Air Quality and Greenhouse Gas Emissions Technical Report

Pacifica Development Project

City of Oceanside, California

JUNE 2023

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CalEEMod	California Emissions Estimator Model
CEQA	California Environmental Quality Act
CO	carbon monoxide
DPM	diesel particulate matter
EPA	U.S. Environmental Protection Agency
g/L	grams per liter
HAP	hazardous air pollutant
kWh	kilowatt-hour
LOS	level of service
NAAQS	National Ambient Air Quality Standards
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
$PM_{2.5}$	fine particulate matter
PM_{10}	coarse particulate matter
RAQS	Regional Air Quality Strategy
SANDAG	San Diego Association of Governments
SDAB	San Diego Air Basin
SDAPCD	San Diego Air Pollution Control District
SDG&E	San Diego Gas & Electric Company
SIP	state implementation plan
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAC	toxic air contaminant
VOC	volatile organic compound

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Executive Summary

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emission impacts associated with implementation of the Oceanside Pacifica Development Project (Project). This assessment uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines.

Project Overview

The proposed Project consists of a for-sale 164-unit Planned Development Community to be developed on a 14.55-acre site located at the former Pacifica Elementary School site at 4991 Macario Drive in the City of Oceanside (City), California. The proposed neighborhood will consist of three-story attached townhomes oriented towards internal paseos and drives throughout the site. New homes will range in size from a minimum of approximately 1,200 square feet to 1,800 square feet with two (2) to three (3) bedrooms and an attached 2-car garage (either side-by-side or tandem configuration). Each home will include private open space in the form of a patio and/or deck. Common recreational spaces, consisting of approximately 53,700 square feet of open space, will be designed with urban-style amenities such as tot lots, an off-leash dog space, pickle ball courts, bocce ball areas, barbecue areas, and space for a variety of outdoor games.

Project Design Features

The proposed Project would implement both construction-related and operational project design features (PDFs) intended to reduce emissions of criteria air pollutants, toxic air contaminants (TACs), and GHG emissions. The Project would implement PDF-AQ-1, PDF-AQ-2, and PDF-GHG-1 as follow:

PDF-AQ-1: Require the installation of only electric or natural gas fireplaces in future residential construction. Future residential units are prohibited from having wood-burning fireplaces or stoves.

PDF-AQ-2: Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions. Construction of Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust that may be generated during grading and construction activities.

PDF-AQ-3: The Project will provide temporary electricity to the project site during the building construction phases and prohibit the use of diesel-fueled/natural gas fueled generators during the building construction phases.

PDF-AQ-3: The Project will limit air compressors used during the architectural coating/painting phases to equipment that is electric-powered.

PDF-GHG-1: Photo-voltaic (PV) systems will be installed on each building to meet 50% of forecasted electricity demand.

Air Quality

The air quality impact analysis evaluated the potential for adverse impacts to air quality due to construction and operational emissions resulting from the Project. The State CEQA Guidelines allow lead agencies to use the significance criteria established by the applicable air quality management district or air pollution control district to evaluate a project's impacts to air quality. The San Diego Air Pollution Control District (SDAPCD) has not developed thresholds of significance for air quality and health risk, however, the SDAPCD has provided emission levels under its permitting authority for new source review for which an Air Quality Impact Assessment (AQIA) is triggered. The County of San Diego has reviewed SDAPCD's trigger levels, as well as EPA rulemaking, and CEQA thresholds adopted by the South Coast Air Quality Management District (SCAQMD) to develop screening-level thresholds (SLTs) to assist lead agencies in determining the significance of project-level air quality impacts within the County. The City of Oceanside has chosen to apply the County of San Diego SLT's for determining mass daily criteria air pollutant thresholds of significance. Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards (criteria) for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated include volatile organic compounds (VOCs), oxides of nitrogen (NO_x), CO, sulfur oxides (SO_x), PM_{10}, and $PM_{2.5}$. VOCs and NO_x are important because they are precursors to O_3.

Air Quality Plan Consistency

If a project proposes development that is greater than that anticipated in the local plan and the growth projections set by the San Diego Association of Governments (SANDAG), the project might be in conflict with the State Implementation Plan and SDAPCD Regional Air Quality Strategy, and therefore may contribute to a potentially significant cumulative impact on air quality. The Project was deemed to be consistent with the current air quality plan because although it would require a general plan amendment and rezone, the development intensity would be consistent with the existing land use designations and the anticipated growth associated with the Project does not exceed that projected by SANDAG. In addition, the Project would not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations as evidenced by its construction and operational emissions being less than County of San Diego thresholds of significance. Based on these considerations, impacts related to the Project's potential to conflict with or obstruct implementation of the applicable air quality plan would be less than significant.

Cumulatively Considerable Net Increase in Nonattainment Criteria Air Pollutant Emissions

Construction of the Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). The maximum daily construction emissions would not exceed the County of San Diego significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction. Therefore, the Project would have a less than significant impact.

The analysis herein assumed an operational year of 2026. Operation of the Project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (consumer product use, architectural coatings, and landscape maintenance equipment), and energy (natural gas). Maximum operational emissions would not exceed the County of San Diego operational significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$.

The potential for a project to result in a cumulatively considerable impact is based on the project's potential to exceed the project-specific daily thresholds. Because maximum construction and operational emissions would not exceed the County of San Diego significance thresholds for VOCs, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$, the Project would not result in a cumulatively considerable increase in criteria air pollutants.

Exposure of Sensitive Receptors

Regarding potential carbon monoxide (CO) violations or hotspots, the County of San Diego concluded in its General Plan Update (2011) that there are no intersections within the County that are more congested than the South Coast Air Quality Management District's (SCAQMD) most congested intersections evaluated for CO hotspots in its 2003 CO attainment redesignation request to the United States Environmental Protection Agency (US EPA). As such, the County of San Diego concluded that there were no potential CO violations in the County. The proposed development will not result in traffic that exceeds traffic volumes considered in the County of San Diego General Plan Update analysis and CO concentrations in the project area are well below ambient air quality standards. The Project would not result in a CO hotspot given the above information and continued improvements in vehicle emissions. The impact would be less than significant.

A health risk assessment (HRA) was also conducted to determine the potential impacts of exposure to diesel particulate matter (DPM), which is a TAC, at existing proximate sensitive receptors in the Project vicinity and future onsite receptors. The results of the HRA demonstrate that after implementation of MM-AQ-1, which requires use of Tier 4 equipment during construction, the TAC exposure from construction diesel exhaust emissions would not result in cancer risk above the 10 in 1 million threshold, nor a Chronic Hazard Index greater than 1.0. Therefore, impacts to sensitive receptors would be less than significant.

Other Emissions

Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application, which would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Impacts associated with odors during construction would be less than significant. The Project would be a mixed-use residential development that would not include land uses with sources that have the potential to generate substantial odors, and impacts associated with odors during operation would be less than significant.

Greenhouse Gas Emissions

Global climate change is primarily considered a cumulative impact but must also be evaluated on a project-level under CEQA. A project contributes to this potential impact through its incremental emissions combined with the cumulative increase of all other sources of greenhouse gas (GHG) emissions. GHGs are gases that absorb infrared radiation in the atmosphere. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). GHG emissions are measured in metric tons of CO_2 equivalent (MT CO_2e), which account for weighted global warming potential (GWP) factors for CH_4 and N_2O.

The City adopted a Climate Action Plan (CAP) in 2019, which is a qualified GHG reduction plan under CEQA Guidelines Section 15183.5, and thus, can be used for CEQA streamlining and tiering of project-level analyses. The Project's consistency with the CAP is used to evaluate the potential for the Project to result in GHG emissions that may have a significant impact on the environment and the potential for the Project to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.

Project Impacts

The project's GHG impacts were evaluated against the City's CAP. To demonstrate that a project would comply with the CAP, requires a two-step process: the first step is a screening-level bright line threshold, which if exceeded, would require the second step, which is a CAP efficiency and CAP measures consistency analysis.

As discussed in Section 3.4 of this report, the Project operational emissions in 2026 plus amortized project construction emissions would be greater than the City's CAP GHG threshold of 900 MT CO_2e per year. As such, the Project is required to complete the CAP Consistency Checklist to ensure that emission targets identified in the City's CAP can be achieved considering the additional emissions. The Project was eligible to use the CAP Consistency Checklist under criteria 4, it's GHG emissions would be less than those generated by land uses allowed under the existing designation. The Project would implement on-site renewable energy through solar photovoltaic (PV) systems for the development, electric vehicle (EV) charging infrastructure, and canopy coverage and permeable surface area that meets requirements outlined in the City's Zoning Ordinance. Accordingly, the Project is deemed consistent with the measurable goals outlined in the City's CAP.

The next step to determine CAP consistency is to estimate the Project's GHG efficiency which is a measure of the project's GHG operational GHG emissions divided by it service population. Construction of the Project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The Project would generate operational GHG emissions from area sources (landscape maintenance), energy sources (electricity consumption and natural gas combustion), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. Estimated annual Project-generated operational GHG emissions at buildout in 2026 would be approximately 1,193 MT CO_2e per year. Estimated annual Project-generated operational emissions in 2026, plus amortized Project construction emissions would be approximately 1,221 MT CO_2e per year. The total service population was 457 residents resulting in a GHG efficiency metric of 2.69 MT CO2e per service population. This is less than the City's GHG efficiency target of 3.0 MT CO_2e post-2025. The Project meets this criterion and is consistent with the CAP. The Project is consistent with the two-step process for determining consistency with the City's CAP.

Regarding the CARB's 2022 Scoping Plan and AB 1279 (2045 carbon neutrality), the City's CAP would puts it on trajectory for meeting its share of reductions towards 2050, which would align with 2045 targets in concert with CARB measures for carbon capture and storage.

Based on the Project's consistency with the City's CAP, the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs or generate GHGs that may have a significant impact on the environment. This impact would be **less than significant.**

Mitigation Measures

Mitigation Measure AQ-1 **Tier 4 Interim Construction Equipment.** Prior to the commencement of any construction activities, the applicant or its designee shall provide evidence to the City of Oceanside (City) that for off-road equipment with engines rated at 300 horsepower or greater, no construction equipment shall be used that is less than Tier 4 Interim or equivalent (i.e., Tier 4 Final or other diesel particulate filter control that achieves equal or increased PM_{10} exhaust reduction). An exemption from these requirements may be granted by the City if the applicant documents that equipment with the required tier is not reasonably available and equivalent reductions in PM_{10} exhaust emissions are achieved from other construction equipment. The applicant shall be responsible for preparation of a new air quality assessment demonstrating that health risks are below significance thresholds of 10 in a million with the revised equipment mix. Before an exemption may be considered by the City, the applicant shall be required to demonstrate that two construction fleet owners/operators in the San Diego Region were contacted and that those owners/operators confirmed Tier 4 equipment or equivalent could not be located within the San Diego region. The City shall review the exemption request and provide a determination within 10 business days from receipt of the request.

Summary of Findings

Table ES-1. Summary of Impact Determinations

Analysis	Report Section	CEQA Checklist Question	Significance Determinations	
			Unmitigated	Mitigated
Air Quality Management Plan	2.4.1	AQ-1	Less than Significant	No Mitigation Required.
Cumulatively Considerable Net Increase of Any Criteria Pollutant	2.4.2	AQ-2	Less than Significant	No Mitigation Required.
Sensitive Receptors	2.4.3	AQ-3	Less than Significant	Less than Significant with Mitigation.
Other Emissions and Odors	2.4.4	AQ-4	Less than Significant	No Mitigation Required.
GHG Emissions and GHG Reduction Plan	3.4.1	GHG-1 and GHG-2	Less than Significant	No Mitigation Required.

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1 Introduction

1.1 Report Purpose and Scope

The purpose of this technical report is to assess the potential air quality and greenhouse gas (GHG) emissions impacts associated with construction and operation of the Oceanside Pacifica Development Project (Project). This analysis uses the significance thresholds in Appendix G of the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.) and the emissions-based significance thresholds recommended by the San Diego Air Pollution Control District (SDAPCD) and other applicable thresholds of significance.

1.2 Project Location

The Pacifica Planned Development Plan planning area encompasses approximately 14.5 gross acres. As illustrated in Figure 1. Project Location, the planning area is situated in the northeast portion of the City of Oceanside in the North Valley neighborhood. The planning area is located approximately 0.5 mile from the San Luis Rey Transit Center and 1.5 miles from Highway 76.

1.3 Project Description

The proposed Project consists of a for-sale 164-unit Planned Development Community to be developed on a 14.55-acre site located at the former Pacifica Elementary School site at 4991 Macario Drive (see Figure 2 Site Plan). The neighborhood will consist of three-story attached townhomes oriented towards internal paseos and drives throughout the site. New homes will range in size from a minimum of approximately 1,200 square feet to 1,800 square feet with two (2) to three (3) bedrooms and an attached 2-car garage (either side-by-side or tandem configuration). Each home will include private open space in the form of a patio and/or deck. Common recreational spaces, consisting of approximately 53,700 square feet of open space, will be designed with urban-style amenities such as tot lots, an off-leash dog space, pickle ball courts, bocce ball areas, barbecue areas, and space for a variety of outdoor games.

1.4 Project Design Features

The Project would implement construction-related and operational project design features (PDFs) intended to reduce emissions of criteria air pollutants and toxic air contaminants (TACs) as follows:

PDF-AQ-1: Require the installation of only electric or natural gas fireplaces in future residential construction. Future residential units are prohibited from having wood-burning fireplaces or stoves.

