Appendix B:
Air Quality, Global Climate Change, and Energy Impact Analysis

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PERMANENT BRIDGE SHELTER PROJECT AIR QUALITY, GLOBAL CLIMATE CHANGE, AND ENERGY IMPACT ANALYSIS

City of Costa Mesa

May 16, 2019

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Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

PERMANENT BRIDGE SHELTER PROJECT AIR QUALITY, GLOBAL CLIMATE CHANGE, AND ENERGY IMPACT ANALYSIS

City of Costa Mesa

May 16, 2019

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EXECUTIVE SUMMARY

The purpose of this air quality, global climate change, and energy impact analysis is to provide an assessment of the impacts resulting from development of the proposed Permanent Bridge Shelter project and to identify measures that may be necessary to reduce potentially significant impacts.

CONSTRUCTION-SOURCE EMISSIONS

Project construction-source emissions would not exceed applicable regional thresholds of significance established by the South Coast Air Quality Management District (SCAQMD). For localized emissions, the project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less than significant.

OPERATIONAL-SOURCE EMISSIONS

The project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, project-related trips will not cause or result in CO concentrations exceeding applicable state and/or federal standards (CO "hotspots). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less than significant.

GREENHOUSE GASES

Project-related GHG emissions do not exceed the SCAQMD draft threshold of 3,000 MTCO2e per year for all land uses, and GHG emissions are considered to be less than significant.

Furthermore, the project would not conflict with the goals of SB-32 and the CARB Scoping Plan; therefore, the project would not conflict with an applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases and impacts are considered to be less than significant.

ENERGY

For new development such as that proposed by the Permanent Bridge Shelter, compliance with California Building Standards Code Title 24 energy efficiency requirements (CalGreen), are considered demonstrable evidence of efficient use of energy. As discussed below, the project would provide for, and promote, energy

efficiencies required under other applicable federal and State of California standards and regulations, and in so doing would meet or exceed all California Building Standards Code Title 24 standards. Moreover, energy consumed by the project's operation is calculated to be comparable to, or less than, energy consumed by other shelter uses of similar scale and intensity that are constructed and operating in California. On this basis, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Further, the project would not cause or result in the need for additional energy producing facilities or energy delivery systems.

1. INTRODUCTION

This section describes the purpose of this air quality, global climate change, and energy impact analysis, project location, proposed development, and study area. Figure 1 shows the project location map and Figure 2 illustrates the project site plan.

PURPOSE AND OBJECTIVES

This study was performed to address the possibility of regional/local air quality impacts and global climate change impacts, from project related air emissions, as well as energy impacts. The objectives of the study include:

- documentation of the atmospheric setting
- discussion of criteria pollutants and greenhouse gases
- discussion of the air quality and global climate change regulatory framework
- discussion of the air quality and greenhouse gases thresholds of significance
- analysis of the construction related air quality and greenhouse gas emissions
- analysis of the operations related air quality and greenhouse gas emissions
- analysis of the construction and operations related energy use
- analysis of the conformity of the proposed project with the SCAQMD AQMP
- recommendations for mitigation measures

The City of Costa Mesa is the lead agency for this air quality, greenhouse gas, and energy analysis, in accordance with the California Environmental Quality Act authorizing legislation. Although this is a technical report, every effort has been made to write the report clearly and concisely. To assist the reader with terms unique to air quality and global climate change, a definition of terms has been provided in Appendix A.

PROJECT LOCATION

The project is located at 3175 Airway Avenue on the southwest corner of Airway Avenue and McCormick Avenue in the City of Costa Mesa. The project site consists of an existing 29,816 square foot office/warehouse building and associated parking lot. The project site comprises a single parcel, Assessor's Parcel Number (APN) 427-091-12. A vicinity map showing the project location is provided on Figure 1.

PROJECT DESCRIPTION

The proposed project would repurpose approximately half of the existing industrial building at 3175 Airway Avenue (approximately 15,000 square feet) for a permanent bridge shelter for individuals experiencing homelessness. The space has sufficient area to accommodate up to a maximum of 100-bed shelter; however, at this time the City is proposing only 50 beds in the shelter, which would operate 24 hours per day and 365 days per year, and would provide wrap-around services to individuals that are accommodated by the facility.[1] The Shelter Operator would work in conjunction with existing City outreach staff and other organizations within the community to operate the facility.

In order to decrease the impact on the surrounding neighborhood, access to and from the shelter will be handled through a reservation-based transportation system. A shuttle bus to and from the shelter will be the only ingress and egress allowed for individuals experiencing homelessness. Certain exceptions may apply, but transportation will be provided to and from the facility in all cases. The proposed shuttle plan includes two shuttle stops, and the proposed shuttle schedule is shown below. In no case will individuals be allowed to

[1] This Air Quality, Global Climate Change, and Energy Impact Analysis assumes a 100-bed shelter in order to provide a worst-case analysis of the proposed project.

leave the facility on foot unless doing so unlawfully in violation of the facility rules and regulations; no walk-ins to the bridge shelter or its services will be permitted.

Airway Drive 100-Bed Permanent Bridge Shelter Shuttle Plan - Weekdays

All shuttle routes start at Airway Drive	Monday – Friday Shuttle Stops						All shuttle routes end at Airway Drive
	The Crossing Church 2115 Newport Blvd 92627			Share Ourselves (SOS) 1550 Superior 92627			
Monday - Friday	Drop Off Only	Drop Off & Pick Up	Pick Up Only	Drop Off Only	Drop off & Pick-Up	Pick up Only	# of Shuttles
6:00 a.m.	X			X			3
9:00 a.m.		X			X		5
12:00 noon		X			X		4
4:00 p.m.		X			X		5
7:00 p.m.			X			X	5
							22

Airway Drive 100-Bed Permanent Bridge Shelter Shuttle Plan - Saturdays

All shuttle routes start at Airway Drive	Saturday Shuttle Stops						All shuttle routes end at Airway Drive
	The Crossing Church 2115 Newport Blvd 92627			Share Ourselves (SOS) 1550 Superior 92627			
Saturday	Drop Off Only	Drop Off & Pick Up	Pick Up Only	Drop Off Only	Drop off & Pick-Up	Pick up Only	# of Shuttles
6:00 a.m.	X			X			4
9:00 a.m.		X			X		4
12:00 noon		X			X		5
4:00 p.m.					X		3
7:00 p.m.						X	4
7:30 p.m.			X				4
							24

Airway Drive 100-Bed Permanent Bridge Shelter Shuttle Plan - Sundays

All shuttle routes start at Airway Drive	Sunday Shuttle Stops						All shuttle routes end at Airway Drive
	The Crossing Church 2115 Newport Blvd 92627			Share Ourselves (SOS) 1550 Superior 92627			
Sunday	Drop Off Only	Drop Off & Pick Up	Pick Up Only	Drop Off Only	Drop off & Pick-Up	Pick up Only	# of Shuttles
6:00 a.m.	X			X			4
9:00 a.m.					X		3
12:00 noon					X		3
4:00 p.m.		X			X		6
7:00 p.m.		X				X	6
							22

Repurposing a portion of the industrial space for an emergency shelter will require the following site improvements:

- New ADA access and exit points
- A new 6-foot-high screened motorized vehicular gate at the entrance
- Landscaping upgrades along Airway Avenue
- A new visitor entrance along Airway Avenue (located behind the security gate)
- A new outdoor break area on the west side of the building that is located behind the installed perimeter gate
- Interior office renovations
- New/upgraded restrooms and showers for men and women
- A new kitchen and dining hall
- Separate men's and women's sleeping quarters
- Internal 5-foot-high partition walls for privacy and noise reduction in sleeping quarters
- New laundry, training, and computer rooms
- 17 new parking spaces created by restriping an existing paved area south of the building
- Installation of security cameras
- Creation of small outdoor animal area that is located behind the installed perimeter gate

Construction and site improvements would begin in Fall 2019, with expected operation in mid-2020. The other half of the industrial building (approximately 15,000 square feet) would be leased by the City to a tenant(s) for industrial warehouse use consistent with the existing purpose, zoning, and land use designation. The leased space would have a separate meter, address, and entrance and would have access to the existing loading docks.

Figure 2 illustrates the proposed site plan.

PHASING AND TIMING

The project is anticipated to be built in one phase. Construction is anticipated begin no sooner than September 2019 and being completed by the end of June 2020. The proposed project is anticipated for opening in 2020.

SENSITIVE RECEPTORS IN PROJECT VICINITY

Those who are sensitive to air pollution include children, the elderly, and persons with preexisting respiratory or cardiovascular illness. For purposes of CEQA, the SCAQMD considers a sensitive receptor to be a location where a sensitive individual could remain for 24 hours, such as residences, hospitals, or convalescent facilities (South Coast Air Quality Management District 2008). Commercial and industrial facilities are not included in the definition because employees do not typically remain on-site for 24 hours.

The nearest sensitive receptors to the project site are approximately 0.4 miles from the site and include Mariners Christian School located 1,825 feet (556 meters) southwest of the project site and multi-family attached residential dwelling units located approximately 2,050 feet (625 meters) northwest of the project site.

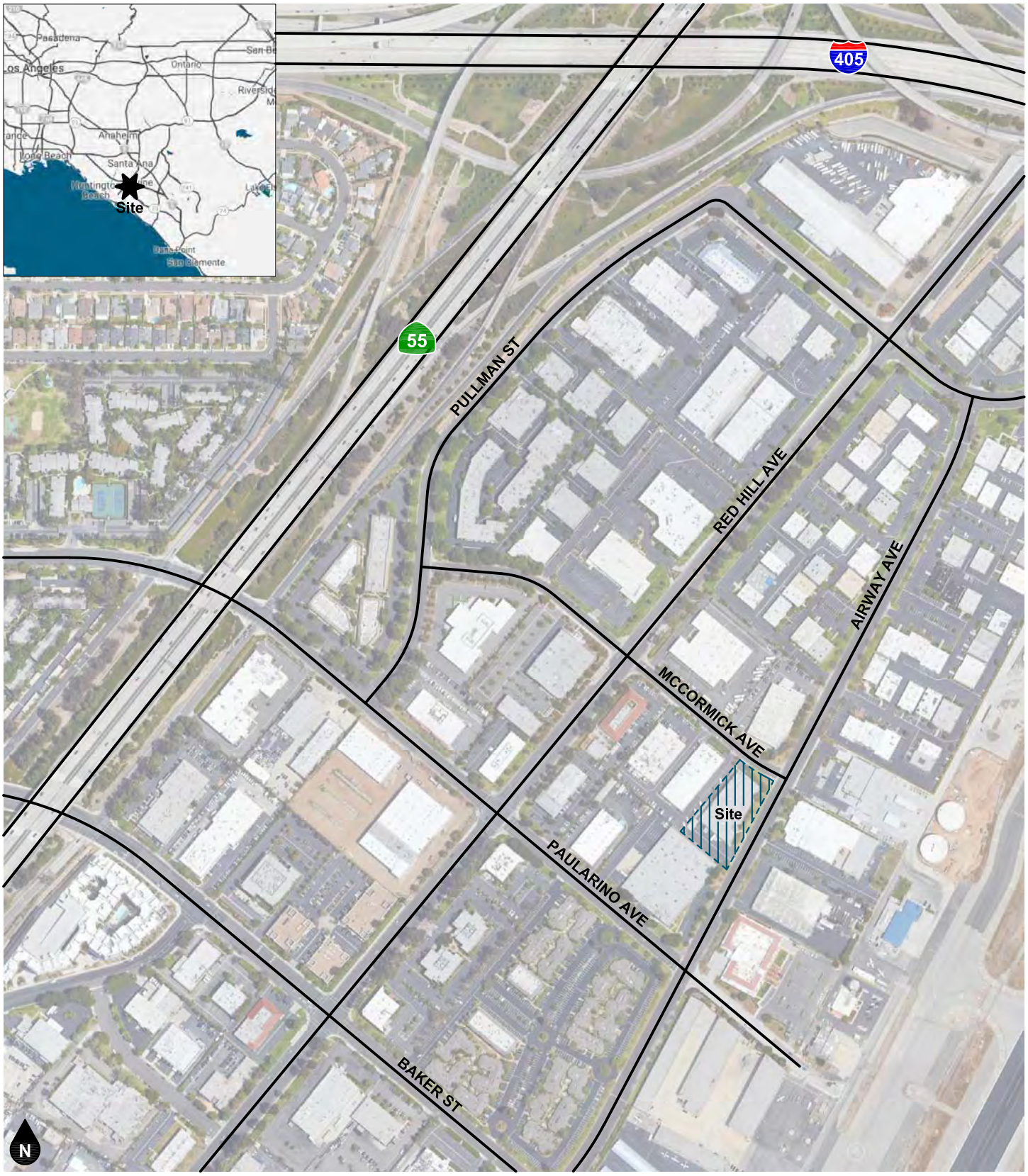

Figure 1
Project Location Map

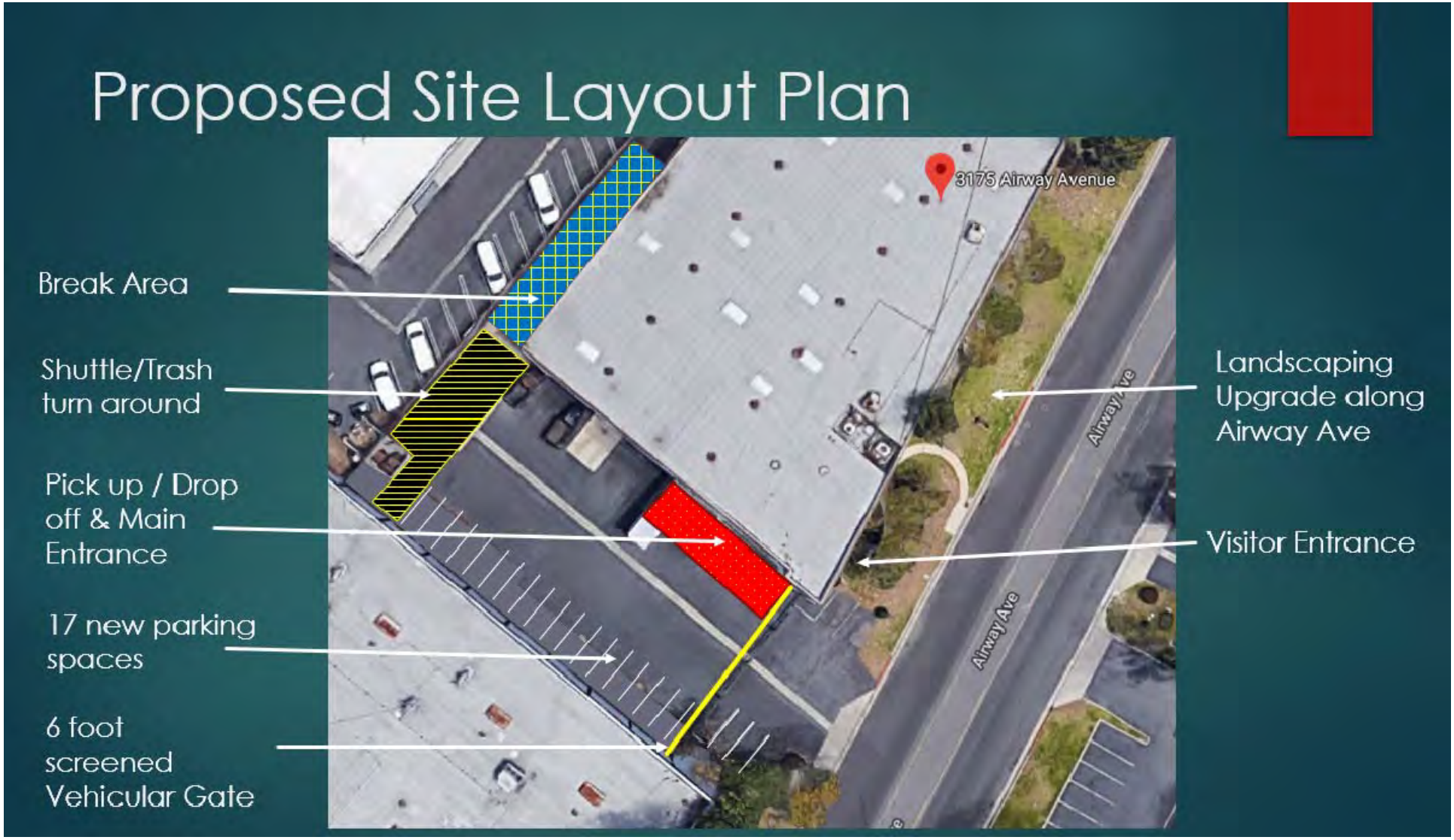

Figure 2
Site Plan

2. ATMOSPHERIC SETTING

LOCAL AIR QUALITY

The proposed project site is located in the northeastern portion of the City of Costa Mesa. The City of Costa Mesa is located within the South Coast Air Basin (Basin), which is surrounded by mountains trapping the air and its pollutants in the valleys or basins below. The Basin includes all of Orange County and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties. Bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, the Basin is an area of high air pollution potential. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. Air quality within the Basin is influenced by a wide range of emissions sources—such as dense population centers, heavy vehicular traffic, and industry. Climate change within the Basin is influenced by a wide range of emission sources, such as utility usage, heavy vehicular traffic, industry, and meteorology.

The annual average temperature varies throughout the Basin, ranging from the low to mid 60s to over 100 degrees during the summer, measured in Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The City of Costa Mesa is located in the North Coastal Orange County portion of the Basin.

The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer.

Aside from a persistent temperature inversion, the vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. Conversely, on days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in the Basin are transported eastward, predominantly into Riverside and San Bernardino Counties. Santa Ana winds, which are strong and dry north or northeasterly winds that occur during the fall and winter months, disperse air contaminants differently through the Basin, generally resulting in worse air conditions in the inner basin areas. Santa Ana conditions tend to last for several days at a time. Wind speeds in the City of Costa Mesa annual average about 9.58 miles per hour (mph) (USA.com 2019).

The majority of annual rainfall in the Basin occurs between December and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions. The annual average total of rainfall in the City is approximately 13.92 inches (USA.com 2019).

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the City of Santa Ana, the closest monitoring station to the project site, are shown below in Table 1. Table 1 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 1
Local Monthly Climate Data[1]

Descriptor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg. Max. Temperature	69.8	70.1	71.7	73.9	75.5	78.4	82.9	84.7	83.6	79.6	71.8	69.5
Avg. Min. Temperature	47.0	48.3	50.4	53.0	56.9	60.1	63.3	64.1	62.3	58.1	49.8	46.8
Avg. Total Precipitation (in.)	2.8	3.2	2.2	0.9	0.3	0.1	0.0	0.0	0.2	0.6	1.2	2.3

Notes:
(1) Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca1484.

