43,000 square feet ▪ Commercial Space: 20,000 square feet ▪ Regional Shopping Center: 18,000 square feet ▪ Hotel: 37 rooms ▪ Restaurant (Sit-Down): 6,500 square feet ▪ Restaurant (Drive-Thru, High Turnover): 2,400 square feet ▪ General Light Industrial: 58,000 square feet ▪ University: 263 students ▪ Mixed-Use: See *Guidance to Demonstrating Consistency* memorandum for methods to estimate mixed-use development thresholds ▪ Other: For project types not listed in this section the need for GHG analysis and mitigation will be made on a project-specific basis, considering the 500 $MTCO_2e$ per year screening threshold. If **"Yes",** proceed to Question 2 of Step 1. If **"No",** in accordance with the City's CAP screening criteria, the project's GHG impact is less than significant and is not subject to the measures of the CAP.	☒	☐
2.	Is the proposed project consistent with the City's existing General Plan land use designation? If **"Yes"**, proceed to Step 2. If **"No"**, proceed to Question 3 of Step 1	☒	☐
3.	For projects not consistent with the existing General Plan land use designation, does the project include a General Plan Amendment that would generate GHG emissions equal to or less than estimated emissions generated under the existing designation? If **"Yes"**, proceed to Step 2 and provide estimated project emissions under both existing and proposed designation(s) for comparison. If **"No"**, the project's GHG impact is potentially significant, and a GHG analysis must be prepared in accordance with the City's Guidance Document and applicable CEQA guidelines. The project must incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts, along with	☐	☐

other mitigation measures as necessary based on a project specific GHG analysis.. Proceed and complete a project specific GHG analysis, and Step 2 of the Checklist.		

STEP 2: CAP MEASURES CONSISTENCY

The second step of CAP consistency review is to evaluate a project's consistency with the applicable strategies and measures of the CAP. Each Checklist item is associated with a specific GHG reduction measure in the City's CAP. "N/A" should only be checked based on the direction provided in each Checklist Item question. All projects for which the measure is applicable must demonstrate that they would implement measures consistent with the Checklist Item, or fully substantiate how the item would be infeasible for project implementation. "N/A" responses are subject to Planning Division review and approval. If "No" is provided as a response to a question, the project would be determined to be inconsistent with the CAP and result in a significant GHG impact.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
Project Design			
1. Electric Vehicle Charging Stations (Measure T-2) Multi-Family Residential and Non-Residential: Will the project install electric vehicle charging stations (Level 2 or better) in at least five percent of the total parking spaces provided on-site? Check "N/A" if the project is a single-family residential project or would not provide any parking.	☒	☐	☐
Please substantiate how the project satisfies question 1: By project design, there are 4 EV Level 2 charging stations, which equates to about 6% of the 72 total compliance with Cal Green Building Code			
2. Bicycle Infrastructure (Measure T-8) Residential and Non-Residential Projects: If the following conditions are met, would the project pay its fair-share contribution to bicycle infrastructure improvements? ☐ Intersection or roadway segment improvements are proposed as part of the project and, ☐ The City's General Plan Mobility Element identifies bicycle infrastructure improvements at any intersection(s) or roadway segment(s) that would be improved as part of the project. Check "N/A" if the conditions above would not be met.	☐	☐	☒
Please substantiate how the project satisfies question 2: According to the General Plan Pacific Street is not a mobility element roadway nor does it call for bike infrastructure in this roadway segment.			