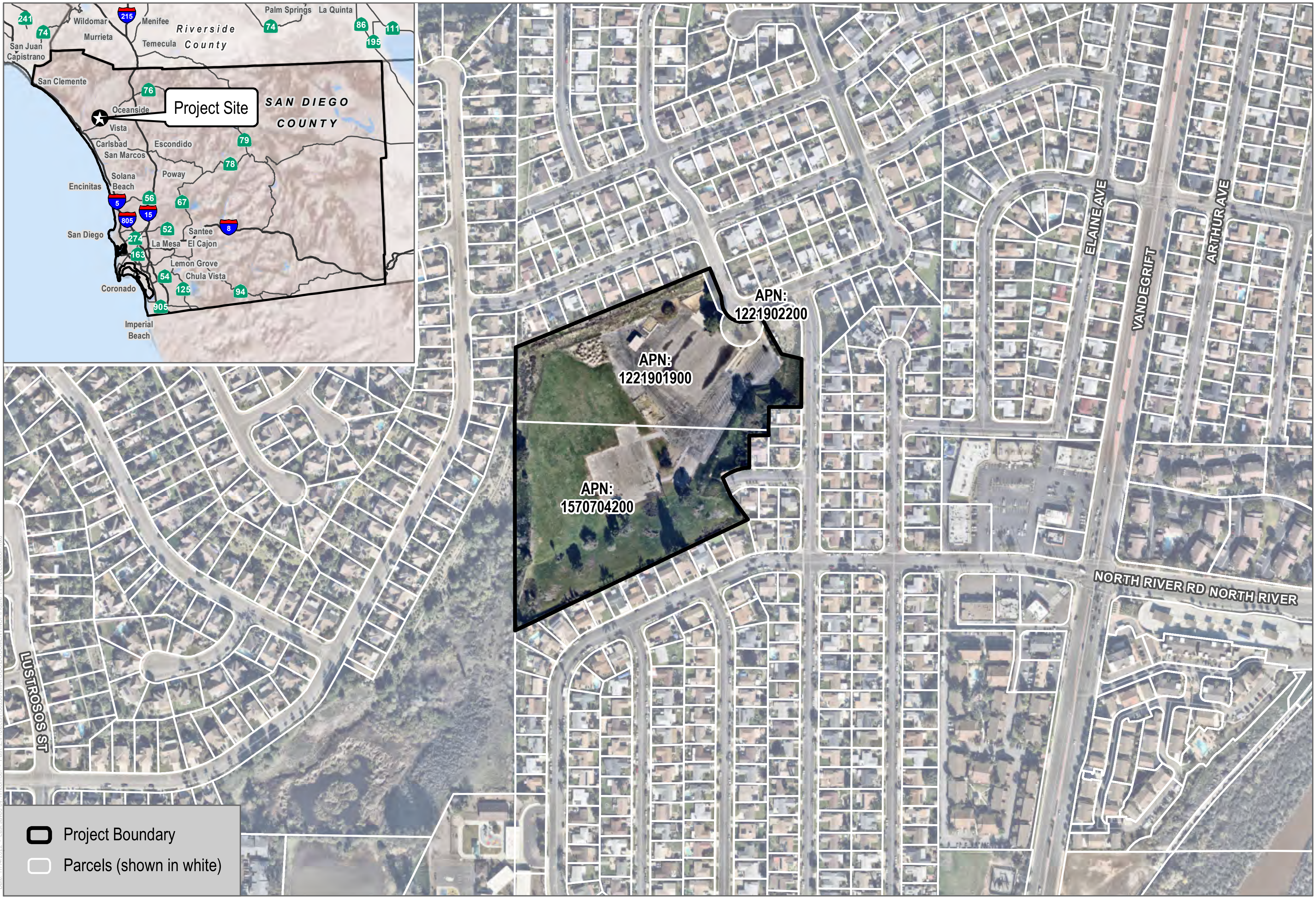
PDF-AQ-2: Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions. Construction of Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust (PM10 and PM2.5) that may be generated during grading and construction activities.

PDF-AQ-3: The Project will provide temporary electricity to the project site during the building construction phases and prohibit the use of diesel-fueled/natural gas fueled generators during the building construction phases.

PDF-AQ-3: The Project will limit air compressors used during the architectural coating/painting phases to equipment that is electric-powered.

PDF-GHG-1: Photo-voltaic (PV) systems will be installed on each building to meet 50% of forecasted electricity demand.

PDF-AQ-1, PDF-AQ-2, PDF-AQ-3, PDF-AQ-4, and PDF-GHG-1 would be required as City-imposed Conditions of Approval to ensure they are implemented during construction and operation of the proposed Project.



SOURCE: SanGIS 2019

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FIGURE 1

Project Location

Pacifica Elementary Housing Development Project

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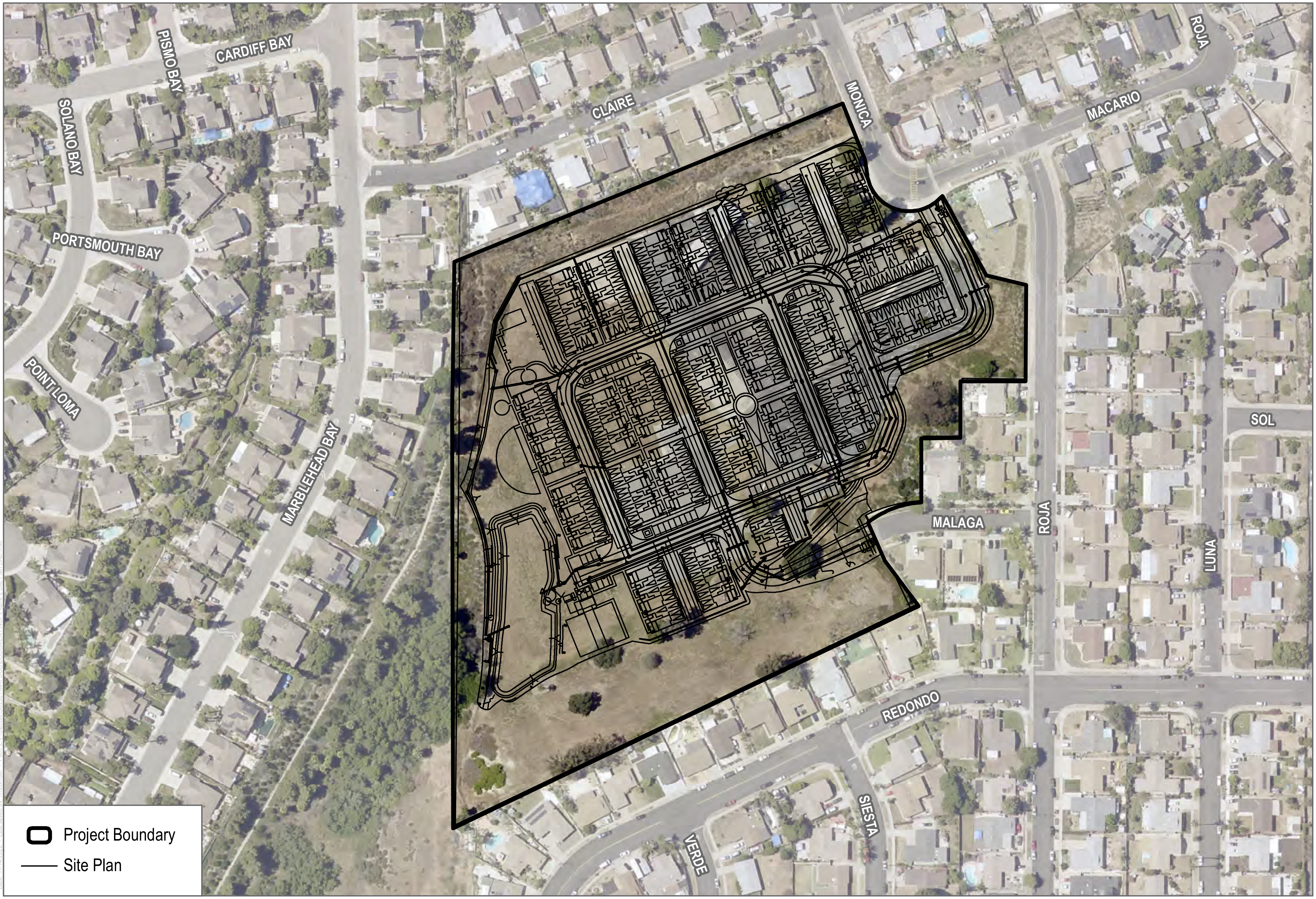

SOURCE: SANGIS 2020

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FIGURE 2

Site Plan

Pacifica Elementary Housing Development Project

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2 Air Quality

2.1 Environmental Setting

2.1.1 Climate and Topography

The weather of the San Diego region, as in most of Southern California, is influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average temperature ranges (in degrees Fahrenheit) from the mid-40s to the high 90s. Most of the region's precipitation falls from November to April, with infrequent (approximately 10%) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches; the amount increases with elevation as moist air is lifted over the mountains (WRCC 2016).

The topography in the San Diego region varies greatly, from beaches on the west to mountains and desert on the east; along with local meteorology, it influences the dispersal and movement of pollutants in the basin. The mountains to the east prohibit dispersal of pollutants in that direction and help trap them in inversion layers.

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

2.1.2 San Diego Air Basin Climatology

The Project area is located within the San Diego Air Basin (SDAB) and is subject to the SDAPCD guidelines and regulations. The SDAB is one of 15 air basins that geographically divide the State of California. The SDAB is currently classified as a federal nonattainment area for ozone (O_3) and a state nonattainment area for particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and O_3.

The SDAB, which lies in the southwest corner of California and comprises the entire San Diego region, covers 4,260 square miles and is an area of high air pollution potential. The SDAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The SDAB experiences frequent temperature inversions. Subsidence inversions occur during the warmer months as descending air associated with the Pacific High-Pressure Zone meets cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer formed between these two air masses also can trap pollutants. As the pollutants become more concentrated in the atmosphere, photochemical reactions occur that produce O_3, which contributes to the formation of smog. Smog is a combination of smoke and other particulates, O_3, hydrocarbons, oxides of nitrogen (NO_x) and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects (CARB 2022a).

Light daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains. During the fall and winter, air quality problems are created due to carbon monoxide (CO) and NO_x emissions. CO concentrations are generally higher in the morning and late evening. In the morning, CO levels are elevated due to cold temperatures and the large number of motor vehicles traveling. Higher CO levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in the SDAB are associated with heavy traffic. Nitrogen dioxide (NO_2) levels are also generally higher during fall and winter days.

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

2.1.3 Sensitive Receptors

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion.

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board (CARB), include children, older adults, and people with cardiovascular and chronic respiratory diseases. According to the SDAPCD, sensitive receptors are those who are especially susceptible to adverse health effects from exposure to toxic air contaminants, such as children, the elderly, and the ill. Sensitive receptors include residences, schools (grades Kindergarten through 12), libraries, day care centers, nursing homes, retirement homes, health clinics, and hospitals within 2 kilometers of the facility (SDAPCD 2022a). The closest sensitive receptors to the Project site are single-family residences immediately adjacent on the northern and southern boundaries of the site.

2.1.4 Pollutants and Effects

2.1.4.1 Criteria Air Pollutants

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, sulfur dioxide (SO_2), PM_{10}, $PM_{2.5}$, and lead. These pollutants are discussed in the following paragraphs.[1] In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

Ozone (O_3). O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3

1 The following descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the U.S. Environmental Protection Agency's "Six Common Air Pollutants" (EPA 2017a) and the California Air Resources Board's "Glossary of Air Pollutant Terms" (CARB 2017) published information.

precursors. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere.[2] The O_3 that the U.S. Environmental Protection Agency (EPA) and the CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

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

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2023a).

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

NO_2 can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections (EPA 2016a). A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics.

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

In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2023b).

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

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2023c).

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

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 parts per million [ppm]) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2023d).

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

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

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

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

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

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

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

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

The primary health effects of VOCs result from the formation of O_3 and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs.

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

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

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

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

2.1.4.2 Non-Criteria Pollutants

Toxic Air Contaminants (TACs). A substance is considered toxic if it has the potential to cause adverse health effects in humans, including increasing the risk of cancer upon exposure, or acute and/or chronic noncancer health effects. A toxic substance released into the air is considered a TAC. TACs are identified by federal and state agencies based on a review of available scientific evidence. In the State of California, TACs are identified through a two-step process that was established in 1983 under the Toxic Air Contaminant Identification and Control Act. This two-step process of risk identification and risk management and reduction was designed to protect residents from the health effects of toxic substances in the air. In addition, the California Air Toxics "Hot Spots" Information and Assessment Act, Assembly Bill (AB) 2588, was enacted by the legislature in 1987 to address public concern over the release of TACs into the atmosphere. The law requires facilities emitting toxic substances to provide local air pollution control districts with information that will allow an assessment of the air toxics problem, identification of air toxics emissions sources, location of resulting hotspots, notification of the public exposed to significant risk, and development of effective strategies to reduce potential risks to the public over 5 years.

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

Diesel Particulate Matter (DPM). DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. More than 90% of DPM is less than 1 micrometer in diameter (about 1/70th the diameter of a human hair), and thus is a subset of $PM_{2.5}$ (CARB 2022b). DPM is typically composed of carbon particles ("soot," also called black carbon) and numerous organic compounds, including over 40 known cancer-causing organic substances. Examples of these chemicals include polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene (CARB 2022b). CARB classified "particulate emissions from diesel-fueled engines" (i.e., DPM) as a TAC in August 1998 (17 CCR 93000). DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with DPM, CARB adopted a diesel risk reduction plan in 2000 (CARB 2000). Because it is part of $PM_{2.5}$, DPM also contributes to the same non-cancer health effects as $PM_{2.5}$ exposure. These effects include premature death; hospitalizations and emergency department visits for exacerbated chronic heart and lung disease, including asthma; increased respiratory symptoms; and decreased lung function in children. Several studies suggest that exposure to DPM may also facilitate development of new allergies (CARB 2022b). Those most vulnerable to non-cancer health effects are children whose lungs are still developing and the elderly who often have chronic health problems.