Data taken from the Santa Ana Fire Stn, CA station (047888).

3. POLLUTANTS

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

CRITERIA POLLUTANTS

The criteria pollutants consist of: ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, lead, and particulate matter. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants.

Nitrogen Dioxides

Nitrogen Oxides (NOx) is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NOx and the pollutants formed from NOx can be transported over long distances, following the patterns of prevailing winds. Therefore controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone (O_3) is not usually emitted directly into the air but at ground-level is created by a chemical reaction between NOx and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor

vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Dioxide

Sulfur Oxide (SOx) gases (including sulfur dioxide [SO2]) are formed when fuel containing sulfur, such as coal and oil is burned, and from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead (Pb) is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

Particulate matter (PM) is the term for a mixture of solid particles and liquid droplets found in the air. Particulate matter is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Reactive Organic Gases (ROG)

Although not a criteria pollutant, reactive organic gases (ROGs), or VOCs, are defined as any compound of carbon—excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate—that participates in atmospheric photochemical reactions. Although there are slight differences in the definition of ROGs and VOCs, the two terms are often used interchangeably. Indoor sources of VOCs include paints, solvents, aerosol sprays, cleansers, tobacco smoke, etc. Outdoor sources of VOCs are from combustion and fuel evaporation. A reduction in VOC emissions reduces certain chemical reactions that contribute to the formulation of ozone. VOCs are transformed into organic aerosols in the atmosphere, which contribute to higher PM10 and lower visibility.

OTHER POLLUTANTS OF CONCERN

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, toxic air contaminants (TACs) are another group of pollutants of concern. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least forty different toxic air contaminants. The most important of these toxic air contaminants, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to toxic air contaminants can result from emissions from normal operations as well as from accidental releases. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

Toxic air contaminants are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of toxic air contaminants with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to the 2013 California Almanac of Emissions and Air Quality, the majority of the estimated health risk from toxic air contaminants can be attributed to relatively few compounds, the most important of which is diesel particulate matter (DPM). Diesel particulate matter is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of diesel particulate matter as a toxic air contaminant in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in diesel particulate matter by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot". Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of diesel particulate matter as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to diesel particulate matter is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by the ARB and as a Hazardous Air Pollutant by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. Naturally occurring asbestos is not present in Orange County. The nearest likely locations of naturally occurring asbestos, as identified in the General Location Guide for Ultramafic Rocks in California prepared by the California Division of Mines and Geology, is located in Santa Barbara County. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

GREENHOUSE GASES

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons

(CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NOx) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop". The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide (CO_2)

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid-1700s. Each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC Fifth Assessment Report, 2014) Emissions of CO_2 from fossil fuel combustion and industrial processes contributed about 78% of the total GHG emissions increase from 1970 to 2010, with a similar percentage contribution for the increase during the period 2000 to 2010. Globally, economic and population growth continued to be the most important drivers of increases in CO_2 emissions from fossil fuel combustion. The contribution of population growth between 2000 and 2010 remained roughly identical to the previous three decades, while the contribution of economic growth has risen sharply.

Methane (CH_4)

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and Chlorofluorocarbons (CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide (N_2O)

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is also commonly used as an aerosol spray propellant, (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and in race cars).

Chlorofluorocarbons (CFC)

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C_2H_6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. It was used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons (HFC)

HFCs are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons (PFC)

PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6). Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride (SF_6)

SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles 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. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil

fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

Global Warming Potential

The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. The time period usually used for GWPs is 100 years. GWPs provide a common unit of measure, which allows analysts to add up emissions estimates of different gases (e.g., to compile a national GHG inventory), and allows policymakers to compare emissions reduction opportunities across sectors and gases. A summary of the atmospheric lifetime and the global warming potential of selected gases are summarized in Table 2. As shown in Table 2, the global warming potential of GHGs ranges from 1 to 22,800.

Table 2
Global Warming Potentials and Atmospheric Lifetimes[1]

Gas	Atmospheric Lifetime	Global Warming Potential[2] (100 Year Horizon)
Carbon Dioxide (CO_2)	–[3]	1
Methane (CH_4)	12	28-36
Nitrous Oxide (NO)	114	298
Hydrofluorocarbons (HFCs)	1-270	12-14,800
Perfluorocarbons (PFCs)	2,600-50,000	7,390-12,200
Nitrogen trifluoride (NF_3)	740	17,200
Sulfur Hexafluoride (SF_6)	3,200	22,800

Notes:

(1) Source: http://www3.epa.gov/climatechange/ghgemissions/gases.html

(2) Compared to the same quantity of CO_2 emissions.

(3) Carbon dioxide's lifetime is poorly defined because the gas is not destroyed over time, but instead moves among different parts of the ocean–atmosphere–land system. Some of the excess carbon dioxide will be absorbed quickly (for example, by the ocean surface), but some will remain in the atmosphere for thousands of years, due in part to the very slow process by which carbon is transferred to ocean sediments.

4. AIR QUALITY MANAGEMENT

REGULATORY SETTING

The proposed project is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

International

Montreal Protocol

In 1988, the United Nations established the Intergovernmental Panel on Climate Change (IPCC) to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The plan consists of more than 50 voluntary programs.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

The Paris Agreement

The Paris Agreement entered into force on 4 November 2016, thirty days after the date on which at least 55 Parties to the Convention accounting in total for at least an estimated 55 % of the total global greenhouse gas emissions have deposited their instruments of ratification, acceptance, approval or accession with the Depositary.

The Paris Agreement builds upon the Convention and – for the first time – brings all nations into a common cause to undertake take ambitious efforts to combat climate change and adapt to its effects, with enhanced support to assist developing countries to do so. As such, it charts a new course in the global climate effort.

The Paris Agreement's central aim is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Additionally, the agreement aims to strengthen the ability of countries to deal with the impacts of climate change. To reach these ambitious goals, appropriate financial flows, a new technology framework and an enhanced capacity building framework will be put in place, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of action and support through a more robust transparency framework. The Trump administration has recently indicated the United States federal government will no longer participate in the Paris agreement. However, the U.S. cannot technically withdraw from the Agreement until 2020.

Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The

National Ambient Air Quality Standards (NAAQS) pollutants were identified using medical evidence and are shown below in Table 3.

The EPA and the California Air Resource Board (CARB) designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard. Attainment status is shown in Table 4.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The State Implementation Plan (SIP) must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the State Implementation Plan (SIP).

As indicated below in Table 4, the Basin has been designated by the EPA as a non-attainment area for ozone (O_3) and suspended particulates (PM10 and PM2.5). Currently, the Basin is in attainment with the ambient air quality standards for carbon monoxide (CO), lead, sulfur dioxide (SO_2), suspended particulate matter (PM-2.5), and nitrogen dioxide (NO_2).

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO_2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions will not themselves impose any requirements on industry or other entities. However, it is a prerequisite to finalizing the EPA's proposed GHG emission standards for light-duty vehicles, which were jointly proposed by the EPA and Department of Transportation on September 15, 2009.

On March 19, 2015, the Whitehouse announced that President Obama will issue an Executive Order that will cut the Federal Government's greenhouse gas (GHG) emissions 40 percent over the next decade from 2008 levels -- saving taxpayers up to $18 billion in avoided energy costs -- and increase the share of electricity the Federal Government consumes from renewable sources to 30 percent. Complementing this effort, several major Federal suppliers are announcing commitments to cut their own GHG emissions. The Administration hosted a roundtable that brought some of these large Federal suppliers together to discuss the benefits of

their GHG reduction targets or to make their first-ever corporate commitments to disclose emissions and set new reduction goals.

Together, the combined results of the Federal Government actions and new supplier commitments will reduce GHG emissions by 26 million metric tons by 2025 from 2008 levels, the equivalent of taking nearly 5.5 million cars off the road for a year. And to encourage continued progress across the Federal supply chain, the Administration is releasing a new scorecard to publicly track self-reported emissions disclosure and progress for all major Federal suppliers, who together represent more than $187 billion in Federal spending and account for more than 40 percent of all Federal contract dollars.

Since the Federal Government is the single largest consumer of energy in the Nation, Federal emissions reductions and progress across the supply chain will have broad impacts. The new commitments announced today support the United States' international commitment to cut net GHG emissions 26-28 percent below 2005 levels by 2025, which President Obama first announced in November 2014 as part of an historic agreement with China. Additionally, the goals build on the strong progress made by Federal agencies during the first six years of the Administration under President Obama's 2009 Executive Order on Federal Leadership on Environmental, Energy and Economic Performance, including reducing Federal GHG emissions by 17 percent — which helped Federal agencies avoid $1.8 billion in cumulative energy costs — and increasing the share of renewable energy consumption to 9 percent.[2]

State – California Air Resources Board

The California Air Resources Board (CARB), which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the State Implementation Plan (SIP). The California Ambient Air Quality Standards (CAAQS) for criteria pollutants are shown in Table 3. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The South Coast Air Basin has been designated by the CARB as a nonattainment area for ozone, PM10 and PM2.5. Currently, the South Coast Air Basin is in attainment with the ambient air quality standards for CO, lead, SO2, NO2, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

On June 20, 2002, the CARB revised the PM10 annual average standard to 20 µg/m3 and established an annual average standard for PM2.5 of 12 µg/m3. These standards were approved by the Office of Administrative Law in June 2003 and are now effective. On September 27, 2007 CARB approved the South Coast Air Basin and the Coachella Valley 2007 Air Quality Management Plan for Attaining the Federal 8-hour Ozone and PM2.5 Standards. The plan projects attainment for the 8-hour Ozone standard by 2024 and the PM2.5 standard by 2015.

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, Title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California.

[2] Source: https://www.whitehouse.gov/the-press-office/2015/03/19/fact-sheet-reducing-greenhouse-gas-emissions-federal-government-and-acro.

The CARB is also responsible for regulations pertaining to toxic air contaminants. The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release into the South Coast Air Basin. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

The State currently has no regulations that establish ambient air quality standards for GHGs. However, the State has passed laws directing CARB to develop actions to reduce GHG emissions, which are listed below.

Assembly Bill 1493

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-3-05

The California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels
- 2020: Reduce greenhouse gas emissions to 1990 levels
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The executive order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs.

Assembly Bill 32

In 2006, the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective.

On December 6, 2007 CARB released the calculated Year 1990 GHG emissions of 427 million metric tons of CO_2e ($MMTCO_2e$). The 2020 target of 427 $MMTCO_2e$ requires the reduction of 169 $MMTCO_2e$, or approximately 30 percent from the State's projected 2020 business as usual emissions of 596 $MMTCO_2e$ and the reduction of 42 $MMTCO_2e$, or almost 10 percent from the 2002-2004 average GHG emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures

that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources that became enforceable on or before January 1, 2010.

On December 11, 2008 the CARB Board approved a Scoping Plan, with final adoption May 11, 2009 that proposed a variety of measures including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, a market-based cap-and-trade system, and a fee regulation to fund the program. In current pending litigation, Association of Irritated Residents v. California Air Resources Board, a California State trial court found that the analysis of the alternatives identified in the AB 32 Scoping Plan Functional Equivalent Document (FED) was not sufficient for informed decision-making and public review under CEQA. In response, CARB has appealed the decision. In addition, CARB prepared the *Supplement to the AB 32 Scoping Plan Functional Equivalent Document* (June 13, 2011). On August 24, 2011 CARB recertified the complete AB 32 Scoping Plan Functional Equivalent Environmental Document revised by the Final Supplement. In December, 2011 the Final Supplement was accepted as sufficient to fulfill the trial court's March order.

While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 million metric tons of CO_2e, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments will play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2010 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO_2e (or approximately 1.2 percent of the GHG reduction target).

In May 2014, CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

On January 20, 2017, CARB announced its release of a proposed plan to reduce greenhouse gas emissions by 40 percent below 1990 levels by 2030 – the most ambitious target in North America. The plan builds on the state's successful efforts to reduce emissions and outlines the most effective ways to reach the 2030 goal, including continuing California's Cap-and-Trade Program. The Final 2017 Scoping Plan Update was released in late March and was approved by CARB on December 14, 2017. Implementing this Scoping Plan will ensure that California's climate actions continue to promote innovation, drive the generation of new jobs, and achieve continued reductions of smog and air toxics. The ambitious approach draws on a decade of successful programs that address the major sources of climate-changing gases in every sector of the economy:

- More Clean Cars and Trucks: The plan sets out far-reaching programs to incentivize the sale of millions of zero-emission vehicles, drive the deployment of zero-emission trucks, and shift to a cleaner system of handling freight statewide.
- Increased Renewable Energy: California's electric utilities are ahead of schedule meeting the requirement that 33 percent of electricity come from renewable sources by 2020. The Scoping Plan guides utilities to 50 percent renewables, as required under SB 350.
- Slashing Super-Pollutants: The plan calls for a significant cut in super-pollutants such as methane and HFC refrigerants, which are responsible for as much as 40 percent of global warming.
- Cleaner Industry and Electricity: California's renewed cap-and-trade program extends the declining cap on emissions from utilities and industries and the carbon allowance auctions. The auctions will continue to fund investments in clean energy and efficiency, particularly in disadvantaged communities.

- Cleaner Fuels: The Low Carbon Fuel Standard will drive further development of cleaner, renewable transportation fuels to replace fossil fuels.
- Smart Community Planning: Local communities will continue developing plans which will further link transportation and housing policies to create sustainable communities.
- Improved Agriculture and Forests: The Scoping Plan also outlines innovative programs to account for and reduce emissions from agriculture, as well as forests and other natural lands.

The 2017 Scoping Plan also evaluates reductions of smog-causing pollutants through California's climate programs.

SB 32, Pavley. California Global Warming Solutions Act of 2006

(1) The California Global Warming Solutions Act of 2006 designates the State Air Resources Board as the state agency charged with monitoring and regulating sources of emissions of greenhouse gases. The state board is required to approve a statewide greenhouse gas emissions limit equivalent to the statewide greenhouse gas emissions level in 1990 to be achieved by 2020 and to adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective greenhouse gas emissions reductions. This bill would require the state board to ensure that statewide greenhouse gas emissions are reduced to 40% below the 1990 level by 2030.
(2) This bill would become operative only if AB 197 of the 2015–16 Regular Session is enacted and becomes effective on or before January 1, 2017. AB 197 requires that the California Air Resources Board, which directs implementation of emission-reduction programs, should target direct reductions at both stationary and mobile sources.

Senate Bill 1368

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation".
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG) jurisdiction, which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 19 percent below 2005 per capita GHG emissions levels by 2035. These reduction targets became effective October 2018.

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. In addition SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

Assembly Bill 939 and Senate Bill 1374

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. CalEEMod modeling defaults to 2008 standards. 2013 Standards have been approved and are effective July 1, 2014.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions,

electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013 Standards have been approved and were effective July 1, 2014. 2016 Standards were adopted January 1, 2017.

All buildings for which an application for a building permit is submitted on or after January 1, 2017 must follow the 2016 standards. The 2016 residential standards are estimated to be approximately 28 percent more efficient than the 2013 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Green Building Standards

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011.

2016 CALGreen Code: During the 2016-2017 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle. HCD adopted three new definitions related to electric vehicle charging regulations. These definitions provided clarity to the code user as to the differences between an electric vehicle charging space and an electric vehicle charging station. HCD replaced the term "electric vehicle charging stations" with "electric vehicle charging spaces" since the term "electric vehicle charging space" better describes a space available for future installation of electric vehicle supply equipment, but with no electric vehicle charger installed.

HCD also increased the required construction waste reduction from 50 percent to 65 percent of the total building site waste. This increase aids in meeting CalRecycle's statewide solid waste recycling goal of 75 percent for 2020 as stated in Chapter 476, Statutes of 2011 (AB 341). HCD adopted new regulations requiring recycling areas for multifamily projects of five or more dwelling units. This regulation requires developers to provide readily accessible areas adequate in size to accommodate containers for depositing, storage and collection of non-hazardous materials (including organic waste) for recycling. This requirement assists businesses that were required as of April 1, 2016, to meet the requirements of Chapter 727, Statutes of 2014 (AB 1826).

HCD adopted new regulations to require information on photovoltaic systems and electric vehicle chargers to be included in operation and maintenance manuals. Currently, CALGreen section 4.410.1 Item 2(a) requires operation and maintenance instructions for equipment and appliances. Photovoltaic systems and electric vehicle chargers are systems that play an important role in many households in California, and their importance is increasing every day. HCD incorporated these two terms in the existing language in order to provide clarity to code users as to additional systems requiring operation and maintenance instructions.

HCD updated the reference to Clean Air Standards of the United States Environmental Protection Agency applicable to woodstoves and pellet stoves. HCD also adopted a new requirement for woodstoves and pellet stoves to have a permanent label indicating they are certified to meet the emission limits. This requirement provides clarity to the code user and is consistent with the United States Environmental Protection Agency's New Source Performance Standards. HCD updated the list of standards which can be used for verification of compliance for exterior grade composite wood products. This list now includes four standards from the Canadian Standards Association (CSA): CSA O121, CSA O151, CSA O153 and CSA O325. HCD updated heating and air-conditioning system design references to the ANSI/ACCA 2 Manual J, ANSI/ACCA 1 Manual D, and ANSI/ACCA 3 Manual S to the most recent versions approved by ANSI. HCD adopted a new elective measure for hot water recirculation systems for water conservation. The United States Department of Energy estimates that 3,600 to 12,000 gallons of water per year can be saved by the typical household (with four points of hot water use) if a hot water recirculation system is installed.

Executive Order B-30-15

Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15

Executive Order B-29-15, mandates a statewide 25 percent reduction in potable water usage. EO B-29-15 signed into law on April 1, 2015.

Executive Order B-37-16

Executive Order B-37-16, continuing the State's adopted water reductions, was signed into law on May 9, 2016. The water reductions build off the mandatory 25 percent reduction called for in EO B-29-15.

SBX1 2

Signed into law in April 2011, SBX1 2, requires one-third of the state's electricity to come from renewable sources. The legislation increases California's current 20 percent renewables portfolio standard target in 2010 to a 33 percent renewables portfolio standard by December 31, 2020.