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
3. Transportation Demand Management (Measure T-9) Multi-Family Residential and Non-Residential: Will the project develop and implement a TDM plan that includes, at a minimum, all of the TDM strategies listed below? ☒ Provide discounted monthly transit pass or provide at least 25 percent transit fare subsidy to residents/employees. ☒ Provide designated car-share, carpool, vanpool, and/or park-and-ride parking spaces.[2] ☒ Provide pedestrian connections between all internal uses and to all existing or planned external streets around the project site(s). ☒ Provide secure bicycle parking spaces or bicycle racks, showers, and clothes lockers. ☐ Encourage telecommuting for employees (allow one telecommute day per week or compressed work weeks) or provide a telecommute work center with common office space and equipment available to residents. *-or-* Would the project implement and monitor for four (4) years a TDM program that demonstrates an alternative transportation (i.e. carpool, public transit, bicycle, walk, telecommute) mode share of at least 29 percent [3] for all residents? Check "N/A" if the project is a single-family residential project or is not subject to the City's TDM Ordinance.	☒		☐

[2] The designated number of car-share, carpool, vanpool, and/or park-and-ride parking spaces provided at a rate equal to or greater than CALGreen minimum requirements.
[3] Measure T-10 requires projects to increase alternative mode share by seven percent. The baseline mode share for alternative transportation (i.e. carpool, public transit, bicycle, walk, and telecommute) is 22 percent based on 2010 Census Data.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
Please state which measure option the project for which the project would comply and substantiate how the project satisfies question 3: Applicant will be able to comply with TDM measures noted above; however, as a manufacturing, . packing and distribution facility on a 2-shift 5 day per week schedule, employees are not able to work remotely. In the LI zone,the faciltiy would be allowed to operate on a 24/7 basis so the planned limitation noted meet the requirement. Additionally, transit routes are limited in relation to the workforce.			
4. Reduce Parking Near Transit (Measure T-12) Multi-Family Residential: If located within a half-mile of a major transit stop[4], would the project provide at least 27 percent fewer parking spaces than required for the same use based on the City's municipal code parking requirements? Check "N/A" if the project is a single-family residential or non-residential project.	☐	☐	☒
Please substantiate how the project satisfies question 4: This is a Light Industrial project - NA			

[4] Major transit stop is defined as a bus or light-rail station with fixed service and 10-minute minimum headways during peak hours. Project applicants should confirm with City staff if the project site would fall within this proximity tot a major transit stop.

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
5. Water Heaters (Measure E-1) Residential: Will the project install one of, or a combination of, the following water heater types in place of natural gas water heaters? ☐ Electric heat pump water heater ☐ Instantaneous electric water heater ☐ Electric tank ☐ Solar water heater with heat pump water heater backup ☐ Solar water heater with electric tank backup Check "N/A" if the project is a non-residential project.	☐	☐	☒
Please substantiate how the project satisfies question 5: This is a Light Industrial project - N/A			
6. Photovoltaic Installation (Measure E-2) Non-Residential: Will the project install photovoltaic systems with a minimum capacity of two watts per square foot of gross floor area? Check "N/A" if the project is a residential project or if installation of on-site photovoltaic would be infeasible.	☒	☐	☐
Please substantiate how the project satisfies question 6: The project will install Photovoltaic system to meet the City of San Marcos Climate Action Plan of 2 W/sf			

Step 2: CAP Measures Consistency			
Checklist Item (Check the appropriate box and provide an explanation for your answer. Please use additional sheets if necessary)	**Yes**	**No**	**N/A**
7. Landscaping Water Use (Measure W-1) Residential and Non-Residential: Will the project comply with the City's Water Efficient Landscape Ordinance?[5] Check "N/A" if the project is not proposing any landscaping or is not subject to the City's Water Efficient Landscape Ordinance.	☒	☐	☐
Please substantiate how the project satisfies question 7: The project design consists of approximately 25,326 square feet of landscaped area, which will comply with			
8. Urban Tree Canopy (Measure C-2) Single-Family Residential: Will the project plant a minimum of one tree per single-family residential unit? *-or-* Multi-Family Residential and Non-Residential: If the project is providing more than 10 parking spaces, will the project plant at least one tree per five parking spaces provided? Check "N/A" if planting the required number of trees on-site would be infeasible.	☒	☐	☐
Please substantiate how the project satisfies question 8: The project design includes 30 trees, which exceeds the requirement of 1 tree for every 5 parking spaces. See			

[5] City of San Marcos Landscape Manual: https://www.san-marcos.net/home/showdocument?id=13984