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

Valley Fever. Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The fungus is very prevalent in the soils of California's San Joaquin Valley, particularly in Kern County. Kern County is considered a highly endemic county (i.e., more than 20 cases annually of Valley Fever per 100,000 people) based on the incidence rates reported through 2016 (California Department of Public Health 2017). The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

San Diego County (County) is not considered a highly endemic region for Valley Fever, as the latest report from the County of San Diego Health and Human Services Agency Public Health Services indicated the County has 8.3 cases per 100,000 people (County of San Diego 2019). In the zip code area of the Project site, the case rate is reported as 3.5 cases per 100,000 people (County of San Diego 2021).

2.2 Regulatory Setting

2.2.1 Federal

2.2.1.1 Criteria Pollutants

The federal Clean Air Act (CAA), passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the CAA, including the setting of National Ambient Air Quality Standards (NAAQS) for major air pollutants, hazardous air pollutant (HAP) standards, approval of state attainment plans, motor vehicle emission standards, stationary source emission standards and permits, acid rain control measures, stratospheric O_3 protection, and enforcement provisions.

NAAQS are established by the EPA for "criteria pollutants" under the CAA, which are O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The CAA requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan (SIP) that demonstrates how those areas will attain the standards within mandated time frames.

2.2.1.2 Hazardous Air Pollutants

The 1977 CAA Amendments required the EPA to identify national emission standards for hazardous air pollutants to protect the public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAA Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

2.2.2 State

2.2.2.1 Criteria Pollutants

The California Clean Air Act was adopted in 1988 and establishes the state's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. Under the California Clean Air Act, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB is responsible for ensuring implementation of the California Clean Air Act, responding to the federal CAA, and regulating emissions from motor vehicles and consumer products. Pursuant to the authority granted to it, CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS.

The NAAQS and CAAQS are presented in Table 1.

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
O_3	1 hour	0.09 ppm (180 μg/m^3)	—	Same as primary standard[f]
	8 hours	0.070 ppm (137 μg/m^3)	0.070 ppm (137 μg/m^3)[f]	
NO_2[g]	1 hour	0.18 ppm (339 μg/m^3)	0.100 ppm (188 μg/m^3)	Same as primary standard
	Annual arithmetic mean	0.030 ppm (57 μg/m^3)	0.053 ppm (100 μg/m^3)	
CO	1 hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	None
	8 hours	9.0 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
SO_2[h]	1 hour	0.25 ppm (655 μg/m^3)	0.075 ppm (196 μg/m^3)	—
	3 hours	—	—	0.5 ppm (1,300 μg/m^3)
	24 hours	0.04 ppm (105 μg/m^3)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
PM_{10}[i]	24 hours	50 μg/m^3	150 μg/m^3	Same as primary standard
	Annual arithmetic mean	20 μg/m^3	—	
$PM_{2.5}$[i]	24 hours	—	35 μg/m^3	Same as primary standard
	Annual arithmetic mean	12 μg/m^3	12.0 μg/m^3	15.0 μg/m^3
Lead[j, k]	30-day average	1.5 μg/m^3	—	—
	Calendar quarter	—	1.5 μg/m^3 (for certain areas)[k]	Same as primary standard
	Rolling 3-month average	—	0.15 μg/m^3	
Hydrogen sulfide	1 hour	0.03 ppm (42 μg/m^3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 μg/m^3)	—	—
Sulfates	24- hours	25 μg/m^3	—	—

Table 1. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
Visibility reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to the number of particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

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

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

b National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once per year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than 1. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

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

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

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

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

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

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

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

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

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

Ambient Air Quality Monitoring Data

SDAPCD operates a network of ambient air monitoring stations throughout the County, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. SDAPCD monitors air quality conditions at 10 locations throughout the basin. The Camp Pendleton monitoring station represents the closest monitoring station to the Project site for concentrations for O_3, $PM_{2.5}$, and NO_2. The Escondido monitoring station is the closest monitoring station for CO. The closest monitoring station for SO_2 and PM_{10} is the El Cajon monitoring station. Ambient concentrations of pollutants from 2019 through 2021 are presented in Table 2.

Table 2. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year 2019	Measured Concentration by Year 2020	Measured Concentration by Year 2021	Exceedances by Year 2019	Exceedances by Year 2020	Exceedances by Year 2021
Ozone (O_3)										
Camp Pendleton	ppm	Maximum 1-hour concentration	State	0.09	0.075	0.094	0.074	0	0	0
Camp Pendleton	ppm	Maximum 8-hour concentration	State	0.070	0.065	0.074	0.059	0	3	0
Camp Pendleton	ppm	Maximum 8-hour concentration	Federal	0.070	0.064	0.074	0.059	0	3	0
Nitrogen Dioxide (NO_2)										
Camp Pendleton	ppm	Maximum 1-hour concentration	State	0.18	0.053	0.058	0.059	*0*	*0*	*0*
Camp Pendleton	ppm	Maximum 1-hour concentration	Federal	0.100	0.053	0.058	0.059	*0*	*0*	*0*
Camp Pendleton	ppm	Annual concentration	State	0.030	0.004	0.005	0.005	0	0	0
Camp Pendleton	ppm	Annual concentration	Federal	0.053	0.004	0.005	0.005	0	0	0
Carbon Monoxide (CO)										
Escondido-Rancho Carmel Drive	ppm	Maximum 1-hour concentration	State	20	4.1	3.3	3.0	0	0	0
Escondido-Rancho Carmel Drive	ppm	Maximum 1-hour concentration	Federal	35	4.1	3.3	3.0	0	0	0
Escondido-Rancho Carmel Drive	ppm	Maximum 8-hour concentration	State	9.0	2.5	1.7	1.8	0	0	0
Escondido-Rancho Carmel Drive	ppm	Maximum 8-hour concentration	Federal	9	2.5	1.7	1.8	0	0	0
Sulfur Dioxide (SO_2)										
El Cajon	ppm	Maximum 1-hour concentration	Federal	0.075	0.001	0.002	0.002	0	0	0
El Cajon	ppm	Maximum 24-hour concentration	State	0.04	0.000	0.000	0.000	0	0	0
El Cajon	ppm	Maximum 24-hour concentration	Federal	0.140	0.000	0.000	0.000	0	0	0
El Cajon	ppm	Annual concentration	Federal	0.030	0.000	0.000	0.000	0	0	0

Table 2. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
					2019	2020	2021	2019	2020	2021
Coarse Particulate Matter (PM_{10})[a]										
El Cajon	μg/m³	Maximum 24-hour concentration	State	50	38	55	40	0	0	0
			Federal	150	38	55	40	0	0	0
	μg/m³	Annual concentration	State	20	19.3	23.5	22.0	-	-	-
Fine Particulate Matter ($PM_{2.5}$)[a]										
Camp Pendleton	μg/m³	Maximum 24-hour concentration	Federal	35	13.8	61.1	20.7	0 (0)	0 (0)	0 (0)
	μg/m³	Annual concentration	State	12	—	—	—	—	—	—
			Federal	12.0	—	—	9.5	—	—	—

Sources: CARB 2022c; EPA 2022a.

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

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

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

The Camp Pendleton monitoring station is located at 21441-W B Street, Oceanside, California.

The Escondido monitoring station is located at 600 East Valley Pkwy, Escondido, California.

The El Cajon monitoring station is located at 10537 Floyd Smith Drive, El Cajon, California.

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

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

SDAB Attainment Designation

Pursuant to the 1990 CAA Amendments, EPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as “attainment” for that pollutant. If an area exceeds the standard, the area is classified as “nonattainment” for that pollutant. As previously discussed, these standards are set by EPA or CARB for the maximum level of a given air pollutant that can exist in the outdoor air without unacceptable effects on human health or the public welfare. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as “unclassified” or “unclassifiable.”

The designation of “unclassifiable/attainment” means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved maintenance plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as “attainment” or “nonattainment,” but based on the CAAQS rather than the NAAQS.

Table 3 summarizes SDAB’s federal and state attainment designations for each of the criteria pollutants.

Table 3. SDAB Attainment Designation

Pollutant	Federal Designation	State Designation
O_3 (8-hour)	Nonattainment	Nonattainment
O_3 (1-hour)	Attainment[a]	Nonattainment
CO	Attainment	Attainment
PM_{10}	Unclassifiable[b]	Nonattainment
$PM_{2.5}$	Attainment	Nonattainment[c]
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	(No federal standard)	Attainment
Hydrogen sulfide	(No federal standard)	Unclassified
Visibility-reducing particles	(No federal standard)	Unclassified
Vinyl chloride	(No federal standard)	No designation

Sources: SDAPCD 2022b

Definitions: attainment = meets the standards; nonattainment = does not meet the standards; unclassified or unclassifiable = insufficient data to classify

Notes: SDAB = San Diego; O_3 = ozone; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; NO_2 = nitrogen dioxide; SO_2 = sulfur dioxide.

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

[b] At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.

[c] CARB has not reclassified the region to attainment yet due to (1) incomplete data, and (2) the use of non-California Approved Samplers (CAS). While data collected does meet the requirements for designation of attainment with federal $PM_{2.5}$ standards, the data completeness requirements for state $PM_{2.5}$ standards substantially exceed federal requirements and mandates, and have historically not been feasible for most air districts to adhere to given local resources. APCD has begun replacing most regional filter-based $PM_{2.5}$ monitors as they reach the end of their useful life with continuous $PM_{2.5}$ air monitors to ensure collected data meets stringent completeness requirements in the future. APCD anticipates these new monitors will be approved as "CAS" monitors once CARB review the list of approved monitors, which has not been updated since 2013.

2.2.2.2 Toxic Air Contaminants

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

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

California Health and Safety Code Section 41700

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

2.2.3 Local

2.1.7.1 San Diego Air Pollution Control District

While CARB is responsible for the regulation of mobile emission sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. The Project site is located within the SDAB and is subject to the guidelines and regulations of SDAPCD.

In San Diego County, O_3 and particulate matter are the pollutants of main concern, since exceedances of CAAQS for those pollutants are experienced here in most years. For this reason, the SDAB has been designated as a nonattainment area for the state PM_{10}, $PM_{2.5}$, and O_3 standards. The SDAB is also a federal O_3 attainment (maintenance) area for 1997 8-hour O_3 standard, a O_3 nonattainment area for the 2008 8-hour O_3 standard, and a CO maintenance area (western and central part of the SDAB only). The Project area is in the CO maintenance area.

2.1.7.2 Federal Attainment Plans

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

In December 2016, the SDAPCD adopted an update to the Eight-Hour Ozone Attainment Plan for San Diego County (2008 O_3 NAAQS). The 2016 Final Eight-Hour Ozone Attainment Plan for San Diego County indicates that local controls and state programs would allow the region to reach attainment of the federal 8-hour O_3 standard (1997 O_3 NAAQS) by 2018 (SDAPCD 2016b). In this plan, SDAPCD relies on the Regional Air Quality Strategy (RAQS) to demonstrate how the region will comply with the federal O_3 standard. The RAQS details how the region will manage and reduce O_3 precursors (NO_x and VOCs) by identifying measures and regulations intended to reduce these pollutants. The control measures identified in the RAQS generally focus on stationary sources; however, the emissions inventories and projections in the RAQS address all potential sources, including those under the authority of CARB and EPA. Incentive programs for reduction of emissions from heavy-duty diesel vehicles, off-road equipment, and school buses are also established in the RAQS.

Currently, the County is designated as moderate nonattainment for the 2008 O_3 NAAQS and maintenance for the 1997 O_3 NAAQS. As documented in the 2016 Final Eight-Hour Ozone Attainment Plan for San Diego County, the County has a likely chance of obtaining attainment due to the transition to low emission cars, stricter new source review rules, and continuing the requirement of general conformity for military growth and the San Diego International Airport. SDAPCD will also continue emission control measures including ongoing implementation of existing regulations in ozone precursor reduction to stationary and area-wide sources, subsequent inspections of facilities and sources, and the adoption of laws requiring Best Available Retrofit Control Technology for control of emissions (SDAPCD 2016b).

2.1.7.3 State Attainment Plans

SDAPCD and the SANDAG are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The RAQS for the SDAB was initially adopted in 1991 and is updated every 3 years. The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in the County and the cities in the County, to forecast future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by the County and the cities in the County as part of the development of their general plans (SANDAG 2020, 2021).

On March 9, 2023, SDAPCD adopted the 2022 Regional Air Quality Strategy (RAQS). The RAQS plan demonstrates how the San Diego region will further reduce air pollution emissions to meet state health-based standards for ground-level O_3. The 2022 RAQS guides the SDAPCD in deploying tools, strategies, and resources to continue reducing pollutants that are precursors to ground-level O_3, including NO_x and VOC. The 2022 RAQS emphasizes O_3

control measures but also identifies complementary measures and strategies that can reduce emissions of Greenhouse Gases (GHGs) and PM. It also includes new analyses exploring O_3 and its relationship to public health, mobile sources, under-resourced communities, and GHGs and climate change. Further, the 2022 RAQS identifies strategies to expand SDAPCD regional partnerships, identify more opportunities to engage the public and communities of concern, and integrate environmental justice and equity across all proposed measures and strategies.

In regard to particulate matter emissions reduction efforts, in December 2005, SDAPCD prepared a report titled "Measures to Reduce Particulate Matter in San Diego County" to address implementation of Senate Bill 656 in San Diego County (Senate Bill 656 required additional controls to reduce ambient concentrations of PM10 and PM2.5) (SDAPCD 2005). In the report, SDAPCD evaluated the implementation of source-control measures that would reduce particulate matter emissions associated with residential wood combustion; various construction activities including earthmoving, demolition, and grading; bulk material storage and handling; carryout and trackout removal and cleanup methods; inactive disturbed land; disturbed open areas; unpaved parking lots/staging areas; unpaved roads; and windblown dust (SDAPCD 2005).

2.1.7.4 SDAPCD Rules and Regulations

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

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

2.3 Significance Criteria and Methodology

2.3.1 Thresholds of Significance

The State of California has developed guidelines to address the significance of air quality impacts based on Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.), which provides guidance that a project would have a significant environmental impact if it would:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

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

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality. As discussed earlier, the SDAPCD has not developed thresholds of significance for air quality and health risk, however, the SDAPCD has provided emission levels under its permitting authority for new source review for which an AQIA is triggered. The County of San Diego has reviewed SDAPCD's trigger levels, as well as EPA rulemaking, and CEQA thresholds adopted by the SCAQMD to develop SLTs to assist lead agencies in determining the significance of project-level air quality impacts within the County. The City of Oceanside has chosen to apply the County of San Diego SLT's for determining mass daily criteria air pollutant thresholds of significance. Project related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds in Table 4 are exceeded.