Senate Bill 350

Signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

AB 617 Nonvehicular air pollution: criteria air pollutants and toxic air contaminants

This bill requires the state board to develop a uniform statewide system of annual reporting of emissions of criteria air pollutants and toxic air contaminants for use by certain categories of stationary sources. The bill requires those stationary sources to report their annual emissions of criteria air pollutants and toxic air contaminants, as specified. This bill required the state board, by October 1, 2018, to prepare a monitoring plan regarding technologies for monitoring criteria air pollutants and toxic air contaminants and the need for and benefits of additional community air monitoring systems, as defined. The bill requires the state board to select, based on the monitoring plan, the highest priority locations in the state for the deployment of community air monitoring systems. The bill requires an air district containing a selected location, by July 1, 2019, to deploy a system in the selected location. The bill would authorize the air district to require a stationary source that emits air pollutants in, or that materially affect, the selected location to deploy a fence-line monitoring system, as defined, or other specified real-time, on-site monitoring. The bill authorizes the state board, by January 1, 2020, and annually thereafter, to select additional locations for the deployment of the systems. The bill would require air districts that have deployed a system to provide to the state board air quality data produced by the system. By increasing the duties of air districts, this bill would impose a state-mandated local program. The bill requires the state board to publish the data on its Internet Web site.

REGIONAL

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. The SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. On June 30, 2016, the SCAQMD released its Draft 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (NOx) emissions sufficiently to meet the upcoming ozone standard deadlines. On March 23, 2017 CARB approved the 2016 AQMP. The primary goal of this Air Quality Management Plan is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the Plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. The Plan was approved by the EPA on June 15, 2017.

A revised draft of the 2012 AQMP was released on September, 2012, was adopted by the SCAQMD Board on December 7, 2012, and was adopted by CARB via Resolution 13-3 on January 25, 2013. The 2012 AQMP was prepared in order to meet the federal Clean Air Act requirement that all 24-hour PM2.5 non-attainment areas prepare a SIP, that were required to be submitted to the U.S. EPA by December 14, 2012 and demonstrate attainment with the 24-hour PM2.5 standard by 2014. The 2012 AQMP demonstrates attainment of the federal 24-hour PM2.5 standard by 2014 in the Basin through adoption of all feasible measures, and therefore, no extension of the attainment date is needed. The 2012 AQMP built upon the approaches taken in the 2007 AQMP for the attainment of federal PM and ozone standards, and highlights the significant amount of reductions needed and the need to engage in interagency coordinated planning of mobile sources to meet all of the federal criteria pollutant standards. Compared with the 2007 AQMP, the 2012 AQMP utilizes revised emissions inventory projections that use 2008 as the base year. On-road emissions are calculated using CARB EMFAC2011 emission factors and the transportation activity data provided by SCAG from their 2012 Regional Transportation Plan (2012 RTP). Off-road emissions were updated using CARB's 2011 In-Use Off-Road Fleet Inventory Model. Since the 2007 AQMP was finalized new area source categories such as liquid propane gas (LPG) transmission losses, storage tank and pipeline cleaning and degassing, and architectural colorants, were created and included in the emissions inventories. The 2012 AQMP also includes analysis of several additional sources of GHG emissions such as landfills and could also assist in reaching the GHG target goals in the AB32 Scoping Plan.

During construction and operation, the project must comply with applicable rules and regulations. The following are rules the project may be required to comply with, either directly, or indirectly:

SCAQMD Rule 402

Prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to

the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403

Governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off-site. Applicable dust suppression techniques from Rule 403 are summarized below. Implementation of these dust suppression techniques can reduce the fugitive dust generation (and thus the PM_{10} component). Compliance with these rules would reduce impacts on nearby sensitive receptors. Rule 403 measures may include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas inactive for 10 days or more).
- Water active sites at least three times daily. (Locations where grading is to occur will be thoroughly watered prior to earthmoving.)
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 0.6 meters (2 feet) of freeboard (vertical space between the top of the load and top of the trailer) in accordance with the requirements of California Vehicle Code section 23114.
- Reduce traffic speeds on all unpaved roads to 15 miles per hour (mph) or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets. All sweepers shall be compliant with SCAQMD Rule 1186.1, Less Polluting Sweepers.

SCAQMD Rule 445

Prohibits permanently installed wood burning devices into any new development. A wood burning device means any fireplace, wood burning heater, or pellet-fueled wood heater, or any similarly enclosed, permanently installed, indoor or outdoor device burning any solid fuel for aesthetic or space-heating purposes, which has a heat input of less than one million British thermal units per hour.

SCAQMD Rule 481

Applies to all spray painting and spray coating operations and equipment. The rule states that a person shall not use or operate any spray painting or spray coating equipment unless one of the following conditions is met:

(1) The spray coating equipment is operated inside a control enclosure, which is approved by the Executive Officer. Any control enclosure for which an application for permit for new construction, alteration, or change of ownership or location is submitted after the date of adoption of this rule shall be exhausted only through filters at a design face velocity not less than 100 feet per minute nor greater than 300 feet

per minute, or through a water wash system designed to be equally effective for the purpose of air pollution control.

(2) Coatings are applied with high-volume low-pressure, electrostatic and/or airless spray equipment.

(3) An alternative method of coating application or control is used which has effectiveness equal to or greater than the equipment specified in the rule.

SCAQMD Rule 1108

Governs the sale, use, and manufacturing of asphalt and limits the volatile organic compound (VOC) content in asphalt used in the South Coast Air Basin. This rule would regulate the VOC content of asphalt used during construction. Therefore, all asphalt used during construction of the project must comply with SCAQMD Rule 1108.

SCAQMD Rule 1113

Governs the sale, use, and manufacturing of architectural coating and limits the VOC content in paints and paint solvents. This rule regulates the VOC content of paints available during construction. Therefore, all paints and solvents used during construction and operation of the project must comply with SCAQMD Rule 1113.

SCAQMD Rule 1143

Governs the manufacture, sale, and use of paint thinners and solvents used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations by limiting their VOC content. This rule regulates the VOC content of solvents used during construction. Solvents used during the construction phase must comply with this rule.

SCAQMD Rule 1186

Limits the presence of fugitive dust on paved and unpaved roads and sets certification protocols and requirements for street sweepers that are under contract to provide sweeping services to any federal, state, county, agency or special district such as water, air, sanitation, transit, or school district.

SCAQMD Rule 1303

Governs the permitting of re-located or new major emission sources, requiring Best Available Control Measures and setting significance limits for PM_{10} among other pollutants.

SCAQMD Rule 1401

New Source Review of Toxic Air Contaminants, specifies limits for maximum individual cancer risk, cancer burden, and non-cancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units, which emit toxic air contaminants.

SCAQMD Rule 1403

Asbestos Emissions from Demolition/Renovation Activities, specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACM).

SCAQMD Rule 2202

On-Road Motor Vehicle Mitigation Options, is to provide employers with a menu of options to reduce mobile source emissions generated from employee commutes, to comply with federal and state Clean Air Act

requirements, Health & Safety Code Section 40458, and Section 182(d)(1)(B) of the federal Clean Air Act. It applies to any employer who employs 250 or more employees on a full or part-time basis at a worksite for a consecutive six-month period calculated as a monthly average.

In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group and adopted Rules 2700, 2701, 2702, and 3002 which are described below.

Rules 2700 and 2701

The SCAQMD adopted Rules 2700 and 2701 on December 5, 2008, which establishes the administrative structure for a voluntary program designed to quantify GHG emission reductions. Rule 2700 establishes definitions for the various terms used in Regulation XXVII – Global Climate Change. Rule 2701 provides specific protocols for private parties to follow to generate certified GHG emission reductions for projects within the district. Approved protocols include forest projects, urban tree planting, and manure management. The SCAQMD is currently developing additional protocols for other reduction measures. For a GHG emission reduction project to qualify, it must be verified and certified by the SCAQMD Executive Officer, who has 60 days to approve or deny the Plan to reduce GHG emissions. Upon approval of the Plan, the Executive Officer issues required to issue a certified receipt of the GHG emission reductions within 90 days.

Rule 2702

The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

Rule 3002

The SCAQMD amended Rule 3002 on November 5, 2010 to include facilities that emit greater than 100,000 tons per year of CO_2e are required to apply for a Title V permit by July 1, 2011. A Title V permit is for facilities that are considered major sources of emissions.

Although the SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the South Coast Air Basin. Instead, this is controlled through local jurisdictions in accordance with the California Environmental Quality Act (CEQA). In order to assist local jurisdictions with air quality compliance issues the CEQA Air Quality Handbook (SCAQMD CEQA Handbook) prepared by the SCAQMD (1993) with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs of the AQMP. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that the SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. SCAQMD is in the process of developing an "Air Quality Analysis Guidance Handbook" to replace the CEQA Air Quality Handbook approved by the AQMD Governing Board in 1993. The 1993 CEQA Air Quality Handbook is still available but not online. In addition, there are sections of the 1993 Handbook that are obsolete. In order to assist the CEQA practitioner in conducting an air quality analysis while the new Handbook is being prepared,

supplemental information regarding: significance thresholds and analysis, emissions factors, cumulative impacts emissions analysis, and other useful subjects, are available at the SCAQMD website[3].

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual thresholds of 10,000 MTCO2e for industrial uses.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the Federally designated MPO for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Regional Transportation Plan and Regional Transportation Improvement Plan (RTIP), which addresses regional development and growth forecasts. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Regional Transportation Plan, Regional Transportation Improvement Plan, and AQMP are based on projections originating within the City and County General Plans.

On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy (2016 RTP/SCS or Plan). The Plan is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The Plan charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It outlines more than $556.5 billion in transportation system investments through 2040. The Plan was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino and Ventura. In June 2016, SCAG received its conformity determination from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) indicating that all air quality conformity requirements for the 2016 RTP/SCS and associated 2015 FTIP Consistency Amendment through Amendment 15-12 have been met.

Local – City of Costa Mesa

Local jurisdictions, such as the City of Costa Mesa, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

The City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Air Quality Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

The City of Costa Mesa 2015-2035 General Plan Conservation Element contains the following air quality-related goals, objectives, and policies that are applicable to the proposed project:

[3] http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook.

Goal CON-4 Improved Air Quality: Take steps to improve and maintain air quality for the benefit of the health and vitality of residents and the local economy. In alignment with State emissions reduction goals and in cooperation with the South Coast Air Quality Management District, pursue regional collaboration to reduce emissions from all sources.

Objective CON-4.A Pursue the prevention of the significant deterioration of local and regional air quality.

Air Quality

Policy Con-4.A.1 Support regional policies and efforts that improve air quality to protect human and environmental health, and minimize disproportionate impacts on sensitive population groups.

Policy CON-4.A.2 Encourage businesses, industries and residents to reduce the impact of direct, indirect, and cumulative impacts of stationary and non-stationary pollution sources.

Policy CON-4.A.3 Require that sensitive uses such as schools, childcare centers, parks and playgrounds, housing, and community gathering places are protected from adverse impacts of emissions.

Policy CON-4.A.4 Continue to participate in regional planning efforts with the Southern California Association of Governments, nearby jurisdictions, and the South Coast Air Quality Management District to meet or exceed air quality standards.

Climate Change

Policy CON-4.A.5 Encourage compact development, infill development, and a mix of uses that are in proximity to transit, pedestrian, and bicycling infrastructures.

Policy CON-4.A.46 Enhance bicycling and walking infrastructure, and support public bus service, pursuant to the Circulation Element's goals, objectives, and policies.

Policy CON-4.A.7 Encourage installation of renewable energy devices for businesses and facilities and strive to reduce communitywide energy consumption.

Policy CON-4.A.8 Develop long-term, community-wide strategies and programs that work at the local level to reduce greenhouse gases and Costa Mesa's "carbon footprint".

MONITORED AIR QUALITY

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin. Estimates of the existing emissions in the Basin provided in the Final 2016 Air Quality Management Plan prepared by SCAQMD (March 2017) indicate that collectively, mobile sources account for 60 percent of the VOC, 90 percent of the NOx emissions, 95 percent of the CO emissions and 34 percent of directly emitted PM2.5, with another 13 percent of PM2.5 from road dust.

The EPA and the ARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified". National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard

is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the Federal annual PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard. Attainment status is shown in Table 4.

The SCAQMD has divided the South Coast Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in the North Coastal Orange County Monitoring Area (Area 18), which is located in Orange County and covers from Long Beach on the north, the Pacific Ocean on the west, Fountain Valley on the east, and the San Joaquin Hills to the south. The nearest air monitoring station to the project site is the Costa Mesa-Mesa Verde Drive Monitoring Station (Costa Mesa Station). The Costa Mesa Station is located approximately 2.79 miles southwest of the project site at 2850 Mesa Verde Drive, Costa Mesa. As not all monitoring stations monitor all pollutants, the next nearest monitoring station, Anaheim-Pampas Lane Monitoring Station (Anaheim Station), was also used. The Anaheim Station is located approximately 11.04 miles northwest of the project site at 1630 Pampas Lane, Anaheim. Table 5 presents the monitored pollutant levels from the Costa Mesa and Anaheim Stations. However, it should be noted that due to the air monitoring station distance from the project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the project site.

Table 5 summarizes 2015 through 2017 published monitoring data, which is the most recent 3-year period available. The data shows that during the past few years, the project area has exceeded the ozone and Particulate Matter (PM10 and PM2.5) standards.

Ozone

During the 2015 to 2017 monitoring period, the State 1-hour concentration standard for ozone was exceeded for only one day in 2015 at the Costa Mesa Station. The State 8-hour ozone standard was exceeded for two days in 2015 and five days in 2017 over the past three years at the Costa Mesa Station. The Federal 8-hour ozone standard was exceeded for two days in 2015 and five days in 2017 over the past three years at the Costa Mesa Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The Costa Mesa Station did not record an exceedance of the state or federal 8-hour CO standard for the last three years.

Nitrogen Dioxide

The Costa Mesa Station did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standards for PM10 have been estimated to have been exceeded between two and five days each year over the past three years at the Anaheim Station. Over the past three years, the Anaheim Station did not record an exceedance of the Federal 24-hour standards for PM10.

The Federal 24 hour standard for PM2.5 has been estimated to have been exceeded between one and seven days each year over the past three years. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

Table 3
State and Federal Criteria Pollutant Standards [1]

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone (O_3)	0.09 ppm/1-hour 0.07 ppm/8-hour	0.070 ppm/8-hour	(a) Decline in pulmonary function and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm/1-hour 9.0 ppm/8-hour	35.0 ppm/1-hour 9.0 ppm/8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm/1-hour 0.03 ppm/annual	100 ppb/1-hour 0.053 ppm/annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm/1-hour 0.04 ppm/24-hour	75 ppb/1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 $\mu g/m^3$/24-hour 20 $\mu g/m^3$/annual	150 $\mu g/m^3$/24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; (c) Increased risk of premature death from heart or lung diseases in elderly.
Suspended Particulate Matter ($PM_{2.5}$)	12 $\mu g/m^3$ / annual	35 $\mu g/m^3$/24-hour 12 $\mu g/m^3$/annual	
Sulfates	25 $\mu g/m^3$/24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) property damage.
Lead	1.5 $\mu g/m^3$/30-day	0.15 $\mu g/m^3$/3-month rolling	(a) Learning disabilities; (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer-visibility of 10 miles or more due to particles when humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Notes:
(1) Source: http://www3.epa.gov/climatechange/ghgemissions/gases.html

Table 4
South Coast Air Basin Attainment Status

Pollutant	State Status[1]	National Status[2]
Ozone	Nonattainment	Nonattainment (Extreme)
Carbon monoxide	Attainment	Attainment/Unclassified
Nitrogen dioxide	Attainment	Attainment/Unclassified
Sulfur dioxide	Attainment	Attainment/Unclassified
PM10	Nonattainment	Attainment (Maintenance)
PM2.5	Nonattainment	Nonattainment (Moderate)

Notes:

(1) Source of Federal and State status: California Air Resources Board October 2018.

Table 5
Air Quality Monitoring Summary[1]

Pollutant (Standard)[2]		Year		
		2015	2016	2017
Ozone:	Maximum 1-Hour Concentration (ppm)	0.099	0.090	0.088
	Days > CAAQS (0.09 ppm)	1	0	0
	Maximum 8-Hour Concentration (ppm)	0.080	0.069	0.080
	Days > NAAQS (0.070 ppm)	2	0	4
	Days > CAAQS (0.070 ppm)	2	0	5
Carbon Monoxide:	Maximum 8-Hour Concentration (ppm)	*	*	*
	Days > CAAQS (9 ppm)	0	0	0
	Days > NAAQS (9 ppm)	0	0	0
Nitrogen Dioxide:	Maximum 1-Hour Concentration (ppm)	0.052	0.060	0.045
	Days > CAAQS (0.18 ppm)	0	0	0
Inhalable Particulates (PM10):[3]	Maximum 24-Hour Concentration (µg/m^3)	59.0	74.0	95.7
	Days > NAAQS (150 µg/m3)	0	0	0
	Days > CAAQS (50 µg/m3)	2	3	5
	Annual Average (µg/m3)	25.5	27.5	26.9
Ultra-Fine Particulates (PM2.5):[3]	Maximum 24-Hour Concentration (µg/m3)	53.8	45.5	56.2
	Days > NAAQS (35 µg/m3)	3	1	7
	Annual Average (µg/m3)	14.7	9.4	*

Notes:

(1) Source: http://www.arb.ca.gov/adam/topfour/topfour1.php

Data from the Costa Mesa-Mesa Verde Drive Monitoring Station unless otherwise noted.

(2) CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

* Means there was insufficient data available to determine value.

(3) Data was taken from the Anaheim-Pampas Lane Monitoring Station.

5. AIR QUALITY STANDARDS

REGIONAL AIR QUALITY

Many air quality impacts that derive from dispersed mobile sources, which are the dominate pollution generators in the basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, the SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the South Coast Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table 6.

LOCAL AIR QUALITY

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The significance thresholds for the local emissions of NO_2 and CO are determined by subtracting the highest background concentration from the last three years of these pollutants from Table 5 above, from the most restrictive ambient air quality standards for these pollutants that are outlined in the Localized Significant Thresholds. Table 6 shows the ambient air quality standards for NO_2, CO, and PM10 and PM2.5.

TOXIC AIR CONTAMINANTS

Construction
The construction equipment would emit DPM, which is a carcinogen. However, the DPM emissions are short-term in nature. Determination of risk from DPM is considered over a 30-year exposure period because carcinogenic risk is directly related to sustain exposure. In contrast, construction activities for the project are only expected to last approximately ten months. Thus, the duration of construction activities would represent only a small fraction of the 30-year exposure period used as the basis for assessing the significance of carcinogenic risk exposure and, therefore, would not represent a source of sustained DPM emissions. Therefore, considering the short time frame, exposure to DPM is anticipated to be less than significant.

Operation
The project proposes to develop the site with an approximately 14,816 square foot 100-bed permanent bridge shelter for those experiencing homelessness. Therefore, the project is not anticipated be a source of toxic air contaminants and sensitive receptors would not be exposed to toxic sources of air pollution.

ODOR IMPACTS

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

GREENHOUSE GASES

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

- The extent to which the project may increase (or reduce) GHG emissions as compared to the existing environmental setting;
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
- The extent to which the project complies with regulations or requirements adopted to implement an adopted statewide, regional, or local plan for the reduction or mitigation of GHG emissions[4].

Regional – South Coast Air Quality Management District

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

SCAQMD Regulation XXVII, Climate Change

SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

A variety of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO2e per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The SCAQMD is in the process of developing thresholds, as discussed below.

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

SCAQMD Threshold Development

On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project.

The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"); however, the SCAQMD Board has not approved the thresholds as of the date of the Notice of Preparation. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year
  - Based on land use type: residential: 3,500 MTCO2e per year; commercial: 1,400 MTCO2e per year; or mixed use: 3,000 MTCO2e per year.
  - Based on land type: Industrial (where SCAQMD is the lead agency), 10,000 MTCO2e per year.
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined.
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.
  - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans;
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans.
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD's draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order's objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate. Specifically, the Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis, including a negative declaration, a mitigated negative declaration, or an environmental impact report, which includes analyzing feasible alternatives and imposing feasible mitigation measures. A GHG significance threshold based on a 90 percent emission capture rate may be more appropriate to address the long-term adverse impacts associated with global climate change because most projects will be required to implement GHG reduction measures. Further, a 90 percent emission capture rate sets the emission threshold low enough to capture a substantial fraction of future stationary source projects that will be constructed to accommodate future statewide population and economic growth, while setting the emission threshold high enough to exclude small projects that will in aggregate contribute a relatively small fraction of the cumulative statewide GHG emissions. This assertion is based on the fact that staff estimates that these GHG emissions would account for slightly less than one percent of future 2050 statewide GHG emissions target (85 MMTCO2eq/year). In addition, these small projects may be subject to future applicable GHG control regulations that would further reduce their overall future contribution to the statewide GHG inventory. Finally, these small sources are already subject to BACT for criteria pollutants and

are more likely to be single-permit facilities, so they are more likely to have few opportunities readily available to reduce GHG emissions from other parts of their facility.

Local – City of Costa Mesa

The City of Costa Mesa does not currently have a Climate Action Plan. However, some of the goals, objectives, and policies contained in the City of Costa Mesa 2015-2035 General Plan Conservation Element would also result in the reduction of greenhouse gas emissions. The goals and polices in the Conservation Element that would also apply to greenhouse gases are provided below:

Goal Con-2 Conserved Natural Resources through Environmental Sustainability: Reduce the City's carbon footprints and manage resources wisely to meet the needs of a growing population and economy. Base community planning decisions on sustainable practices that reduce environmental pollutants, conserve resources, and minimize waste. Encourage the design of energy-efficient buildings, use renewable energy, and promote alternative methods of transportation.

Objective Con-2.A Work to conserve energy resources in existing and new buildings, utilities, and infrastructure.

Energy Efficiency and Conservation

Policy CON-2.A.1 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 CON-2.A.2 Consult with regional agencies and utility companies to pursue energy efficiency goals. Expand renewable energy strategies to reach zero net energy for both residential and commercial new construction.

Policy CON-2.A.3 Continue to develop partnerships with participating jurisdictions to promote energy efficiency, energy conservation, and renewable energy resource development by leveraging the abilities of local governments to strengthen and reinforce the capacity of energy efficiency efforts.

Policy CON-2.A.4 Encourage new development to take advantage of Costa Mesa's optimal climate in the warming and cooling of buildings, including use of heating, ventilation and air conditioning (HVAC) systems.

Green Sustainable Development Practices

Policy CON-2.A.5 Promote environmentally sustainable development principles for buildings, master planned communities, neighborhoods, and infrastructure.

Policy CON-2.A.6 Encourage construction and building development practices that reduce resource expenditures throughout the lifecycle of a structure.

Policy CON-2.A.7 Continue to require all City facilities and services to incorporate energy and resource conservation standards and practices and require that new municipal facilities be built within the LEED Gold standards or equivalent.

Policy CON-2.A.8 Continue City green initiatives in purchases of equipment, and agreements that favor sustainable products and practices.

Solid Waste Reduction and Recycling

Policy CON-2.A.9 Encourage waste management programs that promote waste reduction and recycling to minimize materials sent to landfills. Maintain robust programs encourage residents and businesses to reduce, reuse, recycle, and compost.

Policy CON-2.A.10 Support waste management practices that provide recycling programs. Promote organic recycling, landfill diversion, zero waste goals, proper hazardous waste collections, composting, and the continuance of recycling centers.

Policy CON-2.A.11 Continue construction and demolition programs that require recycling and minimize waste in haul trips.

Goal Con-3 Improved Water Supply and Quality: Pursue a multijurisdictional approach to protecting, maintaining, and improving water quality and the overall health of the watershed. A comprehensive, integrated approach will ensure compliance with federal and State standards, and will address a range of interconnected priorities, including water quality and runoff; storm water capture, storage, and flood management techniques that focus on natural drainage; natural filtration and groundwater recharge through green infrastructure and habitat restoration; and water recycling and conservation.

Objective Con-3.A Work towards the protection and conservation of existing and future water resources by recognizing water as a limited resource that requires conservation.

Water Conservation

Policy CON-3.A.2 Encourage residents, public facilities, businesses, and industry to minimize water consumption, especially during drought years.

Policy CON-3.A.3 Restrict use of turf in new construction and landscape reinstallation that requires high irrigation demands, except for area parks and schools, and encourage the use of drought-tolerant landscaping.

Goal Con-4 Improved Air Quality: Take steps to improve and maintain air quality for the benefit of the health and vitality of residents and the local economy. In alignment with State emissions reduction goals and in cooperation with the South Coast Air Quality Management District, pursue regional collaboration to reduce emissions from all sources.

Objective Con-4.A Pursue the prevention of the significant deterioration of local and regional air quality.

Climate Change

Policy CON-4.A.5 Encourage compact development, infill development, and a mix of uses that are in proximity to transit, pedestrian, and bicycling infrastructures.

Policy CON-4.A.46 Enhance bicycling and walking infrastructure, and support public bus service, pursuant to the Circulation Element's goals, objectives, and policies.

Policy CON-4.A.7 Encourage installation of renewable energy devices for businesses and facilities and strive to reduce communitywide energy consumption.

Policy CON-4.A.8 Develop long-term, community-wide strategies and programs that work at the local level to reduce greenhouse gases and Costa Mesa's "carbon footprint".

Thresholds of Significance for this Project

Neither the City of Costa Mesa, the SCAQMD, nor the State CEQA Guidelines Amendments has adopted quantitative thresholds of significance for addressing a project's GHG emissions. To determine whether the project's GHG emissions are significant, this analysis uses the SCAQMD draft screening threshold of 3,000 MTCO2e per year for all land uses.

The project will be subject to the requirements of the California Green Building Code and 2016 Title 24 Building Energy Efficiency Standards which would also reduce project-related greenhouse gas emissions.

Table 6
SCAQMD Air Quality Significance Thresholds[1,2]

Mass Daily Thresholds		
Pollutant	Construction (lbs/day)	Operation (lbs/day)
NOx	100	55
VOC	75	55
PM10	150	150
PM2.5	55	55
SOx	150	150
CO	550	550
Lead	3	3

Toxic Air Contaminants, Odor and GHG Thresholds	
TACs	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index > 1.0 (project increment)
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402
GHG	10,000 MT/yr CO2e for industrial projects

Ambient Air Quality Standards	
Pollutant	SCAQMD Standards
NO2 -1-hour average	0.18 ppm (338 µg/m^3)
PM10 -24-hour average Construction Operations	 10.4 µg/m^3 2.5 ug/m^3
PM2.5 -24-hour average Construction Operations	 10.4 µg/m^3 2.5 µg/m^3
SO2 1-hour average 24-hour average	 0.25 ppm 0.04 ppm
CO 1-hour average 8-hour average	 20 ppm (23,000 µg/m^3) 9 ppm (10,000 µg/m^3)
Lead 30-day average Rolling 3-month average Quarterly average	 1.5 µg/m^3 0.15 µg/m^3 1.5 µg/m^3

Notes:
(1) Source: http://www.aqmd.gov/ceqa/handbook/signthres.pdf

6. SHORT-TERM CONSTRUCTION IMPACTS

Construction activities associated with the proposed project would have the potential to generate air emissions, toxic air contaminant emissions, and odor impacts. Assumptions for the phasing, duration, and required equipment for the construction of the proposed project were obtained from the project applicant. The proposed project is the renovation of part of an existing industrial building into a shelter use with minor other site improvements; therefore, construction activities for the proposed project are anticipated to include: construction of an approximately 14,816 square foot 100-bed shelter and application of architectural coatings.

CalEEMod does not have a shelter land use available in its database; therefore, the proposed project was modeled as Congregate Care (Assisted Living) (ITE Code 253) as this is the closest land use to a shelter available.

The proposed project is anticipated to start construction no sooner than September 2019 and be completed by the end of June 2020.

CONSTRUCTION-RELATED REGIONAL IMPACTS

The construction-related regional air quality impacts have been analyzed for both criteria pollutants and GHGs.

Construction-Related Criteria Pollutants Analysis

The following provides a discussion of the methodology used to calculate regional construction air emissions and an analysis of the proposed project's short-term construction emissions for the criteria pollutants.

Methodology

Typical emission rates from construction activities were obtained from CalEEMod Version 2016.3.2. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2014 computer program to calculate the emission rates specific for the northeastern portion of Orange County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2014 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions during each phase was calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions. The construction emissions printouts from CalEEMod are provided in Appendix B.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less.

The phases of the construction activities which have been analyzed below for each phase are: (1) building construction and (2) application of architectural coatings. Details pertaining to the project's construction timing and the type of equipment modeled for each construction phase are available in the CalEEMod output in Appendix B.

Project Impacts

The construction-related criteria pollutant emissions for each phase are shown below in Table 7. Table 7 shows that none of the project's emissions will exceed regional thresholds. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

CONSTRUCTION-RELATED LOCAL IMPACTS

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local air quality impacts created from: construction-related fugitive dust and diesel emissions; from toxic air contaminants; and from construction-related odor impacts.

Local Air Quality Impacts from Construction

The SCAQMD has published a "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

(1) The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
(2) The maximum number of acres disturbed on the peak day.
(3) Any emission control devices added onto off-road equipment.
(4) Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The CalEEMod output in Appendix B show the equipment used for this analysis.

The proposed project involves the renovation of the interior of an existing industrial building with only minor exterior upgrades; therefore, as there will be no grading or earthwork-related activities, local emissions are anticipated to be minimal. However, to be conservative, the maximum number of acres disturbed in a day has been anticipated to be approximately 0.34 acres (14,861 square foot) to match the estimated area of overall site improvements**.** The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology prepared by SCAQMD (revised July 2008). The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. The emission thresholds were calculated based on the North Coastal Orange County source receptor area (SRA) 18 and a disturbance value of one acre per day, as this is the lowest acreage provided in the look-up tables. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25 meter thresholds. The nearest sensitive receptors are the Mariners Christian School located 1,825 feet (556 meters) southwest of the project site and multi-family attached residential dwelling units located approximately 2,050 feet (625 meters) northwest of the project site; therefore, to be conservative, the SCAQMD Look-up Tables for 500 meters was used. Table 8 shows the on-site emissions from the CalEEMod model for the different construction phases and the LST emissions thresholds.

The data provided in Table 8 shows that none of the analyzed criteria pollutants would exceed the calculated local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Construction-Related Toxic Air Contaminant Impacts

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual

cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 30 year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed project. Diesel exhaust and VOCs would be emitted during construction of the project, which are objectionable to some; however, emissions would disperse rapidly from the project site and therefore should not reach an objectionable level at the nearest sensitive receptors.

Table 7
Construction-Related Regional Pollutant Emissions [1]

Activity		Pollutant Emissions (pounds/day)					
		ROG	NOx	CO	SO_2	PM10	PM2.5
Building Construction	On-Site[2]	0.96	9.82	7.54	0.01	0.61	0.56
	Off-Site[3]	0.06	0.26	0.45	0.00	0.14	0.04
	Subtotal	1.02	10.08	8.00	0.01	0.74	0.60
Architectural Coating	On-Site[2]	8.67	1.68	1.83	0.00	0.11	0.11
	Off-Site[3]	0.01	0.01	0.07	0.00	0.02	0.01
	Subtotal	8.68	1.69	1.90	0.00	0.13	0.12
Total for overlapping phases[4]		9.70	11.77	9.89	0.02	0.88	0.71
SCAQMD Thresholds		75	100	550	150	150	55
Exceeds Thresholds?		No	No	No	No	No	No

Notes:
(1) Source: CalEEMod Version 2016.3.2

(2) On-site emissions from equipment operated on-site that is not operated on public roads.

(3) Off-site emissions from equipment operated on public roads.

(4) Construction and painting phases may overlap.

Table 8
Local Construction Emissions at the Nearest Receptors [1]

Activity	On-Site Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Building Construction	9.82	7.54	0.61	0.56
Architectural Coating	1.68	1.83	0.11	0.11
SCAQMD Thresholds [2]	219	6,841	135	76
Exceeds Threshold?	No	No	No	No

Notes:

(1) Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for 1 acre at a distance of 500 m in SRA 18 North Coastal Orange County.

(2) The nearest sensitive receptors to the project include Mariners Christian School located 1,825 feet (~556 meters) southwest and the multi-family attached residential dwelling units located approximately 2,050 feet (~625 meters) northwest of the project site; therefore, the 500 meter threshold was used.

General Note: The proposed project will disturb up to a maximum of 0.34 acres a day per the total square footage of improvements.

7. LONG-TERM AIR QUALITY OPERATIONAL IMPACTS

The on-going operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips and through operational emissions from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to: regional air quality and local air quality impacts with the on-going operations of the proposed project.

OPERATIONS-RELATED REGIONAL AIR QUALITY IMPACTS

The potential operations-related air emissions have been analyzed below for the criteria pollutants and cumulative impacts.

Operations-Related Criteria Pollutants Analysis

The operations-related criteria air quality impacts created by the proposed project have been analyzed through the use of the CalEEMod model. The operating emissions were based on the year 2020, which is the anticipated opening year for the proposed project. The operations daily emissions printouts from the CalEEMod model are provided in Appendix B. The CalEEMod analyzes operational emissions from area sources, energy usage, and mobile sources, which are discussed below.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed by inputting the project-generated vehicular trips from the Revised 3175 Airway Trip Generation Memorandum (Trip Generation Memorandum) prepared by the City of Costa Mesa Department of Public Services/Transportation Services Division (May 3, 2019) for the proposed project into the CalEEMod Model. The Trip Generation Memorandum found that the proposed project will generate approximately 149 vehicle trips per day. Therefore, the trip generation rate for the proposed project would be 10.06 trips per thousand square foot per day. The program then applies the emission factors for each trip which is provided by the EMFAC2014 model to determine the vehicular traffic pollutant emissions.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment. No changes were made to the default area source parameters.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. No changes were made to the default energy usage parameters.

Project Impacts

The worst-case summer or winter criteria pollutant emissions created from the proposed project's long-term operations have been calculated and are shown below in Table 9. The results show that none of the SCAQMD regional thresholds would be exceeded. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered would cover an even larger area. Accordingly, the cumulative analysis for the project's air quality must be generic by nature.

The project area is out of attainment for ozone and in 2018 was out of attainment for PM10. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic volumes from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. With respect to long-term emissions, this project would create a less than significant cumulative impact.

OPERATIONS-RELATED LOCAL AIR QUALITY IMPACTS

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analysis analyzes the vehicular CO emissions, local impacts from on-site operations, and odor impacts.

Local CO Emission Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards which were presented above in Section 5.

To determine if the proposed project could cause emission levels in excess of the CO standards discussed above in Section 5, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

The analysis prepared for CO attainment in the South Coast Air Basin by the SCAQMD can be used to assist in evaluating the potential for CO exceedances in the South Coast Air Basin. CO attainment was thoroughly analyzed as part of the SCAQMD's 2003 Air Quality Management Plan (2003 AQMP) and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan). As discussed in the 1992 CO Plan, peak carbon monoxide concentrations in the South Coast Air Basin are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region's unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and air quality management plans. In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in Los Angeles at the peak morning and afternoon time periods. The intersections evaluated included: South Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not

predict a violation of CO standards. The busiest intersection evaluated was that at Wilshire Boulevard and Veteran Avenue, which has a daily traffic volume of approximately 100,000 vehicles per day. The Los Angeles County Metropolitan Transportation Authority evaluated the Level of Service in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be Level of Service E during the morning peak hour and Level of Service F during the afternoon peak hour.

The Trip Generation Memorandum showed that the project would generate 149 vehicle trips per day. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. Therefore, as the project only includes 149 vehicle trips per day and did not even require a Traffic Study, no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Air Quality Impacts from On-Site Operations

Project-related air emissions from on-site sources such as architectural coatings, landscaping equipment, on-site usage of natural gas appliances as well as the operation of vehicles on-site may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The nearest sensitive receptors that may be impacted by the proposed project are the Mariners Christian School located 1,825 feet (556 meters) southwest of the project site and multi-family attached residential dwelling units located approximately 2,050 feet (625 meters) northwest of the project site.

According to SCAQMD LST methodology, LSTs would apply to the operational phase of a project, if the project includes stationary sources, or attracts mobile sources (such as heavy-duty trucks) that may spend long periods queuing and idling at the site; such as industrial warehouse/transfer facilities. The proposed project is the development of the site with a 14,816 square foot 100-bed permanent bridge shelter for those experiencing homelessness and does not include such uses. Therefore, due the lack of stationary source emissions, no long-term localized significance threshold analysis is warranted.

Operations-Related Odor Impacts

Potential sources that may emit odors during the on-going operations of the proposed project would include odor emissions from diesel truck emissions and trash storage areas. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed project.