For CEQA purposes, these screening criteria can be used as numeric methods to demonstrate that the Project's total emissions would or would not result in a significant impact to air quality.

Table 4. Air Quality Significance Thresholds

Construction Emissions	
Pollutant	Total Emissions (Pounds per Day)
Coarse particulate matter (PM_{10})	100
Fine particulate matter ($PM_{2.5}$)	55
Oxides of nitrogen (NO_x)	250
Sulfur oxides (SO_x)	250
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75[a]

Table 4. Air Quality Significance Thresholds

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

Source: SDAPCD 2016a.
Notes: SDAPCD = San Diego Air Pollution Control District.
[a] VOC threshold based on the threshold of significance for VOCs from the South Coast Air Quality Management District (SCAQMD) for the Coachella Valley as stated in the San Diego County Guidelines for Determining Significance.

The thresholds listed in Table 4 represent screening-level thresholds that can be used to evaluate whether Project-related emissions would cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. In the event that emissions exceed these thresholds, modeling would be required to demonstrate that the Project's total air quality impacts result in ground-level concentrations that are below the CAAQS and NAAQS, including appropriate background levels. For non-attainment pollutants, if emissions exceed the thresholds shown in Table 4, the Project could have the potential to result in a cumulatively considerable net increase in these pollutants and thus could have a significant impact on the ambient air quality.

SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person (SDAPCD 1976). A project that proposes a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

2.3.2 Approach and Methodology

2.3.2.1 Construction Mass Emissions

Emissions from the construction phase of Project components were estimated using the California Emissions Estimator Model (CalEEMod) Version 2022.1[3]. Per preliminary project details, it is assumed that construction of the Project would begin in January 2024 and would last approximately 21 months. The construction schedule has been developed based on available information provided by the Project applicant, typical construction practices, and CalEEMod default assumptions. Construction phasing is intended to represent a schedule of anticipated activities for use in estimating potential Project-generated construction emissions. Phase 1 of the Project contains demolition, site preparation, grading, utility installation, and paving. Phase 2 of the Project represents the building construction and architectural coating of 80 townhouse units and accompanying landscaping/parking, while

[3] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Phase 3 represents the construction and painting of the remaining 84 units and landscaping/parking. The approximate construction phasing is as follows:

- Demolition (Phase 1): January 2024 to February 2024 (1 month)
- Site Preparation (Phase 1): February 2024 (2 weeks)
- Grading (Phase 1): February 2024 to March 2024 (1 month)
- Utility Installation (Phase 1): April 2024 to May 2024 (1 month)
- Paving (Phase 1): May 2024 to June 2024 (1 month)
- Building Construction (Phase 2): June 2024 to December 2024 (7 months)
- Architectural Coating (Phase 2): December 2024 to January 2025 (1 month)
- Building Construction (Phase 3): January 2025 to August 2025 (8 months)
- Architectural Coating (Phase 3): September 2025 (1 month)

Table 5 provides the construction equipment mix and vehicle trips assumed for estimating Project-generated construction emissions.

Table 5. Construction Scenario Assumptions

	Vehicle Trips			Equipment		
Construction Phase (Duration)	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Demolition (Phase 1)	8	2	124	Concrete/Industrial Saws	1	8
				Excavators	1	8
				Rubber Tired Dozers	1	8
Site Preparation (Phase 1)	8	2	0	Rubber Tired Dozers	1	8
				Tractors/Loaders/Backhoes	2	8
Grading (Phase 1)	16	2	0	Graders	1	8
				Rubber Tired Dozers	1	8
				Scrapers	3	8
				Tractors/Loaders/Backhoes	1	8
Utility Installation (Phase 1)	10	2	0	Excavators	2	8
				Tractors/Loaders/Backhoes	2	8
Paving (Phase 1)	14	2	0	Pavers	1	8
				Paving Equipment	1	8
				Rollers	3	8
Building Construction (Phase 2)	120	18	0	Forklifts	3	8
				Generator Sets - electric	1	8
				Tractors/Loaders/Backhoes	3	8
Architectural Coating (Phase 2)	48	2	0	Air Compressors - electric	3	8
	120	18	0	Forklifts	3	8

Table 5. Construction Scenario Assumptions

Construction Phase (Duration)	Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Average Daily Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Building Construction (Phase 3)				Generator Sets - electric	1	8
				Tractors/Loaders/Backhoes	3	8
Architectural Coating (Phase 3)	48	2	0	Air Compressors - electric	3	8

Note: See Appendix A for additional details.

The equipment mix assumptions were based on CalEEMod default assumptions and applicant-provided input based on proposed land use and is meant to represent a reasonably conservative estimate of construction activity. For the analysis, it is generally assumed that heavy construction equipment would be operating at the site for a maximum of 8 hours per day, 5 days per week. In addition, the Project incorporated the use of temporary electric power/electric generators and electric air compressors during the building construction and architectural coating phases, respectively.

Default assumptions provided in CalEEMod were used to determine worker trips and vendor truck trips for each potential construction phase. The default CalEEMod trip distance for construction vehicles was assumed, which was a one-way distance of 12 miles for worker trips, 7.63 miles for vendor truck trips, and 20 miles for haul truck trips.

Implementation of the Project would generate criteria air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, architectural coatings, and asphalt pavement application. Based on project specific information, no net import or export of material is expected during the grading phase. Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Construction of Project components would be subject to SDAPCD Rule 55 – Fugitive Dust Control. Compliance with Rule 55 would limit fugitive dust (PM_{10} and $PM_{2.5}$) that may be generated during grading and construction activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active sites two times per day, depending on weather conditions as indicated by PDF-AQ-2.

Internal combustion engines used by construction equipment, vendor trucks (i.e., delivery trucks), haul trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, PM_{10}, and $PM_{2.5}$. The application of architectural coatings, such as exterior application/interior paint and other finishes, and application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SDAPCD Rule 67.0.1 for Architectural Coatings.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

2.3.2.2 Construction Health Risk Analysis

An HRA was performed to assess the impact of construction on sensitive receptors proximate to the Project site and to onsite residents that may occupy the site while the second phase of building construction is completed. This report includes an HRA associated with emissions from construction of the Project based on the methodologies prescribed in the Office of Environmental Health Hazard Assessment (OEHHA) document, Air Toxics Hot Spots Program

Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments (OEHHA Guidelines) (OEHHA 2015). To implement the OEHHA Guidelines based on proposed project information, the SDAPCD has developed a three-tiered approach where each successive tier is progressively more refined, with fewer conservative assumptions. The SDAPCD document, Supplemental Guidelines for Submission of Air Toxics "Hot Spots" Program Health Risk Assessments (SDAPCD 2022), provides guidance with which to perform HRAs within the SDAB.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SDAPCD recommends a carcinogenic (cancer) risk threshold of 10 in one million. Additionally, some TACs increase non-cancer health risk due to long-term (chronic) exposures. The Chronic Hazard Index is the sum of the individual substance chronic hazard indices for all TACs affecting the same target organ system. The SDAPCD recommends a Chronic Hazard Index significance threshold of one (project increment). The exhaust from diesel engines is a complex mixture of gases, vapors, and particles, many of which are known human carcinogens. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts. No short-term, acute relative exposure level has been established for DPM; therefore, acute impacts of DPM are not addressed in this assessment.

The HRA for the Project evaluated the risk to existing off-site residents from diesel emissions from exhaust from on-site construction equipment and diesel haul and vendor trucks. The HRA also evaluated the risk to potential onsite residents occupying the first phase of buildings while the second phase of construction is completed.

The dispersion modeling of DPM was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model SDAPCD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain (EPA 2021). For the Project, AERMOD was run with all sources emitting unit emissions (one gram per second) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The X/Q values of ground-level concentrations were determined for construction emissions using AERMOD and the maximum concentrations determined for the one-hour and period-averaging periods. Principal parameters of this modeling are presented in Table 6.

Table 6. AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest three-year meteorological data (2019-2021) for the McClellan-Palomar Airport Station were obtained from SDAPCD as the recommended meteorological station and input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. Per the SDAPCD guidelines, the land use procedure from 4.4.1 of the OEHHA Guidance Manual indicated that urban dispersion was appropriate for the project site.
Terrain Characteristics	The elevation of the modeled site is about 92 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
Elevation Data	Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD

Table 6. AERMOD Principal Parameters

Parameter	Details
	View in the U.S. Geological Survey's National Elevation Dataset format with a 10-meter resolution.
Emission Sources and Release Parameters	Air dispersion modeling of DPM from construction equipment was conducted using emissions estimated using CalEEMod, assuming emissions would occur eight hours per day, five days per week. Vendor and hauling trips were modified to account only for emissions occurring within 1,320 ft of the project site. The Project area was modeled as a series of adjacent line-volume sources. The line of adjacent volume sources was assumed to have a release height of 5 meters, a plume height of 10 meters, and a plume width of 10 meters (SCAQMD 2008).
Receptors	The HRA evaluates the risk to existing off-site and future on-site sensitive receptors located in proximity to the Project Site. For the off-site receptors, a uniform fine 1.0 by 1.0-kilometer (0.62- by 0.62-mile) Cartesian grid with 20-meter (66-foot) spacing was centered over the Project Site and converted into discrete receptors to capture the maximum point of impact. For the on-site receptors, discrete receptors were added to the project site to account for residential units in Buildings 2, 9-15, 16, 18, 19, 20, 23, 24 of the site plan.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; SDAPCD = San Diego Air Pollution Control District; DPM = diesel particulate matter; CalEEMod = California Emissions Estimator Model.
See Appendix B for additional information.

Dispersion model plot files from AERMOD were then imported into CARB's Hotspots Analysis and Reporting Program Version 2 (Version 21118) to determine health risk, which requires peak one-hour emission rates and annual emission rates for all pollutants for each modeling source. For the offsite residential health risk, the HRA assumes exposure would start in the third trimester of pregnancy for a duration of 20 months. For the onsite residential risk, the HRA assumes exposure would start in the third trimester of pregnancy for a duration of 8 months. A construction HRA CalEEMod run was performed to estimate on-site emissions of exhaust PM_{10}, which was used as a surrogate for DPM.[4] The predominant source of construction exhaust PM_{10} is operation of off-road diesel construction equipment. However, it was conservatively assumed that emissions from heavy-duty haul and vendor trucks, which could be diesel- or gasoline-fueled, traveling 0.25 miles would occur on site to represent potential on-site travel and nearby local off-site travel. Total exhaust PM_{10} emissions from CalEEMod were averaged over the Project's construction duration to estimate the annual and hourly exposure, which were estimated to be 69.87 pounds per year and 0.03 pounds per hour of DPM for offsite receptors and 9.16 pounds per year and 0.004 pounds per hour of DPM for onsite receptors. Construction emissions for the onsite receptors were adjusted to reflect the use of MERV13 filters pursuant to the Title 24 Building Code (as of the 2019 standards).

2.3.2.3 Operation

Operation of the proposed Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from area sources, energy sources and mobile sources, which are discussed below. Emissions from these sources were estimated

4 Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. The California Environmental Protection Agency has concluded that "potential cancer risk from inhalation exposure to whole diesel exhaust will outweigh the multi-pathway cancer risk from the speciated components" (OEHHA 2003).

based on CalEEMod default assumptions for operations of the Project land uses. It was assumed that the project would be fully operational following the completion of construction, which would occur in 2026.

Area

The area source category calculates direct sources of air pollutant emissions located at the Project site, including consumer product use, architectural coatings, and landscape maintenance equipment. CalEEMod defaults were used to estimate emissions from area sources during operation of the Project. The project includes PDF-AQ-1 that prohibits wood-burning, and natural gas-fired fireplaces in residential units.

Consumer products are various solvents used in non-industrial applications which emit VOCs during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and toiletries. Consumer product VOC emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and on the default factor of pounds of VOC per building square foot per day. For parking lot land uses, CalEEMod estimates VOC emissions associated with use of parking surface degreasers based on a square footage of parking surface area and pounds of VOC per square foot per day. The CalEEMod default utilization rates and emission factors were assumed.

This VOC emissions associated with the reapplication rate and coating for each building surface type and parking surface was also estimated using CalEEMod. The reapplication rate is the percentage of the total surface area that is repainted each year. A default of 10% is used, meaning that 10% of the surface area is repainted each year (i.e., all surface areas are repainted once every 10 years). Daily emissions divide the annual rate by 365 days per year. It was assumed that the Project would comply with SDAPCD Rule 67.0.1 for Architectural Coatings.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod. The emission factors are multiplied by the number of summer days that represent the number of operational days.

Energy

As represented in CalEEMod, energy sources include emissions associated with natural gas usage. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. CalEEMod default values for energy consumption for each land use were applied for the Project analysis. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Survey. Energy use from the non-residential land uses is based on various studies and assessments as described in Section 7.3, *Estimating Energy Use from Other Land Uses*, of Appendix A of the CalEEMod User's Guide (CAPCOA 2021).

Mobile Sources (Motor Vehicles)

Following the completion of construction activities, the Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicular traffic) as a result of the 323 additional residential units. The CalEEMod Version 2020.4.0 was used to estimate daily emissions from proposed vehicular sources in combination with trip rates provided in the Local Transportation Study prepared for the Project (CR Associates 2022). CalEEMod default data, including trip characteristics, variable start information, emissions factors, and trip distances, were used for the model inputs. Emission factors representing the vehicle mix and emissions for 2026 were used to estimate emissions associated with vehicular sources.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

2.4 Impact Analysis

2.4.1 Would the Project conflict with or obstruct implementation of the applicable air quality plan?

2.4.1.1 Analysis

As stated in Section 2.2.3, Local, SDAPCD and SANDAG are responsible for developing and implementing the clean air plans for attainment and maintenance of the NAAQS and CAAQS in the SDAB; specifically, the SIP and RAQS.[5] The federal O_3 maintenance plan, which is part of the SIP, was adopted in 2016. The SIP includes a demonstration that current strategies and tactics will maintain acceptable air quality in the SDAB based on the NAAQS. The RAQS was initially adopted in 1991 and is updated every 3 years (most recently in 2016). The RAQS outlines SDAPCD's plans and control measures designed to attain the CAAQS for O_3. The SIP and RAQS rely on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County and the cities in the County, to project future emissions and then determine from that the strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population, vehicle trends, and land use plans developed by San Diego County and the cities in the County as part of the development of their general plans.

If a project proposes development that is greater than that anticipated in the local plan and SANDAG's growth projections, the project might conflict with the SIP and RAQS and may contribute to a potentially significant cumulative impact on air quality.

The City of Oceanside General Plan identifies the site as Civic Institution (CI) and the project site is zoned Civic/ Public (PS). The existing land use designation and zoning allows for few permitted uses, with most uses requiring a use permit. The type of use is focused on public uses, such as hospitals, government offices and schools. The project would include a General Plan Amendment to revise the land use designation from CI to Medium Density Residential-B (MDB-R). A Zone Amendment is also proposed to revise the current zoning from PS to Planned Development (PD), with the Pacifica Planned Development Plan serving as the regulating document. The Pacifica Planned Development Plan would result in the development of 164 multi-family residential units.

One measure of determining development consistency is focused on development intensity and attributes such as vehicle trips and vehicle miles travelled, which directly correlate to increases in criteria air pollutants. Based on the City's development code, the CI designation would allow for greater development intensity based on generation of more vehicle trips and vehicle miles traveled as shown in Table 7, below. As such, the Project would result in less criteria air pollutant emissions, and thus less intensive uses, than development allowed under the existing CI designation.

5 For the purpose of this discussion, the relevant federal air quality plan is the O_3 maintenance plan (SDAPCD 2016b). The RAQS is the applicable plan for purposes of state air quality planning. Both plans reflect growth projections in the SDAB.

Table 7. Development Intensity Comparison

Development	Land Use Developed	Residents	Employees	Total Vehicle Trips Per Year	Vehicle Miles Traveled
Proposed Project	164 multi-family residential units	469	0	467,200	4,458,040
Existing General Plan Land Use Designation (CI) and Zoning (PS)	Hospital (100 beds)	0	125	720,823	5,644,989
	Government Office (150)	—	250	883,430	6,918,419
	Highschool (1,000 students)	0	91	572,529	4,483,650

Sources: City of Oceanside General Plan, 2002, City of Oceanside Municipal Code 2022, EIA 2012

Another measure for determining consistency with development is to evaluate whether the population or employment growth is within previous forecasts. As described above, the SIP and RAQS rely on these growth projections to develop control strategies to meet air quality standards.

SANDAG produces a Regional Growth Forecast, which is important for developing regional plans and strategies mandated by federal and state governments such as the Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), the Program Environmental Impact Report (EIR) for the RTP/SCS, the Air Quality Management Plan, the Federal Transportation Improvement Program, and the Regional Housing Needs Assessment (RHNA). The most recent RTP/SCS was adopted in December 2021 with a planning horizon of 2016 through 2050. The growth forecasts are appended to the RTP/SCS. Appendix F of the 2021 Regional Plan describes the trends in population, housing, and employment. The San Diego region is expected to grow by nearly 437,000 people and the growth in population will add about 440,000 jobs and more than 280,000 housing units (SANDAG 2021).

The forecast process includes two main phases. The first phase of the forecast is produced using California Department of Finance (DOF) population projections and rates developed by SANDAG based on historic economic and demographic trends. The size and makeup of the working age population in the region and high labor force participation is used to project future job growth. The projected higher values in working age population, coupled with older residents staying in the labor force longer results in more jobs in the region by the end of the forecast period. Housing units and households in the region were forecasted based on rates developed from historical data as well as assumptions of housing unit development and household formation in the future. The second phase of the forecast allocates the forecasted growth down to the jurisdictions and smaller geographical areas. The subregional forecast distributes growth based on a variety of factors, including available capacity for housing and accessibility to jobs and transportation. SANDAG works with the region's 18 cities, the County of San Diego, and other agencies that manage land use to understand local land use plans, such as general plans, community plans, and specific plans, as well as constraints to development and already permitted projects to develop the subregional projections for housing and employment. Table 8 shows the population, housing units, and employment projections for the City and the San Diego region for the 2021 Regional Plan.

Table 8. Population, Housing, and Employment

Year	City of Oceanside			San Diego Region		
	Population	Housing Units	Employment	Population	Housing Units	Employment
2016	176,666	65,851	47,256	3,309,510	1,190,555	1,646,419
2025	178,385	67,816	48,317	3,470,848	1,288,216	1,761,747
2035	184,283	71,359	49,909	3,620,348	1,409,866	1,921,475
2050	184,283	71,359	50,756	3,746,073	1,471,299	2,086,318
Change in Number (2016-2050)	7,617 (4.3%)	5,508 (8.4%)	3,500 (7.4%)	436,563 (14.2%)	280,744 (23.6%)	439,899 (26.7%)

Source: SANDAG Regional Plan 2021, Appendix F: Regional Growth Forecast and Sustainable Communities Strategy Land Use Pattern

As shown above the Project is expected to add 469 residents in 164 dwelling units. The added residents would represent approximately 6% of the anticipated population growth and 3% of the housing growth over the RTP/SCS planning horizon. Based on the above information, the increase in population and housing units would be well within the growth projections.

Furthermore, the most recent Regional Housing Needs Assessment from SANDAG stated that Oceanside needs to build 5,443 units from 2021 through 2029 (SANDAG 2020). The City has an allocation of 1,268 very-low, 718 low income units, 883 moderate and 2,574 above-moderate income units (SANDAG 2020). The Project is expected to bring 164 market-rate dwelling units to market in 2026, which would be within SANDAG's growth projection for housing during the 6th Cycle planning horizon (i.e., April 2021 – April 2029). Therefore, the Project would not conflict with SANDAG's regional growth forecast for the City.

2.4.1.2 Conclusion

The increase in the housing units and associated vehicle source emissions is not anticipated to result in air quality impacts that were not envisioned in the growth projections and RAQS, and the increase in residential units in the region would not obstruct or impede implementation of local air quality plans. Based on the analysis above, implementation of the Project would not result in development in excess of that anticipated in local plans or increases in population/housing growth beyond those contemplated by SANDAG. As such, vehicle trip generation and planned development for the Project are considered to be anticipated in the SIP and RAQS. Because the proposed land uses and associated vehicle trips are anticipated in local air quality plans, the Project would be consistent at a regional level with the underlying growth forecasts in the RAQS. Impacts would be **less than significant.**

2.4.2 Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and SDAPCD develops and implements plans for future attainment of the NAAQS and CAAQS. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether the Project's individual emissions would have a cumulatively significant impact on air quality.

2.4.2.1 Construction

Construction of the proposed Project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (vendor and haul truck trips, and worker vehicle trips). Construction emissions can vary substantially day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

Criteria air pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed Project information was not available. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.3.2. above.

Development of the Project would generate air pollutant emissions from entrained dust, off-road equipment, vehicle emissions, asphalt pavement application, and architectural coatings. As described previously, fugitive dust would be limited through compliance with SDAPCD Rule 55, which requires the restriction of visible emissions of fugitive dust beyond the property line. This measure is incorporated into the project PDF-AQ-2.

Table 9 shows the estimated maximum unmitigated daily construction emissions associated with the construction phases of the Project. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

Table 9. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Construction Year	Pounds per Day					
2024	29.4	39.8	33.1	0.08	16.3	5.61
2025	29.3	3.70	10.2	0.01	1.25	0.38
Maximum	29.4	39.8	33.1	0.08	16.3	5.61
County of San Diego threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod and include fugitive dust mitigation (SDAPCD Rule 55)

As shown in Table 10, daily construction emissions for the Project would not exceed the County of San Diego's significance thresholds. Therefore, the Project would have a **less than significant impact** related to emissions of criteria air pollutant emissions during construction.

2.4.2.2 Operations

Operation of the proposed Project would generate VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$ emissions from mobile sources (vehicle trips), area sources (consumer products, landscape maintenance equipment), and energy sources. Criteria air pollutant emissions associated with long-term operations were quantified using CalEEMod. Project-generated mobile source emissions were estimated in CalEEMod based on project-specific trip rates. CalEEMod default values were used to estimate emissions from the Project area and energy sources. The project includes a PDF that prohibits all fireplaces. As such, CalEEMod area source emissions were adjusted to show no fireplaces used in residential development.

Table 10 presents the unmitigated maximum daily emissions associated with the operation of the Project in 2026 after all phases of construction have been completed. Complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*. Emissions represent maximum of summer and winter. "Summer" emissions are representative of the conditions that may occur during the O_3 season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Table 10. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Mobile	2.64	2.13	20.3	0.05	1.72	0.33
Area	9.26	2.88	47.2	0.14	5.46	5.27
Energy	0.05	0.85	0.36	0.01	0.07	0.07
Total	11.95	5.86	67.86	0.2	7.25	5.67
SDAPCD threshold	*75*	*250*	*550*	*250*	*100*	*55*
Threshold exceeded?	No	No	No	No	No	No

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SDAPCD = San Diego Air Pollution Control District. <0.01 = reported value is less than 0.01.
See Appendix A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 10, daily operational emissions for the Project would not exceed SDAPCD's significance thresholds for any criteria air pollutant. Therefore, the Project would result in a less than significant impact related to emissions of criteria air pollutant emissions during operation.

2.4.2.3 Conclusion

In analyzing cumulative impacts from a project, the analysis must specifically evaluate the project's contribution to the cumulative increase in pollutants for which the SDAB is designated as nonattainment for the CAAQS and NAAQS. If the project does not exceed thresholds and is determined to have less than significant project-specific impacts, it may still contribute to a significant cumulative impact on air quality if the emissions from the project components, in combination with the emissions from other proposed or reasonably foreseeable future projects, are in excess of established thresholds. However, the project would only be considered to have a significant cumulative impact if its contribution accounts for a significant proportion of the cumulative total emissions (i.e., it represents a "cumulatively considerable contribution" to the cumulative air quality impact).

Additionally, for the SDAB, the RAQS serves as the long-term regional air quality planning document for the purpose of assessing cumulative operational emissions within the basin to ensure the SDAB continues to make progress toward NAAQS and CAAQS attainment status. As such, cumulative projects located in the San Diego region would have the potential to result in a cumulative impact to air quality if, in combination, they would conflict with or obstruct implementation of the RAQS. Similarly, individual projects that are inconsistent with the regional planning documents on which the RAQS is based would have the potential to result in cumulative impacts if they represent development beyond regional projections.

The SDAB has been designated as a federal nonattainment area for O_3 and a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions associated with construction generally result in near-field impacts. The nonattainment status is the result of cumulative emissions from all sources of these air pollutants and their precursors within the SDAB. As shown in Tables 10, the emissions of all criteria pollutants from the Project's construction would be below the significance levels. Construction would be short term, temporary in nature, and activities would be considered typical of a residential project. Once construction is completed, construction-related emissions would cease. As shown in Table 11, operational emissions generated by the Project would not result in emissions that exceed significance thresholds for any criteria air pollutant. As such, the Project would result in less than significant impacts to air quality.

Regarding long-term cumulative operational emissions in relation to consistency with local air quality plans, the SIP and RAQS serve as the primary air quality planning documents for the state and SDAB, respectively. The SIP and RAQS rely on SANDAG growth projections based on population, vehicle trends, and land use plans developed by the cities and by the County as part of the development of their general plans. Therefore, projects that propose development that is consistent with the growth anticipated by local plans would be consistent with the SIP and RAQS and would not be considered to result in cumulatively considerable impacts from operational emissions. As discussed in Section 2.4.1 of this report, the Project is consistent with the SANDAG growth projections. Thus, it would be consistent at a regional level with the underlying growth forecasts in the SIP and RAQS.

As a result, the Project would not result in a cumulatively considerable contribution to regional O_3 concentrations or other criteria pollutant emissions. Cumulative impacts for construction and operation would be less than significant for the Project.

2.4.3 Would the Project expose sensitive receptors to substantial pollutant concentrations?

2.4.3.1 Carbon Monoxide Hotspots

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

Projects contributing to adverse traffic impacts may result in the formation of CO hotspots. To verify that the Project would not cause or contribute to a violation of the CO standard, a screening evaluation of the potential for CO hotspots was conducted. The City does not have guidance regarding CO hotspots; as such, the County's CO hotspot screening guidance (County of San Diego 2007) was followed to determine whether the Project would require a site-specific hotspot analysis. Per guidance, any project that would place receptors within 500 feet of a signalized intersection operating at or below LOS E (peak-hour trips exceeding 3,000 trips) must conduct a "hotspot" analysis for CO. Likewise, projects that will cause road intersections to operate at or below a LOS E (i.e., with intersection peak-hour trips exceeding 3,000) will also have to conduct a CO "hotspot" analysis. The signalized intersection nearest to the project is located at Monica Cir.=cle/Project Drivewa. & Macario Drive. Per the Local Transportation Study prepared for the Project, once the project is constructed, the intersection will be operating at LOS A with Project traffic (Chen Ryan Associates 2022). The intersection of Vandegrift Blvd./ N River Rd. & N Redondo Dr., which is approximately 1,850 feet southeast of the project site, will be operating at LOS E in the AM Peak Hour and LOS F in the PM Peak Hour under both the 2025 and 2050 with Project Conditions. Although this intersection will be operating at LOS E and higher, a CO hotspots would not be expected for the following reasons.