Table 9
Regional Operational Pollutant Emissions[1]

Activity	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO2	PM10	PM2.5
Area Sources[2]	0.38	0.24	1.32	0.00	0.02	0.02
Energy Usage[3]	0.01	0.04	0.02	0.00	0.00	0.00
Mobile Sources[4]	0.26	1.08	3.48	0.01	1.09	0.30
Total Emissions	0.64	1.36	4.82	0.01	1.12	0.33
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Notes:
(1) Source: CalEEMod Version 2016.3.2; the higher of either summer or winter emissions.
(2) Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
(3) Energy usage consists of emissions from generation of electricity and on-site natural gas usage.
(4) Mobile sources consist of emissions from vehicles and road dust.

8. GLOBAL CLIMATE CHANGE ANALYSIS

The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste, water, and construction equipment. The following provides the methodology used to calculate the project-related GHG emissions, the project impacts and a consistency analysis of the proposed project with any applicable GHG reduction plans, policies or regulations.

METHODOLOGY

The CalEEMod Version 2016.3.2 was used to calculate the GHG emissions from the proposed project. The project's emissions were compared to the tier 3 SCAQMD draft screening threshold of 3,000 metric tons CO2e per year for all land uses.

The CalEEMod Annual Output for year 2020 is available in Appendix C. Each source of GHG emissions is described in greater detail below.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. No changes were made to the default area source emissions.

Energy Usage

Energy usage includes emissions from the generation of electricity and natural gas used on-site. No changes were made to the default energy usage parameters.

Mobile Sources

Mobile sources include emissions from the additional vehicle miles generated from the proposed project. The vehicle trips associated with the proposed project have been analyzed based on the project trip generation calculated in the Trip Generation Memorandum. See Section 7 for details.

Waste

Waste includes the GHG emissions generated from the processing of waste from the proposed project as well as the GHG emissions from the waste once it is interred into a landfill. AB 341 requires that 75 percent of waste be diverted from landfills by 2020, reductions for this are shown in the mitigated CalEEMod output values. No other changes were made to the default waste parameters.

Water

Water includes the water used for the interior of the building as well as for landscaping and is based on the GHG emissions associated with the energy used to transport and filter the water. No changes were made to the default water usage parameters.

Construction

The construction-related GHG emissions were also included in the analysis and were based on a 30 year amortization rate as recommended in the SCAQMD GHG Working Group meeting on November 19, 2009. The construction-related GHG emissions were calculated by CalEEMod using the methodology detailed above in Section 6.

PROJECT GREENHOUSE GAS EMISSIONS

The GHG emissions have been calculated based on the parameters described above. A summary of the results are shown below in Table 10 and the CalEEMod Model run for the proposed project is provided in Appendix C. Table 10 shows that the proposed project's unmitigated emissions would be 253.73 MTCO2e per year. According to the thresholds of significance established above in Section 5, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations of the proposed project would exceed the SCAQMD threshold of 3,000 metric tons CO2e per year for all land uses. Therefore, the proposed project's GHG emissions are considered to be less than significant.

Compliance with 2016 Green Building Standards will further reduce project-related greenhouse emissions.

GREENHOUSE GAS PLAN CONSISTENCY

The proposed project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. As stated previously, the City of Costa Mesa does not currently have a Climate Action Plan; therefore, the project has been compared to the goals of the CARB Scoping Plan.

Scoping Plan

Emission reductions in California alone would not be able to stabilize the concentration of greenhouse gases in the earth's atmosphere. However, California's actions set an example and drive progress towards a reduction in greenhouse gases elsewhere. If other states and countries were to follow California's emission reduction targets, this could avoid medium or higher ranges of global temperature increases. Thus, severe consequences of climate change could also be avoided.

The CARB approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 greenhouse gas emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (California Air Resources Board 2008). The measures in the Scoping Plan have been in place since 2012.

This Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. On a per-capita basis, that means reducing annual emissions of 14 tons of carbon dioxide for every man, woman and child in California down to about 10 tons per person by 2020.

In May 2014, CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. While California continues on its path to meet the near-term 2020 greenhouse gas limit, it must also set a clear path toward long-term, deep GHG emission reductions. This report highlights California's success to date in reducing its GHG emissions and lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050.

In November 2017, CARB release the 2017 Scoping Plan. This Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit. In addition, Chapter 4 provides a broader description of the many actions and proposals being explored across the sectors, including the natural resources sector, to achieve the State's mid and long-term climate goals.

Guided by legislative direction, the actions identified in the 2017 Scoping Plan reduce overall GHG emissions in California and deliver policy signals that will continue to drive investment and certainty in a low carbon

economy. The 2017 Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets in a way that promotes and rewards innovation, continues to foster economic growth, and delivers improvements to the environment and public health, including in disadvantaged communities. The Plan includes policies to require direct GHG reductions at some of the State's largest stationary sources and mobile sources. These policies include the use of lower GHG fuels, efficiency regulations, and the Cap-and Trade Program, which constrains and reduces emissions at covered sources.

As the latest, 2017 Scoping Plan builds upon previous versions, project consistency with applicable strategies of both the 2008 and 2017 Plan are assessed in Table 11. As shown in Table 11, the project is consistent with the applicable strategies and would result in a less than significant impact.

Therefore, the project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. Furthermore, the project will also comply with applicable Green Building Standards and City of Costa Mesa's policies regarding sustainability (as dictated by the City's General Plan).

Table 10
Project-Related Greenhouse Gas Emissions [1]

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	Bio-CO2	NonBio-CO_2	CO_2	CH_4	N_2O	CO_2e
Area Sources[2]	0.00	3.45	3.45	0.00	0.00	3.48
Energy Usage[3]	0.00	27.80	27.80	0.00	0.00	27.92
Mobile Sources[4]	0.00	203.74	203.74	0.01	0.00	203.95
Waste[5]	2.74	0.00	2.74	0.16	0.00	6.80
Water[6]	0.31	6.16	6.47	0.03	0.00	7.50
Construction[7]	0.00	4.05	4.05	0.00	0.00	4.08
Total Emissions	3.05	245.20	248.25	0.21	0.00	253.73
SCAQMD Draft Threshold						3,000
Exceeds Threshold?						No

Notes:

(1) Source: CalEEMod Version 2016.3.2 for Opening Year 2020.

(2) Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.

(3) Energy usage consist of GHG emissions from electricity and natural gas usage.

(4) Mobile sources consist of GHG emissions from vehicles.

(5) Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.

(6) Water includes GHG emissions from electricity used for transport of water and processing of wastewater.

(7) Construction GHG emissions CO2e based on a 30 year amortization rate.

Table 11
Project Consistency with CARB Scoping Plan Policies and Measures[1]

2008 Scoping Plan Measures to Reduce Greenhouse Gas Emissions	Project Compliance with Measure
California Light-Duty Vehicle Greenhouse Gas Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Energy Efficiency – Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	Consistent. The proposed project will be compliant with the current Title 24 standards.
Low Carbon Fuel Standard – Develop and adopt the Low Carbon Fuel Standard.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Vehicle Efficiency Measures – Implement light-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Medium/Heavy-Duty Vehicles – Adopt medium and heavy-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Green Building Strategy – Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	Consistent. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code in the CCR. Part 11 establishes voluntary standards, that are mandatory in the 2016 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The proposed project will be subject to these mandatory standards.
High Global Warming Potential Gases – Adopt measures to reduce high global warming potential gases.	Consistent. CARB identified five measures that reduce HFC emissions from vehicular and commercial refrigeration systems; vehicles that access the proposed project that are required to comply with the measures will comply with the strategy.
Recycling and Waste – Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	Consistent. The state is currently developing a regulation to reduce methane emissions from municipal solid waste landfills. The proposed project will be required to comply with City programs, such as City's recycling and waste reduction program, which comply, with the 75 percent reduction required by 2020 per AB 341.
Water – Continue efficiency programs and use cleaner energy sources to move and treat water.	Consistent. The proposed project will comply with all applicable City ordinances and CAL Green requirements.

2017 Scoping Plan Recommended Actions to Reduce Greenhouse Gas Emissions	Project Compliance with Recommended Action
Implement Mobile Source Strategy: Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Car regulations.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025 and at least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOX standard.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Last Mile Delivery: New regulation that would result in the use of low NOX or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.	Consistent. These are CARB enforced standards; vehicles that access the proposed project that are required to comply with the standards will comply with the strategy.
Implement SB 350 by 2030: Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	Consistent. The proposed project will be compliant with the current Title 24 standards.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	Consistent. The proposed project will be required to comply with City programs, such as City's recycling and waste reduction program, which comply, with the 75 percent reduction required by 2020 per AB 341.

Notes:

(1) Source: CARB Scoping Plan (2008 and 2017)

9. ENERGY ANALYSIS

EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the project area and region.

Overview

California's estimated annual energy use as of 2017 included:

- Approximately 206,336 gigawatt hours of electricity;[5]
- Approximately 2,110,829 million cubic feet of natural gas per year[6]; and
- Approximately 23.2 billion gallons of transportation fuel (for the year 2015)[7].

As of 2016, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 39.8 percent transportation;
- Approximately 23.7 percent industrial;
- Approximately 17.7 percent residential; and
- Approximately 18.9 percent commercial.[8]

California's electricity in-state generation system generates approximately 206,336 gigawatt-hours each year. In 2017, California produced approximately 71 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 14 percent) and the U.S. Southwest (approximately 16 percent). Natural gas is the main source for electricity generation at approximately 43 percent of the total in-state electric generation system power as shown in Table 12.

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- Excluding federal offshore areas, California was the fourth-largest producer of crude oil among the 50 states in 2017, after Texas, North Dakota, and Alaska, and, as of January 2018, third in oil refining capacity after Texas and Louisiana.
- In 2016, California accounted for one-fifth of the nation's jet fuel consumption.
- California's total energy consumption is the second-highest in the nation, but, in 2016, the State's per capita energy consumption ranked 48th, due in part to its mild climate and its energy efficiency programs.
- In 2017, California ranked second in the nation in conventional hydroelectric generation and first as a producer of electricity from solar, geothermal, and biomass resources.
- In 2017, solar PV and solar thermal installations provided about 16 percent of California's net electricity generation[9].

[5] California Energy Commission. Energy Almanac. Total Electric Generation. [Online] June 21, 2018. http://www.energy.ca.gov/almanac/electricity_data/total_system_power.html.
[6] Natural Gas Consumption by End Use . U.S. Energy Information Administration. [Online] March 29, 2019. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.
[7] California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. https://www.energy.ca.gov/assessments/
[8] U.S. Energy Information Administration. California Energy Consumption by End-Use Sector. California State Profile and Energy Estimates.[Online] November 15, 2018 https://www.eia.gov/state/?sid=CA#tabs-2
[9] State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: November 15, 2018.] http://www.eia.gov/state/?sid=CA#tabs2.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project being permanent bridge shelter for those experiencing homelessness, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for shelter uses, and transportation fuel for vehicle trips associated with the proposed project.

Electricity

Electricity would be provided to the project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles.[10] SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.[11]

Table 13 identifies SCE's specific proportional shares of electricity sources in 2017. As shown in Table 13, the 2017 SCE Power Mix has renewable energy at 29 percent of the overall energy resources, of which biomass and waste is at 2 percent, geothermal is at 4 percent, small hydroelectric is at 3 percent, solar energy is at 10 percent, and wind power is at 10 percent; other energy sources include coal at 4 percent, large hydroelectric at 15 percent, natural gas at 34 percent, nuclear at 9 percent and unspecified sources at 9 percent.

Natural Gas

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32 percent of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers, accounted for approximately 68 percent of the natural gas delivered by California utilities in 2012.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35 percent of their natural gas supply from basins located in the Southwest, 16 percent from Canada, 40 percent from the Rocky Mountains, and 9 percent from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems."[12]

[10] https://www.sce.com/about-us/who-we-are/leadership/our-service-territory
[11] California Energy Commission. Utility Energy Supply plans from 2015. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html
[12] California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/

Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available (2016) shows the transportation sector emits 41 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[13,14] Petroleum comprises about 92 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[15]

REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

Federal Regulations

Corporate Average Fuel Economy (CAFE) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[16]

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance

[13] CARB. California Greenhouse Gas Emissions Inventory – 2018 Edition. https://www.arb.ca.gov/cc/inventory/data/data.htm
[14] CARB. 2016 SIP Emission Projection Data. https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA
[15] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation
[16] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.

of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The recently-approved 2017 Integrated Energy Policy Report Updated (2017 IEPR) was published in April 2018, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2016 IEPR focuses on a variety of topics such as implementation of Senate Bill 350, integrated resource planning, distributed energy resources, transportation electrification, solutions to increase resiliency in the electricity sector, energy efficiency, transportation electrification, barriers faced by disadvantaged communities, demand response, transmission and landscape-scale planning, the California Energy Demand Preliminary Forecast, the preliminary transportation energy demand forecast, renewable gas (in response to Senate Bill 1383), updates on Southern California electricity reliability, natural gas outlook, and climate adaptation and resiliency.[17]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

The California Building Standards Code Title 24 was previously discussed in Section 4 Air Quality Management of this report.

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2016 Title 24 standards, which became effective on January 1, 2017. The 2016 Title 24 standards include efficiency improvements to the residential standards for attics, walls, water heating, and lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

[17] California Energy Commission. Final 2017 Integrated Energy Policy Report. April 16, 2018. https://www.energy.ca.gov/2017_energypolicy/

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2016 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2017. The 2016 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality. Most mandatory measure changes, when compared to the previously applicable 2013 CALGreen Code, were related to the definitions and to the clarification or addition of referenced manuals, handbooks, and standards. For example, several definitions related to energy that were added or revised affect electric vehicle (EV) chargers and charging and hot water recirculation systems. For new multi-family dwelling units, the residential mandatory measures were revised to provide additional EV charging requirements, including quantity, location, size, single EV space, multiple EV spaces, and identification. For nonresidential mandatory measures, the CALGreen table (Table 5.106.5.3.3) identifying the number of required EV charging spaces has been revised in its entirety.

Senate Bill 350

As previously discussed in Section 4 Air Quality Management of this report, Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

As discussed in Section 4 Air Quality Management of this report, in 2006 the California State Legislature adopted Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and best management practices that are technologically feasible and cost effective. Please see Section 4 for further detail on AB 32.

Assembly Bill 1493/Pavley Regulations

As discussed Section 4 Air Quality Management of this report, California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

As discussed Section 4 Air Quality Management of this report, Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB

to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The low carbon fuel standard is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025.15 The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[18]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NOX) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-

[18] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

As previously stated in Section 4 Air Quality Management of this report, Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG) jurisdiction, which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 19 percent below 2005 per capita GHG emissions levels by 2035. These reduction targets became effective October 2018.

PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

Evaluation Criteria

In compliance with Appendix G of the State CEQA Guidelines, this report analyzes the project's anticipated energy use to determine if the project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

In addition, Appendix F of the State CEQA Guidelines states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

Methodology

Information from the CalEEMod 2016.3.2 Daily and Annual Outputs contained in Appendix B and C, utilized for air quality and greenhouse gas analyses in Sections 6, 7, and 8 of this report, were also utilized for this analysis. The CalEEMod outputs detail project related construction equipment, transportation energy demands, and facility energy demands.

Construction Energy Demands

The construction schedule is anticipated to occur between September 2019 and June 2020 and be completed in one phase. As the proposed project includes renovation of an existing industrial building for a homeless shelter, no import or export of soil will be required. Staging of construction vehicles and equipment will occur on-site. The approximately ten-month schedule is relatively short and the project site is relatively small at approximately 0.34 acres (14,816 square feet).

Construction Equipment Electricity Usage Estimates

As stated previously, Electrical service will be provided by Southern California Edison. The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed project. Based on the 2017 National Construction Estimator, Richard Pray (2017)[19], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The project plans to develop a 14,816 square foot 100 bed permanent bridge shelter over the course of approximately ten months. Based on Table 14, the total power cost of the on-site electricity usage during the construction of the proposed project is estimated to be approximately $343.73.

Construction Equipment Fuel Estimates

Fuel consumed by construction equipment would be the primary energy resource expended over the course of project construction. Fuel consumed by construction equipment was evaluated with the following assumptions:

- Construction schedule of 10 months.
- All construction equipment was assumed to run on diesel fuel.
- Typical daily use of 8 hours, with some equipment operating from 4-6 hours per day.
- Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: (https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf).
- Diesel fuel would be the responsibility of the equipment operators/contractors and would be sources within the region.
- Project construction represents a "single-event" for diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources during long term operation.

Using the CalEEMod data input for the air quality and greenhouse gas analyses (Sections 6, 7, and 8 of this report), the project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2013 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel fuel) would be approximately 18.5 hp-hr-gal. Table 15 shows the results of the analysis of construction equipment.

As presented in Table 15, project construction activities would consume an estimated 20,131 gallons of diesel fuel. As stated previously, project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 33,633 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

[19] Pray, Richard. 2017 National Construction Estimator. Carlsbad : Craftsman Book Company, 2017.

Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analyses (Sections 6, 7, and 8 of this report) using information generated using CARB's EMFAC model. As generated by EMFAC (see Appendix C), LDAs have an aggregate fuel efficiency of 28.57 miles per gallon (mpg), which was used to calculate vehicle miles traveled for construction worker trips. Table 16 shows that an estimated 1,177 gallons of fuel would be consumed for construction worker trips.

Construction Vendor/Hauling Fuel Estimates

Tables 17 and 18 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 2,843 VMT. Data regarding project related construction worker trips were based on CalEEMod 2016.3.2 model defaults.

For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles. Therefore, vendors delivering construction material or hauling debris from the site during site preparation would use medium to heavy duty vehicles with an average fuel consumption of 8.5 mpg. Tables 17 and 18 show that an estimated 334 gallons of fuel would be consumed for vendor and hauling trips.

Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately ten-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. There are no unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The project would utilize construction contractors which practice compliance with applicable CARB regulation regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants. Compliance with these measures would result in a more efficient use of construction-related energy and would minimize or eliminate wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, as required by California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby minimizing or eliminating unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Furthermore, this project is the renovation of an existing building occurring over only approximately ten months and would not require very many large pieces of construction equipment.

<u>Operational Energy Demands</u>

Energy consumption in support of or related to project operations would include transportation energy demands (energy consumed by employee and shuttle bus accessing the project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

Transportation Fuel Consumption

Using the CalEEMod output from the air quality and greenhouse gas analyses (Sections 6, 7, and 8 of this report), it is assumed that an average trip for autos and light trucks was assumed to be 14.7 miles and 3- 4-axle trucks were assumed to travel an average of 8.7 miles[20]. To present a worst-case scenario, it was assumed that vehicles would operate 365 days per year rather than the more likely 253 days (excluding weekends and up to 8 holidays). Table 19 shows the estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.