Ambient CO levels are monitored at the Escondido-Rancho Carmel Drive air quality monitoring station, which is approximately 16 miles southeast of the Project Site. Ambient CO levels monitored at this monitoring station are representative of ambient CO concentrations in the Project area and indicate that the highest recorded 1-hour concentration of CO is 4.1 ppm (the State standard is 20 ppm) and highest 8-hour concentration is 2.5 ppm (the State standard is 9 ppm) during the past 3 years of available data (EPA 2022). As discussed above, the highest CO concentrations typically occur during peak traffic hours, so CO impacts calculated under peak traffic conditions represent a worst-case analysis.

Since the last update of the SDAPCD's guidance (2007), the County has evaluated the potential for the growth anticipated under the General Plan Update to result in CO "hot spots" throughout the County (County of San Diego 2009). To do this, the County reviewed the CO "hot spot" analysis conducted by the South Coast Air Quality Management District (SCAQMD) for their request to the USEPA for redesignation as a CO attainment area (SCAQMD 2003). In SCAQMD's analysis, they modeled the four most congested intersections identified in their basin (South Coast Air Basin [SCAB]), which included the following:

- Long Beach Boulevard and Imperial Highway – proximity to the Lynwood monitoring station, which consistently records the highest 8-hour CO concentrations in the SCAB each year.
- Wilshire Boulevard and Veteran Avenue – the most congested intersection in Los Angeles County, with an average daily traffic volume of 100,000 vehicles/day.
- Highland Avenue and Sunset Boulevard – one of the most congested intersections in the City of Los Angeles.
- Century Boulevard and La Cienega Boulevard – one of the most congested intersections in the City of Los Angeles.

The SCAQMD's analysis found that these intersections had an average 7.7 ppm 1-hour CO concentrations predicted by the models, which is only 38.5% of the 1-hour CO CAAQS of 20 ppm. Therefore, even the most congested intersections in SCAQMD's air basin would not experience a CO "hot spot".

The air quality monitoring station closest to the most congested intersection in Los Angeles County (Wilshire Boulevard/Veteran Avenue) is the VA Hospital, West Los Angeles Station (Site ID 060370113) located at Wilshire Boulevard and Sawtelle Boulevard, approximately 0.5 miles to the southwest. Ambient CO levels monitored at this representative monitoring station are outlined in Table 11 for the original analysis year (2002), and for the most recent year of available data (2021). As shown, there is noticeable improvement in background levels of CO since the SCAQMD's regional hotspot analysis.

Table 11. Ambient Carbon Monoxide Concentrations for SCAQMD's Most Congested Intersection

Year	CO Concentration (ppm)	
	Maximum 1-hour	Maximum 8-hour
2002	4.3	2.7
2021	1.5	1.0

Source: EPA 2022

For the County of San Diego, there are no roadways/segments identified as deficient facilities under the worst-case traffic scenario that have an ADT greater than the 100,000 that was anticipated for the most congested intersection analyzed by SCAQMD. The most congested intersection in the County is Campo Road/SR-94 between Jamacha Boulevard and Jamacha Road in Valle De Oro. According to Table 5.23 of the Traffic and Circulation Assessment: County of San Diego General Plan Update (Wilson and Company 2009), this intersection has an ADT of 79,200, which is only 79% of the most congested intersection in the SCAB.

Regional access to the Project would be from Interstate 15 (I-15), which is located approximately two miles west of the Project site. From I-15, main access to the Project Site would be provided by State Route 76 (SR 76), which is a two-lane state highway that runs east/west from the City of Oceanside to SR-79/Lake Henshaw. The County of San Diego's General Plan Update Traffic and Circulation Assessment indicates that the segment from Old Hwy 395 to the I-15 southbound ramps on SR-76 has an ADT of 39,600, which is approximately 40% of the most congested intersection in the SCAB (Wilson and Company 2009). The additional trips anticipated with implementation of the Project (15,204 ADT) could increase ADT at this intersection to 54,804, which is still below the County's most congested intersection. This scenario assumes that each new daily trip generated by the Project would travel through the Old Hwy 395/I-15 southbound ramps segment, which is unrealistic but provides an absolute worst-case scenario for conservative analysis. Even with this conservative assumption, project-generated trips would only represent 55% of the most congested intersection in the SCAB, which were determined to not experience a CO "hot spot" according to SCAQMD's 2003 analysis.

In addition, the CO "hot spot" analysis performed by the SCAQMD included emissions for 1997 and 2002. Both running exhaust emission factors and idling emission factors predicted by the EMFAC model decreased from 1997 through 2002 as outlined in Table 12 below. This decrease in CO emission factors is indicative of a phase-out of older vehicles and increasingly strict emissions standards implemented by CARB. Emission factors for San Diego County from the EMFAC2007 Model, which were used in the General Plan Update analysis, indicated that running exhaust emissions of CO would be less than 6.708 g CO per mile in 2010. Continued improvement in vehicular emissions at a rate faster than the rate of vehicle growth and/or congestion means that the potential for CO hotspots in the SDAB is likely to decrease.

Table 12. Carbon Monoxide Emission Factors Predicted by the EMFAC Model

Year	CO Emission Factors (grams CO/mile)	
	Running Exhaust	Idling Exhaust
1997	13.13	2.43
2002	7.98	1.30

Source: South Coast Air Quality Management District 2003

The County of San Diego concluded in the General Plan Update (2011) that because the most congested intersections in San Diego are less congested than those from the SCAB, and because emissions of CO would be lower than those used in the SCAQMD analysis, CO concentrations would be lower within San Diego County, and no CO "hot spots" are anticipated as was concluded in the SCAQMD analysis.

Given that proposed development will not result in traffic that exceeds traffic volumes considered in the General Plan Update analysis, coupled with the considerably low level of CO concentrations in the project area, and continued improvements in vehicle emissions, the Project is not anticipated to result in CO "hot spots". Consequently, implementation of the Project would not result in CO concentrations in excess of the health protective

CAAQS or NAAQS, and as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. Therefore, impacts related to sensitive receptor exposure to substantial CO concentrations would be less than significant, and no mitigation measures are required.

2.4.3.2 Toxic Air Contaminants

In addition to impacts from criteria pollutants, Project impacts may include emissions of pollutants identified by the state and federal government as TACs or HAPs. The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks, and the associated health impacts to sensitive receptors. Construction of the Project would occur over a period of 20 months and following completion of construction activities, Project-related TAC emissions would cease. The closest sensitive receptors to the Project site are single-family residences immediately adjacent on the northern and southern boundaries of the site. As such, a construction health risk analysis was performed for the Project as discussed below.

Based on results from the HRA, the maximally exposed individual resident offsite would be located at the single-family residences to the northeast of the Project site. Once the first phase of building construction is complete, onsite residents would be exposed to TAC emissions during the second phase of building construction. Notably, Title 24 requires the use of enhanced filtration through installation of HVAC systems with a minimum of MERV13 filtration. MERV13 filters can reduce particulate emissions by almost 70% (adjusting for time spent indoors). Table 13 summarizes the results of the HRA for Project construction, and detailed results are provided in Appendix B, *Health Risk Assessment Output Files*.

Table 13. Construction Activity Health Risk Assessment Results Prior to Mitigation

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Offsite				
Cancer Risk	Per Million	18.12	10.0	Potentially Significant
HIC	Not Applicable	0.01	1.0	Less than Significant
Onsite				
Cancer Risk	Per Million	2.57	10.0	Less than Significant
HIC	Not Applicable	<0.01	1.0	Less than Significant

Source: Appendix B
Notes: CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index.

The results of the HRA demonstrate that the TAC exposure from construction diesel exhaust emissions would result in cancer risk above the 10 in 1 million threshold and Chronic Hazard Index less than 1 for offsite receptors. Onsite receptors would be exposed to fewer TAC emissions from construction and a shorter duration of exposure. The cancer risk is less than the 10 in 1 million threshold and the Chronic Hazard Index is less than 1 for onsite receptors. Therefore, TAC emissions from construction of the Project would result in a potentially significant impact to offsite receptors and thus mitigation is required. Onsite receptors would have a less than significant impact.

Table 14. Construction Activity Health Risk Assessment Results With Mitigation

Impact Parameter	Units	Project Impact	CEQA Threshold	Level of Significance
Offsite				
Cancer Risk	Per Million	9.06	10.0	Less than Significant
HIC	Not Applicable	<0.01	1.0	Less than Significant
Onsite				
Cancer Risk	Per Million	2.57	10.0	Less than Significant
HIC	Not Applicable	<0.01	1.0	Less than Significant

Source: Appendix B
Notes: CEQA = California Environmental Quality Act; HIC = Chronic Hazard Index.

The results of the HRA as shown in Table 14 demonstrate that the TAC exposure from construction diesel exhaust emissions after implementation of mitigation would not result in cancer risk above the 10 in 1 million threshold and Chronic Hazard Index less than 1. Therefore, TAC emissions from construction of the Project would result in a **less than significant impact with mitigation.**

2.4.3.3 Health Effects of Criteria Air Pollutants

Construction and operation of the Project would not result in emissions that exceed SDAPCD's emission thresholds for any criteria air pollutants. The SDAPCD thresholds are based on the SDAB complying with the NAAQS and CAAQS which are protective of public health; therefore, no adverse effects to human health would result from the Project. The following provides a general discussion of criteria air pollutants and their health effects.

Regarding VOCs, some VOCs would be associated with motor vehicles and construction equipment, while others are associated with architectural coatings and asphalt off-gassing, the emissions of which would not result in exceedances of County of San Diego thresholds. Generally, the VOCs in architectural coatings and asphalt are of relatively low toxicity. Additionally, SDAPCD Rule 67.0.1 restricts the VOC content of coatings for both construction and operational applications.

In addition, VOCs and NO_x are precursors to O_3, for which the SDAB is designated as nonattainment with respect to the NAAQS and CAAQS (the SDAB is designated by EPA as an attainment area for the 1-hour O_3 NAAQS standard and 1997 8-hour NAAQS standard). The health effects associated with O_3, as discussed in Section 2.1.4, Criteria Air Pollutants, are generally associated with reduced lung function. The contribution of VOCs and NO_x to regional ambient O_3 concentrations is the result of complex photochemistry. The increases in O_3 concentrations in the SDAB due to O_3 precursor emissions tend to be found downwind from the source location to allow time for the photochemical reactions to occur. However, the potential for exacerbating excessive O_3 concentrations would also depend on the time of year that the VOC emissions would occur because exceedances of the O_3 NAAQS and CAAQS tend to occur between April and October when solar radiation is highest. The holistic effect of a single project's emissions of O_3 precursors is speculative due to the lack of quantitative methods to assess this impact. Nonetheless, the VOC and NO_x emissions associated with Project construction could minimally contribute to regional O_3 concentrations and the associated health impacts. Due to the minimal contribution during construction and operation, as well as the existing good air quality in coastal San Diego areas, health impacts would be considered less than significant.

Regarding NO_2, which is a constituent of NO_x, construction of the Project would not contribute to exceedances of the NAAQS and CAAQS for NO_2 since NO_x emissions would be less than the applicable SDAPCD threshold. As described in Section 3.1, NO_2 health impacts are associated with respiratory irritation, which may be experienced by nearby receptors during the periods of heaviest use of off-road construction equipment. However, these operations would be relatively short term, and the off-road construction equipment would be operating on various portions of the site and would not be concentrated in one portion of the site at any one time. Construction of the Project would not require any stationary emission sources that would create substantial, localized NO_2 impacts.

Similar to O_3, construction of the Project would not exceed thresholds for PM_{10} or $PM_{2.5}$ and would not contribute to exceedances of the NAAQS and CAAQS for particulate matter. Due to the minimal contribution of particulate matter during construction and operation, health impacts would be considered less than significant.

Based on the preceding considerations, health impacts from Project-related criteria air pollutant emissions would be considered less than significant.

2.4.3.4 Conclusion

The results of the HRA demonstrate that after implementation of MM-AQ-1, which requires use of Tier 4 equipment during construction, the TAC exposure from construction diesel exhaust emissions would not result in cancer risk above the 10 in 1 million threshold, nor a Chronic Hazard Index greater than 1.0. VOC and NO_x emissions, as described previously, would minimally contribute to regional O_3 concentrations and the associated health effects. In addition to O_3, NO_x emissions would not contribute to potential exceedances of the NAAQS and CAAQS for NO_2. As shown in Table 2, the existing NO_2 concentrations in the area are well below the NAAQS and CAAQS standards. Thus, it is not expected the Project's operational NO_x emissions would result in exceedances of the NO_2 standards or contribute to the associated health effects. CO tends to be a localized impact associated with congested intersections. The associated CO "hotspots" were discussed previously as a less than significant impact. Thus, the Project's CO emissions would not contribute to significant health effects associated with this pollutant. PM_{10} and $PM_{2.5}$ would not contribute to potential exceedances of the NAAQS and CAAQS for particulate matter and would not obstruct the SDAB from coming into attainment for these pollutants and would not contribute to significant health effects associated with particulates. Therefore, overall health impacts associated with criteria air pollutants would be considered less than significant.

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

2.4.4.1 Construction

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

2.4.4.2 Operational

Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there are no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Examples of land uses and industrial operations that are commonly associated with odor complaints include agricultural uses, wastewater treatment plants, food processing facilities, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding facilities. In addition to the odor source, the distance between the sensitive receptor(s) and the odor source, as well as the local meteorological conditions, are considerations in the potential for a project to frequently expose the public to objectionable odors. Although localized air quality impacts are focused on potential impacts to sensitive receptors, such as residences and schools, other land uses where people may congregate (e.g., workplaces) or uses with the intent to attract people (e.g., restaurants and visitor-serving accommodations) should also be considered in the evaluation of potential odor nuisance impacts. The Project would include a mixed-use residential development, which is not expected to produce any nuisance odors; therefore, impacts related to odors caused by the Project would be less than significant.

3 Greenhouse Gas Emissions

3.1 Environmental Setting

3.1.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2022b).

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

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (IPCC 2014; EPA 2022b). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2014). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2014). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.1.5, Potential Effects of Climate Change.