The proposed project would generate 149 trips per day; 138 auto and/or light trucks and 11 medium to heavy trucks. The vehicle fleet mix was used from the CalEEMod output. Table 19 shows that an estimated 41,713 gallons of fuel would be consumed per year for the operation of the proposed project.

Facility Energy Demands (Electricity and Natural Gas)

Building operation and site maintenance (including landscape maintenance) would result in the consumption of electricity (provided by Southern California Edison) and natural gas (provided by Southern California Gas Company). The annual natural gas and electricity demands were provided per the CalEEMod output from the air quality and greenhouse gas analyses (Sections 6, 7, and 8 of this report) and are provided in Table 20.

Energy use in buildings is divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as in plug-in appliances. In California, the California Building Standards Code Title 24 governs energy consumed by the built environment, mechanical systems, and some types of fixed lighting. Non-building energy use, or "plug-in" energy use can be further subdivided by specific end-use (refrigeration, cooking, appliances, etc.).

RENEWABLE ENERGY AND ENERGY EFFICIENCY PLAN CONSISTENCY

Regarding federal transportation regulations, the project site is located in an already developed area. Access to/from the project site is from existing roads. These roads are already in place so the project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by Southern California Edison and Southern California Gas Company. CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

Regarding Pavley (AB 1493) regulations, an individual project does not have the ability to comply or conflict with these regulations because they are intended for agencies and their adoption of procedures and protocols for reporting and certifying GHG emission reductions from mobile sources.

California's Renewables Portfolio Standard (RPS) requires that 33 percent of electricity retail sales be served by renewable energy sources by 2020. The proposed project would be served with gas provided by Southern California Gas (SoCalGas). SoCalGas offers renewable natural gas (RNG) captured from sources like dairies, wastewater treatment plants and landfills.[21] The proposed project would be served with electricity provided by Southern California Edison. Southern California Edison's 2017 power mix included 32 percent eligible

[20] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 14.7 miles; 8.7 miles for H-O (home-other) or C-O (commercial-other).
[21] Southern California Gas (SCG). 2019. Website: https://www.socalgas.com/

renewable (biomass and biowaste, geothermal, eligible hydroelectric, solar, and wind), 34 percent unspecified sources of power, 20 percent natural gas, 8 percent large hydroelectric, and 6 percent nuclear.[22] Southern California Edison also offers a Green Rate 50 percent option that sources 66 percent of its power mix from eligible renewable energy sources, and a Green Rate 100 percent option that sources 100 percent of its power mix from eligible renewable energy sources. Southern California Edison is on track to meet the California Renewables Portfolio Standard (RPS) of 33 percent by 2020 mandate.

Finally, as the City of Costa Mesa does not currently have a Climate Action Plan project compliance has been compared to the goals of the CARB Scoping Plan. The Scoping Plan contains measures to reduce the State's emissions, and one of its key elements is to expand and strengthen existing energy efficiency programs as well as building and appliance standards. As shown in Section 8 and Table 11 above, the proposed project is consistent with the applicable strategies of the CARB Scoping Plan.

CONCLUSIONS

As supported by the preceding analyses, project construction and operations would not result in the inefficient, wasteful or unnecessary consumption of energy. Further, the energy demands of the project can be accommodated within the context of available resources and energy delivery systems. The project would therefore not cause or result in the need for additional energy producing or transmission facilities. The project would not engage in wasteful or inefficient uses of energy and aims to achieve energy conservations goals within the State of California. Notwithstanding, the project proposes a shelter land use and will not have any long-term effects on an energy provider's future energy development or future energy conservation strategies.

[22] California Energy Commission (CEC). 2018. 2017 Power Content Label – Southern California Edison. July. https://www.sce.com/sites/default/files/inline-files/2017PCL_0.pdf

Table 12
Total Electricity System Power (California 2017)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	302	0.15%	409	11,364	12,075	4.13%
Large Hydro	36,920	17.89%	4,531	1,536	42,987	14.72%
Natural Gas	89,564	43.40%	46	8,705	98,315	33.67%
Nuclear	17,925	8.69%	0	8,594	26,519	9.08%
Oil	33	0.02%	0	0	33	0.01%
Other (Petroleum Coke/Waste Heat)	409	0.20%	0	0	409	0.14%
Renewables	61,183	29.65%	12,502	10,999	84,684	29.00%
Biomass	5,827	2.82%	1,015	32	6,874	2.35%
Geothermal	11,745	5.69%	23	937	12,705	4.35%
Small Hydro	6,413	3.11%	1,449	5	7,867	2.70%
Solar	24,331	11.79%	0	5,465	29,796	10.20%
Wind	12,867	6.24%	10,015	4,560	27,442	9.40%
Unspecified Sources of Power	N/A	N/A	22,385	4,632	27,017	9.25%
Total	206,336	100.00%	39,873	45,830	292,039	100.00%

Notes:

(1) Source: California Energy Commission. Total System electric Generation, June 21, 2018. https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

Table 13
SCE 2017 Power Content Mix

Energy Resources	2017 SCE Power Mix
Eligible Renewable	29%
Biomass & Waste	2%
Geothermal	4%
Small Hydroelectric	3%
Solar	10%
Wind	10%
Coal	4%
Large Hydroelectric	15%
Natural Gas	34%
Nuclear	9%
Other	<1%
Unspecified Sources of power*	9%
Total	100%

Notes:

(1) https://www.sce.com/sites/default/files/inline-files/2017PCL_0.pdf

* Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Table 14
Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)	Construction Duration (months)	Total Project Construction Power Cost
$2.32	14.816	10	$343.73

Table 15
Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/day	Total Fuel Consumption (gal diesel fuel)[1]
Building Construction	206	Cranes	1	4	231	0.29	268	2,984
	206	Forklifts	2	6	89	0.2	214	2,378
	206	Tractors/Loaders/Backhoes	2	8	97	0.37	574	6,394
Architectrual Coating	11	Air Compressors	1	6	78	0.48	225	134
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								20,131

Notes:

(1) Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp. (Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

Table 16
Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	206	11	14.7	33,310	28.57	1,166
Architectural Coating	11	2	14.7	323	28.57	11
Total Construction Worker Fuel Consumption						1,177

Notes:

(1) Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 17
Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	206	2	6.9	2,843	8.5	334
Architectural Coating	11	0	6.9	0	8.5	0
Total Construction Worker Fuel Consumption						334

Notes:

(1) Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 18
Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Building Construction	206	0	20	0	8.5	0
Architectural Coating	11	0	20	0	8.5	0
Total Construction Worker Fuel Consumption						0

Notes:

(1) Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2016.3.2 defaults.

Table 19
Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	83	14.7	1220	28.57	42.71	15,588
Light Truck	Automobile	7	14.7	103	14.08	7.31	2,668
Light Truck	Automobile	31	14.7	456	14.08	32.37	11,813
Medium Truck	Automobile	17	8.7	148	8.5	17.40	6,351
Light Heavy Truck	2-Axle Truck	3	8.7	26	8.5	3.07	1,121
Light Heavy Truck	2-Axle Truck	1	8.7	9	8.5	1.02	374
Medium Heavy Truck	3-Axle Truck	4	8.7	35	5.85	5.95	2,171
Heavy Heavy Truck	4-Axle Truck	3	8.7	26	5.85	4.46	1,628
Total		149	--	2,022	11.74	114.28	--
Total Annual Fuel Consumption							41,713

Notes:
(1) Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Table 20
Project Annual Operational Energy Demand Summary[1]

Natural Gas Demand	kBTU/year
Bridge Shelter	169,309

Electricity Demand	kWh/year
Bridge Shelter	58,898

Notes:
(1) Taken from the CalEEMod 2016.3.2 annual output (Appendix C of this report).

10. AIR QUALITY COMPLIANCE

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD Air Quality Management Plan (AQMP). Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP". Strict consistency with all aspects of the plan is usually not required A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.
(2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

CRITERIA 1 – INCREASE IN THE FREQUENCY OR SEVERITY OF VIOLATIONS

Based on the air quality modeling analysis contained in this Air Analysis, short-term construction impacts will not result in significant impacts based on the SCAQMD regional and local thresholds of significance. This Air Analysis also found that long-term operations impacts will not result in significant impacts based on the SCAQMD local and regional thresholds of significance.

Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

CRITERIA 2 – EXCEED ASSUMPTIONS IN THE AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2016-2040 Regional Transportation/Sustainable Communities Strategy prepared by SCAG (2016) includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this project, the City of Costa Mesa Land Use Plan defines the assumptions that are represented in the AQMP.

The general plan land use designation for the site is Industrial Park (MP) and the site is zoned Industrial Park (MP). Per the City of Costa Mesa, a combination of residential, institutional, and commercial uses may be allowed in areas designated as Industrial Park in the General Plan through the Planned Development process;

however, emergency shelters are only permitted in the Planning Development Industrial (PDI) zone, with a maximum allowance of 30 beds at each shelter. Therefore, the project is proposing a Code Amendment that will modify the Citywide Land Use Matrix to allow emergency shelters in the MP zone. A Conditional Use Permit (CUP) would be required prior to operation of an emergency shelter in an MP zone.

Therefore, the proposed project is not currently consistent with the existing zoning. However, once the Code Amendment is approved, the project would be consistent with the City's zoning. Although the project may initially result in an inconsistency with the AQMP on paper, the inconsistency would not necessarily constitute a conflict with the AQMP. The SCAQMD acknowledges that strict consistency with all aspects of the AQMP is not required in order to make a finding of no conflict. Rather, a project is considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The project would implement contemporary energy-efficient technologies and regulatory/operational programs required per Title 24, CalGreen and City standards. Generally, compliance with SCAQMD emissions reductions and control requirements also act to reduce project air pollutant emissions. Project compliance with regulatory/operational programs is consistent with and supports overarching AQMP air pollution reduction strategies. Project support of these strategies promotes timely attainment of AQMP air quality standards and would bring the project into conformance with the AQMP. Therefore, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

11. MITIGATION MEASURES

CONSTRUCTION MEASURES

No construction mitigation required.

OPERATIONAL MEASURES

No operational mitigation required.

12. REFERENCES

California Air Resources Board

2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Almanac of Emissions and Air Quality.
Source: https://www.arb.ca.gov/aqd/almanac/almanac13/almanac13.htm

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2017 California's 2017 Climate Change Scoping Plan. November.

2019 Historical Air Quality, Top 4 Summary

City of Costa Mesa

2016 City of Costa Mesa 2015 to 2035 General Plan.

2019 City of Costa Mesa Department of Public Services/Transportation Services Division. Revised 3175 Airway Trip Generation Memorandum. May 3.

Governor's Office of Planning and Research

2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2018 CEQA Guideline Sections to be Added or Amended

Intergovernmental Panel on Climate Change (IPCC).

2014 IPCC Fifth Assessment Report, Climate Change 2014: Synthesis Report

Office of Environmental Health Hazard Assessment

2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District

1993 CEQA Air Quality Handbook

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2012 Final 2012 Air Quality Management Plan

2016 2016 Air Quality Management Plan

2018 Historical Data by Year. 2013, 2014 and 2015 Air Quality Data Tables.
Source: http://www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year

Southern California Association of Governments

2016 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy

U.S. Environmental Protection Agency (EPA)

2017 Understanding Global Warming Potentials
(Source: https://www.epa.gov/ghgemissions/understanding-global-warming-potentials)

U.S. Geological Survey

2011 Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California

APPENDICES

Appendix A Glossary of Terms

Appendix B CalEEMod Model Daily Emissions Printouts

Appendix C CalEEMod Model Annual Emissions Printouts and EMFAC

APPENDIX A

GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
BACT	Best Available Control Technologies
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse gas
GWP	Global warming potential
HIDPM	Hazard Index Diesel Particulate Matter
HFCs	Hydrofluorocarbons
IPCC	International Panel on Climate Change
LCFS	Low Carbon Fuel Standard
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
OPR	Governor's Office of Planning and Research
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SANBAG	San Bernardino Association of Governments
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SSAB	Salton Sea Air Basin
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
TAC	Toxic air contaminants
VOC	Volatile organic compounds

APPENDIX B

CALEEMOD MODEL DAILY EMISSIONS PRINTOUTS

19-0118 Permanent Bridge Shelter

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	14.82	Dwelling Unit	0.34	14,816.00	42

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Renovation of existing bldg to have a 14,816 sf bridge shelter with 100 beds.

Construction Phase - Project is renovation of existing building, only building construction & architectural coating needed. Construction anticipated to start no earlier than Sept 2019 & be completed by end of June 2020.

Vehicle Trips - Per City Trip Gen Memo, 149 total trips. 149 trips /14.816 TSF = 10.06 trips/TSF.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Waste Mitigation - AB 341 requires that 75 percent of waste be diverted from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	100.00	206.00
tblConstructionPhase	PhaseEndDate	1/24/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/17/2020	6/15/2020
tblConstructionPhase	PhaseStartDate	1/18/2020	6/16/2020
tblFireplaces	NumberGas	12.60	13.34
tblFireplaces	NumberWood	0.74	0.00
tblLandUse	LotAcreage	0.93	0.34
tblVehicleTrips	ST_TR	2.20	10.06
tblVehicleTrips	SU_TR	2.44	10.06
tblVehicleTrips	WD_TR	2.74	10.06
tblWoodstoves	NumberCatalytic	0.74	0.00
tblWoodstoves	NumberNoncatalytic	0.74	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.0104	10.0774	7.9956	0.0131	0.1357	0.6077	0.7435	0.0363	0.5592	0.5954	0.0000	1,306.1388	1,306.1388	0.3644	0.0000	1,315.2497
2020	8.6778	9.0873	7.8025	0.0131	0.1357	0.5243	0.6600	0.0363	0.4824	0.5187	0.0000	1,277.1087	1,277.1087	0.3639	0.0000	1,286.2048
Maximum	**8.6778**	**10.0774**	**7.9956**	**0.0131**	**0.1357**	**0.6077**	**0.7435**	**0.0363**	**0.5592**	**0.5954**	**0.0000**	**1,306.1388**	**1,306.1388**	**0.3644**	**0.0000**	**1,315.2497**

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					
2019	1.0104	10.0774	7.9956	0.0131	0.1357	0.6077	0.7435	0.0363	0.5592	0.5954	0.0000	1,306.1388	1,306.1388	0.3644	0.0000	1,315.2497
2020	8.6778	9.0873	7.8025	0.0131	0.1357	0.5243	0.6600	0.0363	0.4824	0.5187	0.0000	1,277.1087	1,277.1087	0.3639	0.0000	1,286.2048
Maximum	**8.6778**	**10.0774**	**7.9956**	**0.0131**	**0.1357**	**0.6077**	**0.7435**	**0.0363**	**0.5592**	**0.5954**	**0.0000**	**1,306.1388**	**1,306.1388**	**0.3644**	**0.0000**	**1,315.2497**

	ROG	**NOx**	**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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Energy	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Mobile	0.2551	1.0469	3.4795	0.0126	1.0803	0.0123	1.0926	0.2889	0.0115	0.3004		1,276.0466	1,276.0466	0.0531		1,277.3751
Total	**0.6421**	**1.3251**	**4.8183**	**0.0143**	**1.0803**	**0.0404**	**1.1207**	**0.2889**	**0.0396**	**0.3285**	**0.0000**	**1,615.3135**	**1,615.3135**	**0.0618**	**6.1800e-003**	**1,618.6987**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Energy	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Mobile	0.2551	1.0469	3.4795	0.0126	1.0803	0.0123	1.0926	0.2889	0.0115	0.3004		1,276.0466	1,276.0466	0.0531		1,277.3751
Total	**0.6421**	**1.3251**	**4.8183**	**0.0143**	**1.0803**	**0.0404**	**1.1207**	**0.2889**	**0.0396**	**0.3285**	**0.0000**	**1,615.3135**	**1,615.3135**	**0.0618**	**6.1800e-003**	**1,618.6987**

	ROG	NOx	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	Building Construction	Building Construction	9/1/2019	6/15/2020	5	206	
2	Architectural Coating	Architectural Coating	6/16/2020	6/30/2020	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 30,002; Residential Outdoor: 10,001; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	5	11.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Building Construction - 2019

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

3.2 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.5000e-003	0.2270	0.0600	5.0000e-004	0.0128	1.5300e-003	0.0143	3.6800e-003	1.4700e-003	5.1400e-003		54.5938	54.5938	4.6100e-003		54.7090
Worker	0.0453	0.0297	0.3924	1.2400e-003	0.1230	8.2000e-004	0.1238	0.0326	7.6000e-004	0.0334		123.8754	123.8754	3.0500e-003		123.9516
Total	**0.0528**	**0.2567**	**0.4524**	**1.7400e-003**	**0.1357**	**2.3500e-003**	**0.1381**	**0.0363**	**2.2300e-003**	**0.0385**		**178.4692**	**178.4692**	**7.6600e-003**		**178.6606**

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

3.2 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.5000e-003	0.2270	0.0600	5.0000e-004	0.0128	1.5300e-003	0.0143	3.6800e-003	1.4700e-003	5.1400e-003		54.5938	54.5938	4.6100e-003		54.7090
Worker	0.0453	0.0297	0.3924	1.2400e-003	0.1230	8.2000e-004	0.1238	0.0326	7.6000e-004	0.0334		123.8754	123.8754	3.0500e-003		123.9516
Total	**0.0528**	**0.2567**	**0.4524**	**1.7400e-003**	**0.1357**	**2.3500e-003**	**0.1381**	**0.0363**	**2.2300e-003**	**0.0385**		**178.4692**	**178.4692**	**7.6600e-003**		**178.6606**

3.2 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.2 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0128	1.0900e-003	0.0139	3.6800e-003	1.0400e-003	4.7200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0423	0.0266	0.3601	1.2000e-003	0.1230	8.1000e-004	0.1238	0.0326	7.5000e-004	0.0334		119.9048	119.9048	2.7300e-003		119.9731
Total	**0.0487**	**0.2350**	**0.4151**	**1.7000e-003**	**0.1357**	**1.9000e-003**	**0.1376**	**0.0363**	**1.7900e-003**	**0.0381**		**174.1306**	**174.1306**	**7.1200e-003**		**174.3086**

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.2 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.3900e-003	0.2084	0.0550	5.0000e-004	0.0128	1.0900e-003	0.0139	3.6800e-003	1.0400e-003	4.7200e-003		54.2258	54.2258	4.3900e-003		54.3354
Worker	0.0423	0.0266	0.3601	1.2000e-003	0.1230	8.1000e-004	0.1238	0.0326	7.5000e-004	0.0334		119.9048	119.9048	2.7300e-003		119.9731
Total	**0.0487**	**0.2350**	**0.4151**	**1.7000e-003**	**0.1357**	**1.9000e-003**	**0.1376**	**0.0363**	**1.7900e-003**	**0.0381**		**174.1306**	**174.1306**	**7.1200e-003**		**174.3086**