3.1.2 Greenhouse Gases and other Climate Forcing Substances

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).[6] Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the

6 California Health and Safety Code 38505 identifies seven GHGs that CARB is responsible to monitor and regulate to reduce emissions: CO_2, CH_4, N_2O, SF_6, HFCs, PFCs, and NF_3.

atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included in the following text.[7] Also included is a discussion of other climate forcing substances.

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

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

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

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

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

7 The descriptions of GHGs are summarized from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (1995), IPCC Fourth Assessment Report (2007), CARB's Glossary of Air Pollution Terms (2015), and EPA's Glossary of Climate Change Terms (2016).

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

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

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

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

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

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

3.1.3 Global Warming Potential

Gases in the atmosphere can contribute to climate change both directly and indirectly. Direct effects occur when the gas itself absorbs radiation. Indirect radiative forcing occurs when chemical transformations of the substance produce other GHGs, when a gas influences the atmospheric lifetimes of other gases, and/or when a gas affects atmospheric processes that alter the radiative balance of the Earth (e.g., affect cloud formation or albedo) (EPA 2022b). The Intergovernmental Panel on Climate Change (IPCC) developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The GWP of a GHG is defined as the ratio of the time-integrated radiative forcing from the instantaneous release of 1 kilogram of a trace substance relative to that of 1 kilogram of a reference gas (IPCC 2014). The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons CO_2 equivalent (MT CO_2e).

The current version of the CalEEMod (version 2020.4.0) assumes that the GWP for CH_4 is 25 (so emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the IPCC Fourth Assessment Report (IPCC 2007). The GWP values identified in CalEEMod were applied to the Project.

3.1.4 Sources of Greenhouse Gas Emissions

Global Inventory

Anthropogenic GHG emissions worldwide in 2020 (the most recent year for which data is available) totaled approximately 49,800 million metric tons (MMT) of CO_2e, excluding land use change and forestry (PBL 2022). The top six GHG emitters include China, the United States, the Russian Federation, India, Japan, and the European Union, which accounted for approximately 60% of the total global emissions, or approximately 30,270 MMT CO_2e (PBL 2018). Table 15 presents the top GHG-emissions-producing countries.

Table 15. Six Top GHG Producer Countries

Emitting Countries	2020 GHG Emissions (MMT CO_2e)[a,b]
China	14,300
United States	5,640
European Union	3,440
India	3,520
Russian Federation	2,210
Japan	1,160
Total	**30,270**

Source: PBL 2022.
Notes: MMT CO_2e = million metric tons of carbon dioxide equivalent.
[a] Column may not add due to rounding.
[b] GHG emissions do not include land use change and forestry-related GHG emissions.

National Inventory

Per the EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 to 2020 (EPA 2022), total United States GHG emissions were approximately 5,981.4 MMT CO_2e in 2020 (EPA 2022). The primary GHG emitted by human activities in the United States was CO_2, which represented approximately 94.7% of total GHG emissions (4,715 MMT CO_2e). The largest source of CO_2, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 87.2% of CO_2 emissions in 2020 (4,342.7 MMT CO_2e). Total U.S. emissions have decreased by 7.3% from 1990 to 2020, down from a high of 15.7% above 1990 levels in 2007. Emissions decreased from 2019 to 2020 by 9.0% (590.4 MMT CO_2e.). Net emissions (i.e., including sinks) were 5,222.4 MMT CO_2e in 2020. Overall, net emissions decreased 10.6% percent from 2019 to 2020 and decreased 21.4 percent from 2005 levels. The sharp decline in emissions from 2019 to 2020 is largely due to the impacts of the coronavirus (COVID-19) pandemic on travel and economic activity; however, the decline also reflects the combined impacts of long-term trends in many factors, including population, economic growth, energy markets, technological changes including energy efficiency, and the carbon intensity of energy fuel choices. Between 2019 and 2020, the decrease in total GHG emissions was driven largely by a 10.5% decrease in CO_2 emissions from fossil fuel combustion, including a 13.3%

decrease in transportation sector emissions from less travel due to the COVID-19 pandemic and a 10.4% decrease in the electric power sector. The decrease in electric power sector emissions was due to a decrease in electricity demand of 2.5% since 2019 and also reflects the continued shift from coal to less carbon intensive natural gas and renewables (EPA 2022).

State Inventory

According to California's 2000–2020 GHG emissions inventory (2022 edition), California emitted approximately 369.2 MMT CO_2e in 2020, including emissions resulting from out-of-state electrical generation (CARB 2022d). The sources of GHG emissions in California include transportation, industry, electric power production from both in-state and out-of-state sources, residential and commercial activities, agriculture, high-GWP substances, and recycling and waste. Table 16 presents California GHG emission source categories and their relative contributions to the emissions inventory in 2020.

Between 2000 and 2019, per-capita GHG emissions in California have dropped from a peak of 14.0 MT per person in 2001 to 10.5 MT per person in 2019, representing an approximate 25% decrease. In addition, total GHG emissions in 2019 were approximately 7 MMT CO_2e lower than 2018 emissions (CARB 2022d).

Table 16. GHG Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO_2e)	Percent of Total*
Transportation	136.60	37%
Industrial uses	73.84	20%
Electricity generation[a]	59.07	16%
Residential and commercial uses	36.92	10%
Agriculture and Forestry	33.22	9%
High GWP substances	22.15	6%
Recycling and waste	7.38	2%
Totals	369.2	100%

Source: CARB 2022b.
Notes: GHG = greenhouse gas; GWP = global warming potential; MMT CO_2e = million metric tons of carbon dioxide equivalent.
Emissions reflect 2020 California GHG inventory.
Totals may not sum due to rounding.
[a] Includes emissions associated with imported electricity, which account for 18.46 MMT CO_2e.

Per capita GHG emissions in California have dropped from a 2001 peak of 13.8 MT per person to 9.3 MT per person in 2020, a 33% decrease. In 2016, statewide GHG emissions dropped below the 2020 GHG Limit of 431 MMT CO_2e and have remained below the Limit since that time (CARB 2022a).

Local Inventories

According to the GHG inventory data compiled by the Energy Policy Initiative Center, in 2012, the County (as defined to include all cities therein and unincorporated County areas) emitted 34.7 MMT CO_2e (EPIC 2015).

The 2013 emissions inventory for the City is shown in Table 17 below.

Table 17. City of Oceanside GHG Emissions by Sectors for 2013

Source Category	Annual GHG Emissions ($MT\ CO_2e$)	Percent of Total
Transportation	477,178	48.5
Electricity	251,524	25.6
Natural Gas	162,447	16.5
Solid Waste	40,615	4.1
Water[1]	27,420	2.8
Municipal Operations	24,828	2.5
Total	984,012	100

Source: City of Oceanside 2019.
Notes: GHG emissions for each category are rounded. Sums may not add up to totals due to rounding.
1 Emissions associated with water and wastewater treatment at City-operated facilities were accounted for as Municipal emissions. Water emissions include upstream emissions from import of water to the City.

3.1.5 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 IPCC Synthesis Report indicated that warming of the climate system is unequivocal and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea-level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, frequency of severe weather events, and electricity demand and supply. The primary effect of global climate change has been a rise in average global tropospheric temperature. Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature for the decade 2006–2015 was 0.87°C (1.6°F) (likely between 0.75°C [1.4°F] and 0.99°C [1.8°F]) higher than the average over the 1850–1900 period (IPCC 2018). Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. Human activities are estimated to have caused approximately 1.0°C (1.8°F) of global warming above pre-industrial levels, with a likely range of 0.8°C to 1.2°C (1.4°F to 2.2°F) (IPCC 2018). Global warming is likely to reach 1.5°C (2.7°F) between 2030 and 2052 if it continues to increase at the current rate (IPCC 2018).

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

Warming temperatures and changing precipitation patterns have altered California's physical systems—the ocean, lakes, rivers, and snowpack—upon which the state depends. Winter snowpack and spring snowmelt runoff from the

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

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

- CNRA has released four California Climate Change Assessments (in 2006, 2009, 2012, and 2018), which have addressed the following: acceleration of warming across the state, more intense and frequent heat waves, greater riverine flows, accelerating sea level rise, more intense and frequent drought, more severe and frequent wildfires, more severe storms and extreme weather events, shrinking snowpack and less overall precipitation, and ocean acidification, hypoxia, and warming. To address local and regional governments' need for information to support action in their communities, the Fourth Assessment (CNRA 2018) includes reports for nine regions of the state. Key highlights for the San Diego Region (include the following (CNRA 2018):Temperature is projected to increase substantially, along with mean temperature, heat wave frequency will increase, with more intensity and longer duration.
- Precipitation will remain highly variable but will change in character, with wetter winters, drier springs, and more frequent and severe droughts punctuated by more intense individual precipitation events.
- Wildfire risk will increase in the future as climate warms. The risk for large catastrophic wildfires driven by Santa Ana wind events will also likely increase as a result of a drier autumns leading to low antecedent precipitation before the height of the Santa Ana wind season.
- The sea level along San Diego County is expected to rise. High tides combined with elevated shoreline water levels produced by locally and distantly driven wind-driven waves will drive extreme events. Longer-term sea level will increase rapidly in the second half of the century and will be punctuated by short periods of storm-driven extreme sea levels that will imperil existing infrastructure, structures, and ecosystems with increasing frequency.

3.2 Regulatory Setting

3.2.1 Federal

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

- The Administrator found that elevated concentrations of GHGs—CO2, CH4, N2O, HFCs, PFCs, and SF6—in the atmosphere threaten the public health and welfare of current and future generations. This is the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO2, CH4, N2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is the "cause or contribute finding."

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

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

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

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

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

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

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

In August 2018, the EPA and NHTSA proposed to amend certain fuel economy and GHG standards for passenger cars and light trucks and establish new standards for model years 2021 through 2026. Compared to maintaining the post-2020 standards in place at the time, the 2018 proposal would increase U.S. fuel consumption by about half a million barrels per day (2%–3% of total daily consumption, according to the Energy Information Administration) and would impact the global climate by 3/1000th of 1°C by 2100 (EPA and NHTSA 2018). California and other states have stated their intent to challenge federal actions that would delay or eliminate GHG reduction measures, and have committed to cooperating with other countries to implement global climate change initiatives.

In 2019, the EPA and NHTSA published the Safer Affordable Fuel-Efficient Vehicles Rule Part One: One National Program (SAFE-1), which revoked California’s authority to set its own GHG emissions standards and set zero-emission vehicle (ZEV) mandates in California. In March 2020, Part Two was issued which set CO2 emissions standards and corporate average fuel economy standards for passenger vehicles and light-duty trucks for model years 2021 through 2026. In response to EO 13990, on December 21, 2021, NHTSA finalized the CAFE Preemption rulemaking to withdraw its portions of the Part One Rule. The final rule concluded that the Part One Rule overstepped the agency’s legal authority and established overly broad prohibitions that did not account for a variety of important state and local interests.

Then, in March 2022, NHTSA established new fuel economy standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8% annually for model years 2024 and 2025, and 10% annually for model year 2026.

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

3.2.2 State

The statewide GHG emissions regulatory framework is summarized below by category: state climate change targets, building energy, renewable energy and energy procurement, mobile sources, solid waste, water, and other state regulations and goals. The following text describes executive orders (EO), legislation [assembly bills (AB) and senate bills (SB)], regulations, and other plans and policies that would directly or indirectly reduce GHG emissions and/or address climate change issues.

State Climate Change Targets

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

EO S-3-05. EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050.

EO S-3-05 also directed the California EPA to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The Climate Action Team was formed, which subsequently issued reports from 2006 to 2010 (CAT 2016).

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

EO B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under EO S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050, as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT CO_2e. The executive order also calls for state agencies to continue to develop and implement GHG emissions reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

SB 32 and AB 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction targets, make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities, and expand dissemination of GHG and other air-quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

EO B-55-18. EO B-55-18 (September 2018) establishes a statewide policy for the state to achieve carbon neutrality as soon as possible, and no later than 2045, and achieve and maintain net-negative emissions thereafter. The goal is an addition to the existing statewide targets of reducing the state's GHG emissions. CARB will work with relevant state agencies to ensure that future scoping plans identify and recommend measures to achieve the carbon neutrality goal.

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

California Air Resources Board's Climate Change Scoping Plan. One specific requirement of AB 32 was for CARB to prepare a scoping plan for achieving the maximum technologically feasible and cost-effective GHG emission reductions by 2020 (Health and Safety Code Section 38561[a]), and to update the plan at least once every 5 years. In 2008, CARB approved the first scoping plan. The Climate Change Scoping Plan: A Framework for Change (Scoping Plan) included a mix of recommended strategies that combined direct regulations, market-based approaches, voluntary measures, policies, and other emission reduction programs calculated to meet the 2020 statewide GHG emissions limit and initiate the transformations needed to achieve the state's long-range climate objectives. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards.
2. Achieving a statewide renewable energy mix of 33%.
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions.
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets.
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard (17 CCR 95480 et seq.).
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

The Scoping Plan also identified local governments as essential partners in achieving California's goals to reduce GHG emissions because they have broad influence and, in some cases, exclusive authority over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations. Specifically, the Scoping Plan encouraged local governments to adopt a reduction goal for municipal operations, and for community emissions to reduce GHGs by approximately 15% from then levels (2008) by 2020. Many local governments developed community-scale local GHG reduction plans based on this Scoping Plan recommendation.

In 2014, CARB approved the first update to the Scoping Plan. The First Update to the Climate Change Scoping Plan: Building on the Framework (First Update) defined the state's GHG emission reduction priorities for the next 5 years, and laid the groundwork to start the transition to the post-2020 goals set forth in EO S-3-05 and EO B-16-2012. The First Update concluded that California is on track to meet the 2020 target but recommended a 2030 mid-term GHG reduction target be established to ensure a continuum of action to reduce emissions. The First Update recommended a mix of technologies in key economic sectors to reduce emissions through 2050, including energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state's 1990 emissions level, using more recent GWPs identified by the IPCC, from 427 MMT CO_2e to 431 MMT CO_2e (CARB 2014).