3.3 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.4279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**8.6701**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.3 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	7.6900e-003	4.8400e-003	0.0655	2.2000e-004	0.0224	1.5000e-004	0.0225	5.9300e-003	1.4000e-004	6.0600e-003		21.8009	21.8009	5.0000e-004		21.8133
Total	**7.6900e-003**	**4.8400e-003**	**0.0655**	**2.2000e-004**	**0.0224**	**1.5000e-004**	**0.0225**	**5.9300e-003**	**1.4000e-004**	**6.0600e-003**		**21.8009**	**21.8009**	**5.0000e-004**		**21.8133**

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	8.4279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**8.6701**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.3 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	7.6900e-003	4.8400e-003	0.0655	2.2000e-004	0.0224	1.5000e-004	0.0225	5.9300e-003	1.4000e-004	6.0600e-003		21.8009	21.8009	5.0000e-004		21.8133
Total	**7.6900e-003**	**4.8400e-003**	**0.0655**	**2.2000e-004**	**0.0224**	**1.5000e-004**	**0.0225**	**5.9300e-003**	**1.4000e-004**	**6.0600e-003**		**21.8009**	**21.8009**	**5.0000e-004**		**21.8133**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2551	1.0469	3.4795	0.0126	1.0803	0.0123	1.0926	0.2889	0.0115	0.3004		1,276.0466	1,276.0466	0.0531		1,277.3751
Unmitigated	0.2551	1.0469	3.4795	0.0126	1.0803	0.0123	1.0926	0.2889	0.0115	0.3004		1,276.0466	1,276.0466	0.0531		1,277.3751

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	149.05	149.05	149.05	509,323	509,323
Total	149.05	149.05	149.05	509,323	509,323

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
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
NaturalGas Unmitigated	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962

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					
Congregate Care (Assisted Living)	463.861	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Total		**5.0000e-003**	**0.0428**	**0.0182**	**2.7000e-004**		**3.4600e-003**	**3.4600e-003**		**3.4600e-003**	**3.4600e-003**		**54.5719**	**54.5719**	**1.0500e-003**	**1.0000e-003**	**54.8962**

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					
Congregate Care (Assisted Living)	0.463861	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Total		**5.0000e-003**	**0.0428**	**0.0182**	**2.7000e-004**		**3.4600e-003**	**3.4600e-003**		**3.4600e-003**	**3.4600e-003**		**54.5719**	**54.5719**	**1.0500e-003**	**1.0000e-003**	**54.8962**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Unmitigated	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274

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	0.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0259	0.2213	0.0942	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	282.4941	282.4941	5.4100e-003	5.1800e-003	284.1728
Landscaping	0.0374	0.0142	1.2264	6.0000e-005		6.7400e-003	6.7400e-003		6.7400e-003	6.7400e-003		2.2010	2.2010	2.1500e-003		2.2546
Total	**0.3820**	**0.2355**	**1.3206**	**1.4700e-003**		**0.0246**	**0.0246**		**0.0246**	**0.0246**	**0.0000**	**284.6951**	**284.6951**	**7.5600e-003**	**5.1800e-003**	**286.4274**

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	0.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0259	0.2213	0.0942	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	282.4941	282.4941	5.4100e-003	5.1800e-003	284.1728
Landscaping	0.0374	0.0142	1.2264	6.0000e-005		6.7400e-003	6.7400e-003		6.7400e-003	6.7400e-003		2.2010	2.2010	2.1500e-003		2.2546
Total	**0.3820**	**0.2355**	**1.3206**	**1.4700e-003**		**0.0246**	**0.0246**		**0.0246**	**0.0246**	**0.0000**	**284.6951**	**284.6951**	**7.5600e-003**	**5.1800e-003**	**286.4274**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

19-0118 Permanent Bridge Shelter

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	14.82	Dwelling Unit	0.34	14,816.00	42

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Renovation of existing bldg to have a 14,816 sf bridge shelter with 100 beds.

Construction Phase - Project is renovation of existing building, only building construction & architectural coating needed. Construction anticipated to start no earlier than Sept 2019 & be completed by end of June 2020.

Vehicle Trips - Per City Trip Gen Memo, 149 total trips. 149 trips /14.816 TSF = 10.06 trips/TSF.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Waste Mitigation - AB 341 requires that 75 percent of waste be diverted from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	100.00	206.00
tblConstructionPhase	PhaseEndDate	1/24/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/17/2020	6/15/2020
tblConstructionPhase	PhaseStartDate	1/18/2020	6/16/2020
tblFireplaces	NumberGas	12.60	13.34
tblFireplaces	NumberWood	0.74	0.00
tblLandUse	LotAcreage	0.93	0.34
tblVehicleTrips	ST_TR	2.20	10.06
tblVehicleTrips	SU_TR	2.44	10.06
tblVehicleTrips	WD_TR	2.74	10.06
tblWoodstoves	NumberCatalytic	0.74	0.00
tblWoodstoves	NumberNoncatalytic	0.74	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.0165	10.0806	7.9724	0.0131	0.1357	0.6078	0.7435	0.0363	0.5592	0.5955	0.0000	1,298.1758	1,298.1758	0.3645	0.0000	1,307.2888
2020	8.6788	9.0899	7.7805	0.0130	0.1357	0.5243	0.6600	0.0363	0.4824	0.5187	0.0000	1,269.3496	1,269.3496	0.3639	0.0000	1,278.4476
Maximum	**8.6788**	**10.0806**	**7.9724**	**0.0131**	**0.1357**	**0.6078**	**0.7435**	**0.0363**	**0.5592**	**0.5955**	**0.0000**	**1,298.1758**	**1,298.1758**	**0.3645**	**0.0000**	**1,307.2888**

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					
2019	1.0165	10.0806	7.9724	0.0131	0.1357	0.6078	0.7435	0.0363	0.5592	0.5955	0.0000	1,298.1758	1,298.1758	0.3645	0.0000	1,307.2888
2020	8.6788	9.0899	7.7805	0.0130	0.1357	0.5243	0.6600	0.0363	0.4824	0.5187	0.0000	1,269.3496	1,269.3496	0.3639	0.0000	1,278.4476
Maximum	**8.6788**	**10.0806**	**7.9724**	**0.0131**	**0.1357**	**0.6078**	**0.7435**	**0.0363**	**0.5592**	**0.5955**	**0.0000**	**1,298.1758**	**1,298.1758**	**0.3645**	**0.0000**	**1,307.2888**

	ROG	**NOx**	**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**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Energy	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Mobile	0.2513	1.0804	3.3262	0.0120	1.0803	0.0123	1.0926	0.2889	0.0116	0.3005		1,219.0422	1,219.0422	0.0529		1,220.3634
Total	**0.6383**	**1.3586**	**4.6650**	**0.0138**	**1.0803**	**0.0404**	**1.1207**	**0.2889**	**0.0397**	**0.3285**	**0.0000**	**1,558.3091**	**1,558.3091**	**0.0615**	**6.1800e-003**	**1,561.6870**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Energy	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Mobile	0.2513	1.0804	3.3262	0.0120	1.0803	0.0123	1.0926	0.2889	0.0116	0.3005		1,219.0422	1,219.0422	0.0529		1,220.3634
Total	**0.6383**	**1.3586**	**4.6650**	**0.0138**	**1.0803**	**0.0404**	**1.1207**	**0.2889**	**0.0397**	**0.3285**	**0.0000**	**1,558.3091**	**1,558.3091**	**0.0615**	**6.1800e-003**	**1,561.6870**

	ROG	NOx	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	Building Construction	Building Construction	9/1/2019	6/15/2020	5	206	
2	Architectural Coating	Architectural Coating	6/16/2020	6/30/2020	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 30,002; Residential Outdoor: 10,001; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	5	11.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Building Construction - 2019

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569		1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**		**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

3.2 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.8200e-003	0.2272	0.0659	4.9000e-004	0.0128	1.5600e-003	0.0143	3.6800e-003	1.4900e-003	5.1700e-003		53.2710	53.2710	4.8500e-003		53.3923
Worker	0.0511	0.0327	0.3633	1.1800e-003	0.1230	8.2000e-004	0.1238	0.0326	7.6000e-004	0.0334		117.2351	117.2351	2.8900e-003		117.3073
Total	**0.0590**	**0.2599**	**0.4292**	**1.6700e-003**	**0.1357**	**2.3800e-003**	**0.1381**	**0.0363**	**2.2500e-003**	**0.0385**		**170.5061**	**170.5061**	**7.7400e-003**		**170.6996**

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	0.9576	9.8207	7.5432	0.0114		0.6054	0.6054		0.5569	0.5569	0.0000	1,127.6696	1,127.6696	0.3568		1,136.5892
Total	**0.9576**	**9.8207**	**7.5432**	**0.0114**		**0.6054**	**0.6054**		**0.5569**	**0.5569**	**0.0000**	**1,127.6696**	**1,127.6696**	**0.3568**		**1,136.5892**

3.2 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.8200e-003	0.2272	0.0659	4.9000e-004	0.0128	1.5600e-003	0.0143	3.6800e-003	1.4900e-003	5.1700e-003		53.2710	53.2710	4.8500e-003		53.3923
Worker	0.0511	0.0327	0.3633	1.1800e-003	0.1230	8.2000e-004	0.1238	0.0326	7.6000e-004	0.0334		117.2351	117.2351	2.8900e-003		117.3073
Total	**0.0590**	**0.2599**	**0.4292**	**1.6700e-003**	**0.1357**	**2.3800e-003**	**0.1381**	**0.0363**	**2.2500e-003**	**0.0385**		**170.5061**	**170.5061**	**7.7400e-003**		**170.6996**

3.2 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806		1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**		**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.2 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0478	0.0293	0.3328	1.1400e-003	0.1230	8.1000e-004	0.1238	0.0326	7.5000e-004	0.0334		113.4783	113.4783	2.5900e-003		113.5431
Total	**0.0544**	**0.2376**	**0.3931**	**1.6300e-003**	**0.1357**	**1.9200e-003**	**0.1377**	**0.0363**	**1.8100e-003**	**0.0381**		**166.3715**	**166.3715**	**7.2000e-003**		**166.5514**

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	0.8617	8.8523	7.3875	0.0114		0.5224	0.5224		0.4806	0.4806	0.0000	1,102.9781	1,102.9781	0.3567		1,111.8962
Total	**0.8617**	**8.8523**	**7.3875**	**0.0114**		**0.5224**	**0.5224**		**0.4806**	**0.4806**	**0.0000**	**1,102.9781**	**1,102.9781**	**0.3567**		**1,111.8962**

3.2 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.6700e-003	0.2083	0.0603	4.9000e-004	0.0128	1.1100e-003	0.0139	3.6800e-003	1.0600e-003	4.7400e-003		52.8932	52.8932	4.6100e-003		53.0084
Worker	0.0478	0.0293	0.3328	1.1400e-003	0.1230	8.1000e-004	0.1238	0.0326	7.5000e-004	0.0334		113.4783	113.4783	2.5900e-003		113.5431
Total	**0.0544**	**0.2376**	**0.3931**	**1.6300e-003**	**0.1357**	**1.9200e-003**	**0.1377**	**0.0363**	**1.8100e-003**	**0.0381**		**166.3715**	**166.3715**	**7.2000e-003**		**166.5514**

3.3 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.4279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**8.6701**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.3 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.6900e-003	5.3200e-003	0.0605	2.1000e-004	0.0224	1.5000e-004	0.0225	5.9300e-003	1.4000e-004	6.0600e-003		20.6324	20.6324	4.7000e-004		20.6442
Total	**8.6900e-003**	**5.3200e-003**	**0.0605**	**2.1000e-004**	**0.0224**	**1.5000e-004**	**0.0225**	**5.9300e-003**	**1.4000e-004**	**6.0600e-003**		**20.6324**	**20.6324**	**4.7000e-004**		**20.6442**

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	8.4279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**8.6701**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.3 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.6900e-003	5.3200e-003	0.0605	2.1000e-004	0.0224	1.5000e-004	0.0225	5.9300e-003	1.4000e-004	6.0600e-003		20.6324	20.6324	4.7000e-004		20.6442
Total	**8.6900e-003**	**5.3200e-003**	**0.0605**	**2.1000e-004**	**0.0224**	**1.5000e-004**	**0.0225**	**5.9300e-003**	**1.4000e-004**	**6.0600e-003**		**20.6324**	**20.6324**	**4.7000e-004**		**20.6442**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2513	1.0804	3.3262	0.0120	1.0803	0.0123	1.0926	0.2889	0.0116	0.3005		1,219.0422	1,219.0422	0.0529		1,220.3634
Unmitigated	0.2513	1.0804	3.3262	0.0120	1.0803	0.0123	1.0926	0.2889	0.0116	0.3005		1,219.0422	1,219.0422	0.0529		1,220.3634

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	149.05	149.05	149.05	509,323	509,323
Total	149.05	149.05	149.05	509,323	509,323

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
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
NaturalGas Unmitigated	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962

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					
Congregate Care (Assisted Living)	463.861	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Total		**5.0000e-003**	**0.0428**	**0.0182**	**2.7000e-004**		**3.4600e-003**	**3.4600e-003**		**3.4600e-003**	**3.4600e-003**		**54.5719**	**54.5719**	**1.0500e-003**	**1.0000e-003**	**54.8962**

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					
Congregate Care (Assisted Living)	0.463861	5.0000e-003	0.0428	0.0182	2.7000e-004		3.4600e-003	3.4600e-003		3.4600e-003	3.4600e-003		54.5719	54.5719	1.0500e-003	1.0000e-003	54.8962
Total		**5.0000e-003**	**0.0428**	**0.0182**	**2.7000e-004**		**3.4600e-003**	**3.4600e-003**		**3.4600e-003**	**3.4600e-003**		**54.5719**	**54.5719**	**1.0500e-003**	**1.0000e-003**	**54.8962**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274
Unmitigated	0.3820	0.2355	1.3206	1.4800e-003		0.0246	0.0246		0.0246	0.0246	0.0000	284.6951	284.6951	7.5600e-003	5.1800e-003	286.4274

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	0.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0259	0.2213	0.0942	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	282.4941	282.4941	5.4100e-003	5.1800e-003	284.1728
Landscaping	0.0374	0.0142	1.2264	6.0000e-005		6.7400e-003	6.7400e-003		6.7400e-003	6.7400e-003		2.2010	2.2010	2.1500e-003		2.2546
Total	**0.3820**	**0.2355**	**1.3206**	**1.4700e-003**		**0.0246**	**0.0246**		**0.0246**	**0.0246**	**0.0000**	**284.6951**	**284.6951**	**7.5600e-003**	**5.1800e-003**	**286.4274**

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	0.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2934					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0259	0.2213	0.0942	1.4100e-003		0.0179	0.0179		0.0179	0.0179	0.0000	282.4941	282.4941	5.4100e-003	5.1800e-003	284.1728
Landscaping	0.0374	0.0142	1.2264	6.0000e-005		6.7400e-003	6.7400e-003		6.7400e-003	6.7400e-003		2.2010	2.2010	2.1500e-003		2.2546
Total	**0.3820**	**0.2355**	**1.3206**	**1.4700e-003**		**0.0246**	**0.0246**		**0.0246**	**0.0246**	**0.0000**	**284.6951**	**284.6951**	**7.5600e-003**	**5.1800e-003**	**286.4274**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C

CALEEMOD MODEL ANNUAL EMISSIONS PRINTOUTS AND EMFAC

19-0118 Permanent Bridge Shelter

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Congregate Care (Assisted Living)	14.82	Dwelling Unit	0.34	14,816.00	42

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	30
Climate Zone	8			**Operational Year**	2020
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Renovation of existing bldg to have a 14,816 sf bridge shelter with 100 beds.

Construction Phase - Project is renovation of existing building, only building construction & architectural coating needed. Construction anticipated to start no earlier than Sept 2019 & be completed by end of June 2020.

Vehicle Trips - Per City Trip Gen Memo, 149 total trips. 149 trips /14.816 TSF = 10.06 trips/TSF.

Woodstoves - SCAQMD Rule 445 prohibits the installation of wood burning devices in new developments.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Waste Mitigation - AB 341 requires that 75 percent of waste be diverted from landfills by 2020.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	5.00	11.00
tblConstructionPhase	NumDays	100.00	206.00
tblConstructionPhase	PhaseEndDate	1/24/2020	6/30/2020
tblConstructionPhase	PhaseEndDate	1/17/2020	6/15/2020
tblConstructionPhase	PhaseStartDate	1/18/2020	6/16/2020
tblFireplaces	NumberGas	12.60	13.34
tblFireplaces	NumberWood	0.74	0.00
tblLandUse	LotAcreage	0.93	0.34
tblVehicleTrips	ST_TR	2.20	10.06
tblVehicleTrips	SU_TR	2.44	10.06
tblVehicleTrips	WD_TR	2.74	10.06
tblWoodstoves	NumberCatalytic	0.74	0.00
tblWoodstoves	NumberNoncatalytic	0.74	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0440	0.4387	0.3471	5.7000e-004	5.8000e-003	0.0264	0.0322	1.5500e-003	0.0243	0.0259	0.0000	51.3302	51.3302	0.0144	0.0000	51.6898
2020	0.1019	0.5504	0.4737	7.9000e-004	8.0600e-003	0.0318	0.0399	2.1600e-003	0.0293	0.0315	0.0000	70.1604	70.1604	0.0198	0.0000	70.6541
Maximum	**0.1019**	**0.5504**	**0.4737**	**7.9000e-004**	**8.0600e-003**	**0.0318**	**0.0399**	**2.1600e-003**	**0.0293**	**0.0315**	**0.0000**	**70.1604**	**70.1604**	**0.0198**	**0.0000**	**70.6541**

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					
2019	0.0440	0.4387	0.3471	5.7000e-004	5.8000e-003	0.0264	0.0322	1.5500e-003	0.0243	0.0259	0.0000	51.3302	51.3302	0.0144	0.0000	51.6897
2020	0.1019	0.5504	0.4737	7.9000e-004	8.0600e-003	0.0318	0.0399	2.1600e-003	0.0293	0.0315	0.0000	70.1603	70.1603	0.0198	0.0000	70.6540
Maximum	**0.1019**	**0.5504**	**0.4737**	**7.9000e-004**	**8.0600e-003**	**0.0318**	**0.0399**	**2.1600e-003**	**0.0293**	**0.0315**	**0.0000**	**70.1603**	**70.1603**	**0.0198**	**0.0000**	**70.6540**

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

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2019**	**11-30-2019**	0.3606	0.3606
2	**12-1-2019**	**2-29-2020**	0.3373	0.3373
3	**3-1-2020**	**5-31-2020**	0.3286	0.3286
4	**6-1-2020**	**8-31-2020**	0.1091	0.1091
		Highest	0.3606	0.3606

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	0.0632	4.5400e-003	0.1545	3.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	3.4530	3.4530	3.0000e-004	6.0000e-005	3.4781
Energy	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	27.8012	27.8012	9.5000e-004	3.3000e-004	27.9220
Mobile	0.0445	0.2001	0.6137	2.2100e-003	0.1932	2.2400e-003	0.1954	0.0517	2.1000e-003	0.0538	0.0000	203.7371	203.7371	8.7100e-003	0.0000	203.9548
Waste						0.0000	0.0000		0.0000	0.0000	2.7444	0.0000	2.7444	0.1622	0.0000	6.7992
Water						0.0000	0.0000		0.0000	0.0000	0.3063	6.1608	6.4672	0.0317	8.0000e-004	7.4972
Total	**0.1085**	**0.2125**	**0.7715**	**2.2900e-003**	**0.1932**	**3.9400e-003**	**0.1971**	**0.0517**	**3.8000e-003**	**0.0555**	**3.0508**	**241.1521**	**244.2029**	**0.2039**	**1.1900e-003**	**249.6513**

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	0.0632	4.5400e-003	0.1545	3.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	3.4530	3.4530	3.0000e-004	6.0000e-005	3.4781
Energy	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	27.8012	27.8012	9.5000e-004	3.3000e-004	27.9220
Mobile	0.0445	0.2001	0.6137	2.2100e-003	0.1932	2.2400e-003	0.1954	0.0517	2.1000e-003	0.0538	0.0000	203.7371	203.7371	8.7100e-003	0.0000	203.9548
Waste						0.0000	0.0000		0.0000	0.0000	0.6861	0.0000	0.6861	0.0406	0.0000	1.6998
Water						0.0000	0.0000		0.0000	0.0000	0.3063	6.1608	6.4672	0.0317	8.0000e-004	7.4972
Total	**0.1085**	**0.2125**	**0.7715**	**2.2900e-003**	**0.1932**	**3.9400e-003**	**0.1971**	**0.0517**	**3.8000e-003**	**0.0555**	**0.9924**	**241.1521**	**242.1445**	**0.0822**	**1.1900e-003**	**244.5519**

	ROG	**NOx**	**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**	**67.47**	**0.00**	**0.84**	**59.67**	**0.00**	**2.04**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	9/1/2019	6/15/2020	5	206	
2	Architectural Coating	Architectural Coating	6/16/2020	6/30/2020	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 30,002; Residential Outdoor: 10,001; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	5	11.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Building Construction - 2019

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	0.0417	0.4272	0.3281	5.0000e-004		0.0263	0.0263		0.0242	0.0242	0.0000	44.5007	44.5007	0.0141	0.0000	44.8527
Total	**0.0417**	**0.4272**	**0.3281**	**5.0000e-004**		**0.0263**	**0.0263**		**0.0242**	**0.0242**	**0.0000**	**44.5007**	**44.5007**	**0.0141**	**0.0000**	**44.8527**

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	3.3000e-004	0.0101	2.7400e-003	2.0000e-005	5.5000e-004	7.0000e-005	6.1000e-004	1.6000e-004	6.0000e-005	2.2000e-004	0.0000	2.1325	2.1325	1.9000e-004	0.0000	2.1371
Worker	2.0000e-003	1.4600e-003	0.0162	5.0000e-005	5.2500e-003	4.0000e-005	5.2900e-003	1.3900e-003	3.0000e-005	1.4300e-003	0.0000	4.6970	4.6970	1.2000e-004	0.0000	4.6999
Total	**2.3300e-003**	**0.0115**	**0.0189**	**7.0000e-005**	**5.8000e-003**	**1.1000e-004**	**5.9000e-003**	**1.5500e-003**	**9.0000e-005**	**1.6500e-003**	**0.0000**	**6.8295**	**6.8295**	**3.1000e-004**	**0.0000**	**6.8371**

3.2 Building Construction - 2019

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	0.0417	0.4272	0.3281	5.0000e-004		0.0263	0.0263		0.0242	0.0242	0.0000	44.5007	44.5007	0.0141	0.0000	44.8526
Total	**0.0417**	**0.4272**	**0.3281**	**5.0000e-004**		**0.0263**	**0.0263**		**0.0242**	**0.0242**	**0.0000**	**44.5007**	**44.5007**	**0.0141**	**0.0000**	**44.8526**

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	3.3000e-004	0.0101	2.7400e-003	2.0000e-005	5.5000e-004	7.0000e-005	6.1000e-004	1.6000e-004	6.0000e-005	2.2000e-004	0.0000	2.1325	2.1325	1.9000e-004	0.0000	2.1371
Worker	2.0000e-003	1.4600e-003	0.0162	5.0000e-005	5.2500e-003	4.0000e-005	5.2900e-003	1.3900e-003	3.0000e-005	1.4300e-003	0.0000	4.6970	4.6970	1.2000e-004	0.0000	4.6999
Total	**2.3300e-003**	**0.0115**	**0.0189**	**7.0000e-005**	**5.8000e-003**	**1.1000e-004**	**5.9000e-003**	**1.5500e-003**	**9.0000e-005**	**1.6500e-003**	**0.0000**	**6.8295**	**6.8295**	**3.1000e-004**	**0.0000**	**6.8371**

3.2 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0513	0.5267	0.4396	6.8000e-004		0.0311	0.0311		0.0286	0.0286	0.0000	59.5360	59.5360	0.0193	0.0000	60.0174
Total	**0.0513**	**0.5267**	**0.4396**	**6.8000e-004**		**0.0311**	**0.0311**		**0.0286**	**0.0286**	**0.0000**	**59.5360**	**59.5360**	**0.0193**	**0.0000**	**60.0174**

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	3.9000e-004	0.0126	3.4300e-003	3.0000e-005	7.5000e-004	7.0000e-005	8.1000e-004	2.2000e-004	6.0000e-005	2.8000e-004	0.0000	2.8968	2.8968	2.4000e-004	0.0000	2.9028
Worker	2.5500e-003	1.7900e-003	0.0203	7.0000e-005	7.1900e-003	5.0000e-005	7.2300e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	6.2188	6.2188	1.4000e-004	0.0000	6.2224
Total	**2.9400e-003**	**0.0144**	**0.0237**	**1.0000e-004**	**7.9400e-003**	**1.2000e-004**	**8.0400e-003**	**2.1300e-003**	**1.0000e-004**	**2.2300e-003**	**0.0000**	**9.1156**	**9.1156**	**3.8000e-004**	**0.0000**	**9.1252**

3.2 Building Construction - 2020

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	0.0513	0.5267	0.4396	6.8000e-004		0.0311	0.0311		0.0286	0.0286	0.0000	59.5359	59.5359	0.0193	0.0000	60.0173
Total	**0.0513**	**0.5267**	**0.4396**	**6.8000e-004**		**0.0311**	**0.0311**		**0.0286**	**0.0286**	**0.0000**	**59.5359**	**59.5359**	**0.0193**	**0.0000**	**60.0173**

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	3.9000e-004	0.0126	3.4300e-003	3.0000e-005	7.5000e-004	7.0000e-005	8.1000e-004	2.2000e-004	6.0000e-005	2.8000e-004	0.0000	2.8968	2.8968	2.4000e-004	0.0000	2.9028
Worker	2.5500e-003	1.7900e-003	0.0203	7.0000e-005	7.1900e-003	5.0000e-005	7.2300e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	6.2188	6.2188	1.4000e-004	0.0000	6.2224
Total	**2.9400e-003**	**0.0144**	**0.0237**	**1.0000e-004**	**7.9400e-003**	**1.2000e-004**	**8.0400e-003**	**2.1300e-003**	**1.0000e-004**	**2.2300e-003**	**0.0000**	**9.1156**	**9.1156**	**3.8000e-004**	**0.0000**	**9.1252**

3.3 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.2600e-003	0.0101	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.4043	1.4043	1.1000e-004	0.0000	1.4070
Total	**0.0477**	**9.2600e-003**	**0.0101**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.4043**	**1.4043**	**1.1000e-004**	**0.0000**	**1.4070**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1045	0.1045	0.0000	0.0000	0.1046
Total	**4.0000e-005**	**3.0000e-005**	**3.4000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1045**	**0.1045**	**0.0000**	**0.0000**	**0.1046**

3.3 Architectural Coating - 2020

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	0.0464					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.2600e-003	0.0101	2.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	1.4043	1.4043	1.1000e-004	0.0000	1.4070
Total	**0.0477**	**9.2600e-003**	**0.0101**	**2.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**	**0.0000**	**1.4043**	**1.4043**	**1.1000e-004**	**0.0000**	**1.4070**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	3.4000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1045	0.1045	0.0000	0.0000	0.1046
Total	**4.0000e-005**	**3.0000e-005**	**3.4000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1045**	**0.1045**	**0.0000**	**0.0000**	**0.1046**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0445	0.2001	0.6137	2.2100e-003	0.1932	2.2400e-003	0.1954	0.0517	2.1000e-003	0.0538	0.0000	203.7371	203.7371	8.7100e-003	0.0000	203.9548
Unmitigated	0.0445	0.2001	0.6137	2.2100e-003	0.1932	2.2400e-003	0.1954	0.0517	2.1000e-003	0.0538	0.0000	203.7371	203.7371	8.7100e-003	0.0000	203.9548

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Congregate Care (Assisted Living)	149.05	149.05	149.05	509,323	509,323
Total	149.05	149.05	149.05	509,323	509,323

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
Congregate Care (Assisted	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Congregate Care (Assisted Living)	0.555968	0.043848	0.210359	0.116378	0.016765	0.005795	0.025008	0.016160	0.001677	0.001586	0.004867	0.000586	0.001002

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	18.7662	18.7662	7.7000e-004	1.6000e-004	18.8333
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	18.7662	18.7662	7.7000e-004	1.6000e-004	18.8333
NaturalGas Mitigated	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	9.0350	9.0350	1.7000e-004	1.7000e-004	9.0887
NaturalGas Unmitigated	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	9.0350	9.0350	1.7000e-004	1.7000e-004	9.0887

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					
Congregate Care (Assisted Living)	169309	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	9.0350	9.0350	1.7000e-004	1.7000e-004	9.0887
Total		**9.1000e-004**	**7.8000e-003**	**3.3200e-003**	**5.0000e-005**		**6.3000e-004**	**6.3000e-004**		**6.3000e-004**	**6.3000e-004**	**0.0000**	**9.0350**	**9.0350**	**1.7000e-004**	**1.7000e-004**	**9.0887**

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					
Congregate Care (Assisted Living)	169309	9.1000e-004	7.8000e-003	3.3200e-003	5.0000e-005		6.3000e-004	6.3000e-004		6.3000e-004	6.3000e-004	0.0000	9.0350	9.0350	1.7000e-004	1.7000e-004	9.0887
Total		**9.1000e-004**	**7.8000e-003**	**3.3200e-003**	**5.0000e-005**		**6.3000e-004**	**6.3000e-004**		**6.3000e-004**	**6.3000e-004**	**0.0000**	**9.0350**	**9.0350**	**1.7000e-004**	**1.7000e-004**	**9.0887**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	58898	18.7662	7.7000e-004	1.6000e-004	18.8333
Total		**18.7662**	**7.7000e-004**	**1.6000e-004**	**18.8333**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Congregate Care (Assisted Living)	58898	18.7662	7.7000e-004	1.6000e-004	18.8333
Total		**18.7662**	**7.7000e-004**	**1.6000e-004**	**18.8333**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0632	4.5400e-003	0.1545	3.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	3.4530	3.4530	3.0000e-004	6.0000e-005	3.4781
Unmitigated	0.0632	4.5400e-003	0.1545	3.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	3.4530	3.4530	3.0000e-004	6.0000e-005	3.4781

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	4.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.2000e-004	2.7700e-003	1.1800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2034	3.2034	6.0000e-005	6.0000e-005	3.2225
Landscaping	4.6700e-003	1.7700e-003	0.1533	1.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	0.2496	0.2496	2.4000e-004	0.0000	0.2557
Total	**0.0632**	**4.5400e-003**	**0.1545**	**3.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**3.4530**	**3.4530**	**3.0000e-004**	**6.0000e-005**	**3.4781**

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	4.6400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0535					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	3.2000e-004	2.7700e-003	1.1800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.2034	3.2034	6.0000e-005	6.0000e-005	3.2225
Landscaping	4.6700e-003	1.7700e-003	0.1533	1.0000e-005		8.4000e-004	8.4000e-004		8.4000e-004	8.4000e-004	0.0000	0.2496	0.2496	2.4000e-004	0.0000	0.2557
Total	**0.0632**	**4.5400e-003**	**0.1545**	**3.0000e-005**		**1.0600e-003**	**1.0600e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**3.4530**	**3.4530**	**3.0000e-004**	**6.0000e-005**	**3.4781**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.4672	0.0317	8.0000e-004	7.4972
Unmitigated	6.4672	0.0317	8.0000e-004	7.4972

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.965583 / 0.608737	6.4672	0.0317	8.0000e-004	7.4972
Total		**6.4672**	**0.0317**	**8.0000e-004**	**7.4972**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Congregate Care (Assisted Living)	0.965583 / 0.608737	6.4672	0.0317	8.0000e-004	7.4972
Total		**6.4672**	**0.0317**	**8.0000e-004**	**7.4972**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.6861	0.0406	0.0000	1.6998
Unmitigated	2.7444	0.1622	0.0000	6.7992

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	13.52	2.7444	0.1622	0.0000	6.7992
Total		**2.7444**	**0.1622**	**0.0000**	**6.7992**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Congregate Care (Assisted Living)	3.38	0.6861	0.0406	0.0000	1.6998
Total		**0.6861**	**0.0406**	**0.0000**	**1.6998**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	Fuel_Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles per Gallon	VehClass
SCAQMD	2020	HHDT	Aggregated	Aggregated	GAS	802.1440496	22.12472978	22124.72978	2285504.664	104174.0551	13369344.05	5.85	HHD
SCAQMD	2020	HHDT	Aggregated	Aggregated	DSL	94066.79161	2263.379935	2263379.935		13265170			
SCAQMD	2020	LDA	Aggregated	Aggregated	GAS	6241441.311	7791.379047	7791379.047	7849819.577	215630250.8	224300103.8	28.57	LDA
SCAQMD	2020	LDA	Aggregated	Aggregated	DSL	58578.66528	58.44052993	58440.52993		2170199.073			
SCAQMD	2020	LDA	Aggregated	Aggregated	ELEC	139480.2104	0	0		6499653.924			
SCAQMD	2020	LDT1	Aggregated	Aggregated	GAS	529468.9231	767.6565063	767656.5063	768313.2779	17839921.58	17869646.83	23.26	LDT1
SCAQMD	2020	LDT1	Aggregated	Aggregated	DSL	653.8523923	0.656771586	656.7715859		17424.66748			
SCAQMD	2020	LDT1	Aggregated	Aggregated	ELEC	394.8926991	0	0		12300.5894			
SCAQMD	2020	LDT2	Aggregated	Aggregated	GAS	2196840.435	3942.87661	3942876.61	3948206.775	81691950.79	81842773.79	20.73	LDT2
SCAQMD	2020	LDT2	Aggregated	Aggregated	DSL	3707.582469	5.330165365	5330.165365		150823.0049			
SCAQMD	2020	LHDT1	Aggregated	Aggregated	GAS	122811.721	324.3272067	324327.2067	487711.1787	3538562.329	6867749.007	14.08	LHDT1
SCAQMD	2020	LHDT1	Aggregated	Aggregated	DSL	93218.10849	163.383972	163383.972		3329186.678			
SCAQMD	2020	LHDT2	Aggregated	Aggregated	GAS	25139.08857	85.31303659	85313.03659	167294.3502	867472.8869	2400097.869	14.35	LHDT2
SCAQMD	2020	LHDT2	Aggregated	Aggregated	DSL	39016.92297	81.98131358	81981.31358		1532624.982			
SCAQMD	2020	MCY	Aggregated	Aggregated	GAS	289961.5795	55.31831514	55318.31514	55318.31514	1955845.416	1955845.416	35.36	MCY
SCAQMD	2020	MDV	Aggregated	Aggregated	GAS	1480427.171	3206.973029	3206973.029	3247601.48	49182321.35	50069698.89	15.42	MDV
SCAQMD	2020	MDV	Aggregated	Aggregated	DSL	22607.57726	40.62845112	40628.45112		887377.5364			
SCAQMD	2020	MH	Aggregated	Aggregated	GAS	37922.10127	41.47456076	41474.56076	49697.59794	307217.3044	391503.7566	7.88	MH
SCAQMD	2020	MH	Aggregated	Aggregated	DSL	9968.340503	8.223037177	8223.037177		84286.45216			
SCAQMD	2020	MHDT	Aggregated	Aggregated	GAS	19760.80313	139.5109867	139510.9867	994155.0541	980184.6784	8449666.761	8.50	MHDT
SCAQMD	2020	MHDT	Aggregated	Aggregated	DSL	134726.0007	854.6440674	854644.0674		7469482.082			
SCAQMD	2020	OBUS	Aggregated	Aggregated	GAS	8436.227028	54.40171127	54401.71127	114975.5108	392438.6707	833849.8071	7.25	OBUS
SCAQMD	2020	OBUS	Aggregated	Aggregated	DSL	5358.43226	60.5737995	60573.7995		441411.1364			
SCAQMD	2020	SBUS	Aggregated	Aggregated	GAS	2258.46776	7.601539992	7601.539992	35629.80433	86380.44602	288716.49	8.10	SBUS
SCAQMD	2020	SBUS	Aggregated	Aggregated	DSL	5309.122191	28.02826434	28028.26434		202336.044			
SCAQMD	2020	UBUS	Aggregated	Aggregated	GAS	2327.880438	53.57098395	53570.98395	163867.7724	267944.8976	795898.8585	4.86	UBUS
SCAQMD	2020	UBUS	Aggregated	Aggregated	DSL	4588.150023	110.2967884	110296.7884		527953.961			

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