In 2015, as directed by EO B-30-15, CARB began working on an update to the Scoping Plan to incorporate the 2030 target of 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. The governor called on California to pursue a new and ambitious set of strategies, in line with the five climate change pillars from his inaugural address, to reduce GHG emissions and prepare for the unavoidable impacts of climate change. In the summer of 2016, the legislature affirmed the importance of addressing climate change through passage of SB 32.

In December 2017, CARB adopted California's 2017 Climate Change Scoping Plan (2017 Scoping Plan) for public review and comment (CARB 2017). The 2017 Scoping Plan builds on the successful framework established in the initial Scoping Plan and First Update while identifying new, technologically feasible and cost-effective strategies that will serve as the framework to achieve the 2030 GHG target as established by SB 32 and define the state's climate change priorities to 2030 and beyond. The strategies' commitments include implementing renewable energy and energy efficiency strategies (including the mandates of SB 350), increasing stringency of the Low Carbon Fuel Standard, implementing measures identified in the Mobile Source and Freight Strategies, implementing measures identified in the proposed Short-Lived Climate Pollutant Reduction Strategy, and increasing stringency of SB 375 targets. To fill the gap in additional reductions needed to achieve the 2030 target, it recommends continuing the Cap-and-Trade Program and a measure to reduce GHGs from refineries by 20%.

For local governments, the 2017 Scoping Plan replaced the initial Scoping Plan's 15% reduction goal with a recommendation to aim for a community-wide goal of no more than 6 MT CO_2e per capita by 2030, and no more than 2 MT CO_2e per capita by 2050, which are consistent with the state's long-term goals. These goals are also consistent with the Under 2 Memorandum of Understanding (Under 2 2016) and the Paris Agreement, which are developed around the scientifically based levels necessary to limit global warming to below 2°C. The 2017 Scoping Plan recognized the benefits of local government GHG planning (e.g., through CAPs) and provided more information regarding tools CARB is working on to support those efforts. It also recognized the CEQA streamlining provisions for project-level review where there is a legally adequate CAP.[8]

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

CARB adopted the 2022 Scoping Plan Update in December 2022, which outlines the state's plan to reach carbon neutrality by 2045 or earlier, while also assessing the progress the state is making toward reducing GHG emissions by at least 40% below 1990 levels by 2030, as is required by SB 32 and laid out in the Second Update. The carbon neutrality goal requires CARB to expand proposed actions from only the reduction of anthropogenic sources of GHG emissions to also include those that capture and store carbon (e.g., through natural and working lands, or mechanical technologies). The carbon reduction programs build on and accelerate those currently in place, including moving to zero-emission transportation; phasing out use of fossil gas use for heating homes and buildings; reducing chemical

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8 *Sierra Club v. County of Napa* (2004) 121 Cal.App.4th 1490; *San Francisco Tomorrow et al. v. City and County of San Francisco* (2015) 229 Cal.App.4th 498; *San Franciscans Upholding the Downtown Specific Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656; *Sequoyah Hills Homeowners Assn. v. City of Oakland* (1993) 23 Cal.App.4th 704, 719.

and refrigerants with high GWP; providing communities with sustainable options for walking, biking, and public transit; displacement of fossil-fuel fired electrical generation through use of renewable energy alternatives (e.g., solar arrays and wind turbines); and scaling up new options such as green hydrogen (CARB 2022e).

The 2022 Scoping Plan also emphasizes that there is no realistic path to carbon neutrality without carbon removal and sequestration, and to achieve the state's carbon neutrality goal, carbon reduction programs must be supplemented by strategies to remove and sequester carbon. Strategies for carbon removal and sequestration include carbon capture and storage from anthropogenic point sources, where CO_2 is captured as it leaves a facility's smokestack and is injected into geologic formations or used in industrial materials (e.g., concrete); and carbon dioxide removal from ambient air, through mechanical (e.g., direct air capture with sequestration) or nature-based (e.g., management of natural and working lands) applications.

The 2022 Scoping Plan included Appendix D, Local Actions, which includes recommendations intended to build momentum for local government actions that align with the State's climate goals, with a focus on local GHG reduction strategies (commonly referred to as climate action planning) and approval of new land use development projects, including through environmental review under CEQA. The recommendations provided in Appendix D are non-binding and should not be interpreted as a directive to local governments, but rather as evidence-based analytical tools to assist local governments with their role as essential partners in achieving California's climate goals. Appendix D recognizes consistency with a CEQA-qualified GHG reduction plan such as a Climate Action Plan as a preferred option for evaluating potential GHG emission impacts under CEQA. Absent a qualified GHG reduction plan, Appendix D provides additional potential threshold options including key attributes that residential and mixed-use projects should achieve that would align with the State's climate goals, a net-zero threshold, and use of air district recommended thresholds of significance.[9]

SB 605 and SB 1383. SB 605 (2014) required CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state, and SB 1383 (2016) required CARB to approve and implement that strategy by January 1, 2018. The Short-Lived Climate Pollutants Reduction Strategy was approved by CARB in March 2017, and lays out a range of options to reduce short-lived climate pollutant emissions in California, including regulations, incentives, and other market-supporting activities. SB 1383 also establishes specific targets for the reduction of short-lived climate pollutants (40% below 2013 levels by 2030 for CH_4 and HFCs, and 50% below 2013 levels by 2030 for anthropogenic black carbon), and provides direction for reductions from dairy and livestock operations and landfills. Accordingly, and as mentioned above, CARB adopted its Short-Lived Climate Pollutant Reduction Strategy in March 2017. This strategy establishes a framework for the statewide reduction of emissions of black carbon, CH_4, and fluorinated gases.

Building Energy

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Although not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically established Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and CEC, and revised if necessary (California Public Resources Code [PRC] Section 25402[b][1]). The regulations receive input

9 The threshold approaches outlined in the 2022 Scoping Plan, Appendix D, are recommendations only and are not requirements; they do not supplant lead agencies' discretion to develop their own evidence-based approaches for determining whether a project would have a potentially significant impact on GHG emissions.

from members of industry and the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (PRC Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (PRC Section 25402[d]) and cost effectiveness (PRC Sections 25402[b][2] and [b][3]). As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2022 Title 24 standards are the currently applicable building energy efficiency standards, and became effective on January 1, 2023. The 2022 Title 24 standards will improve upon the 2019 standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The CEC adopted the 2022 Title 24 Energy Code in August 2021 and the California Building Standards Commission approved incorporating the updated code into the California Building Standards Code (CALGreen) in December 2021. The 2022 Energy Code will go into effect on January 1, 2023. The 2022 Energy Code focuses on four key areas in newly constructed homes and businesses:

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

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as California's Green Building Standards (CALGreen), and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, schools, and hospitals. The CALGreen 2019 standards, which are the current standards, became effective January 1, 2020.

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

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

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

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

Renewable Energy and Energy Procurement

SB 1078 (2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities. Initially, the RPS required utilities to obtain 20% of their power from renewable sources by 2010. SB X1-2 (2011) subsequently expanded the RPS by establishing that 33% of the total electricity sold to retail customers in California per year by December 31, 2020, and in subsequent years, be secured from qualifying renewable energy sources. SB 350 (2015) further expanded the RPS by establishing that 50% of the total electricity sold to retail customers in California per year by December 31, 2030, be secured from qualifying renewable energy sources. And SB 100 (2018) further accelerated the RPS, requiring achievement of a 50% RPS by December 31, 2026, and a 60% RPS by December 31, 2030. SB 100 also established a new state policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100% of electricity retail sales and 100% of electricity procured to serve all state agencies by December 31, 2045.

Under the program, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location.

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

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

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

EO S-21-09 and SBX1-2. EO S-21-09 (September 2009) directed CARB to adopt a regulation consistent with the goal of EO S-14-08 by July 31, 2010. CARB was further directed to work with the California Public Utilities Commission and CEC to ensure that the regulation builds upon the RPS program and was applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB was to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and can be developed the most quickly in support of reliable, efficient, cost-effective electricity system operations. On September 23, 2010, CARB initially approved regulations to implement a Renewable Electricity Standard. However, this regulation was not finalized because of subsequent legislation (SB X1-2, Simitian, statutes of 2011) signed by Governor Brown in April 2011.

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

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

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

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

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

Mobile Sources

State Vehicle Standards (AB 1493 and EO B-16-12). AB 1493 (July 2002) was enacted in a response to the transportation sector accounting for more than half of California's CO_2 emissions. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by the state board to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. EO B-16-12 (March 2012) required that state entities under the governor's direction and control support and facilitate the rapid commercialization of zero-emissions vehicles. It ordered CARB, CEC, California Public Utilities Commission, and other relevant agencies to work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve benchmark goals by 2015, 2020, and 2025. On a statewide basis, EO B-16-12 established a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050. This directive did not apply to vehicles that have special performance requirements necessary for the protection of the public safety and welfare.

As also explained in Section 3.2.1, "Federal Vehicle Standards", in March 2022, EPA reinstated California's authority under the Clean Air Act to implement its own GHG emission standards and ZEV sales mandate. EPA's action concludes its reconsideration of the 2019 SAFE-1 rule by finding that the actions taken under the previous administration as a part of SAFE-1 were decided in error and are now entirely rescinded.

EO S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The initial target of the Low Carbon Fuel Standard was to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The Low Carbon Fuel Standard was subsequently amended in 2018 to require a 20% reduction in carbon intensity by 2030. This new requirement aligns with the California's overall 2030 target of reducing climate changing emissions to 40% below 1990 levels by 2030, set by SB 32. CARB has adopted implementing regulations for both the 10% and 20% carbon intensity reduction targets.

SB 375. SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan (RTP). The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

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

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

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

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

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

Advanced Clean Cars Program. The Advanced Clean Cars program (January 2012) is an emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars. To improve air quality, CARB implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that by 2025, cars will emit 75% less smog-forming pollution than the average new car sold in 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and NHTSA, adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The zero-emissions vehicle (ZEV) program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years.

The ACC II program establishes the next set of LEV and ZEV requirements for model years after 2025 to contribute to meeting federal ambient air quality ozone standards and California's carbon neutrality standards (CARB 2022c). The ACC II rulemaking package also considers technological feasibility, environmental impacts, equity, economic impacts, and consumer impacts. The ACC II regulations were approved by the California Office of Administrative Law (OAL) and became effective on November 30, 2022.

AB 1236. AB 1236 (October 2015) (Chiu) required a city, county, or city and county to approve an application for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless the city or county makes specified written findings based on substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. AB 1236 provided for appeal of that decision to the planning commission, as specified. The bill provided that the implementation of consistent statewide standards to achieve the timely and cost-effective installation of electric vehicle charging stations is a matter of statewide concern. The bill required electric vehicle charging stations to meet specified standards. AB 1236 required a city, county, or city and county with a population of 200,000 or more residents to adopt an ordinance, by September 30, 2016, that created an expedited and streamlined permitting process for electric vehicle charging stations. The bill also required a city, county, or city and county with a population of fewer than 200,000 residents to adopt this ordinance by September 30, 2017.

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

Advanced Clean Trucks (ACT) Regulation. The purpose of the ACT Regulation (June 2020) is to accelerate the market for zero-emission vehicles in the medium- and heavy-duty truck sector and to reduce emissions NO_x, fine particulate matter, TACs, GHGs, and other criteria pollutants generated from on-road mobile sources (CARB 2022c). Requiring medium- and heavy-duty vehicles to transition to zero-emissions technology will reduce health risks to people living in and visiting California and is needed to help California meet established near- and long-term air quality and climate mitigation targets.

EO B-16-12. EO B-16-12 (2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution ZEVs. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80% less than 1990 levels by 2050. In furtherance of this executive order, the Governor convened an Interagency Working Group on ZEVs that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

SB 350. In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see California Public Utilities Code, Section 740.12).

Solid Waste

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

AB 341 (Chapter 476, Statutes of 2011 [Chesbro]) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several general stakeholder workshops and several focused workshops, and in August 2015 published a discussion document titled AB 341 Report to the Legislature, which identified five priority strategies that CalRecycle believed would assist the state in reaching the 75% goal by 2020, legislative and regulatory recommendations, and an evaluation of program effectiveness (CalRecycle 2015).

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

SB 1383 (Chapter 395, Statutes of 2016) establishes targets to achieve a 50% reduction in the level of the Statewide disposal of organic waste from the 2014 level by 2020 and a 75% reduction by 2025. CalRecycle was granted the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that not less than 20% of currently disposed edible food is recovered for human consumption by 2025 (CalRecycle 2019).

Water

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

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

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

Other State Regulations and Goals

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

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

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

EO S-13-08. EO Order S-13-08 (November 2008) is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. Therefore, the executive order directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy report was issued in December 2009 (CNRA 2009b), and an update, Safeguarding California: Reducing Climate Risk, followed in July 2014 (CNRA 2014). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water.

3.2.3 Local

City of Oceanside General Plan

The City of Oceanside's General Plan Circulation Element includes goals and policies to reduce GHG emissions within the City (City of Oceanside 2002). The following goals and policies from the City's General Plan are relevant to the Project:

Circulation Element

Policy 2.5. The City will strive to incorporate complete streets throughout the Oceanside transportation network which are designed and constructed to serve all users of streets, roads and highways, regardless of their age or ability, or whether they are driving, walking, bicycling, or using transit.

Pedestrian Facilities

Goal 5. Support walking as a primary means of transportation that in turn supports transit and bike options. A positive walking environment is essential for supporting smart growth, mixed land uses, transit oriented development, traffic calming and reducing traffic congestion and greenhouse gas emissions.

Intelligent Transportation System Technologies

Policy 4.1. The City shall encourage the reduction of vehicle miles traveled, reduction of the total number of daily and peak hour vehicle trips, and provide better utilization of the circulation system through development and implementation of TDM strategies. These may include, but not limited to, implementation of peak hour trip reduction, encourage staggered work hours, telework programs, increased development of employment centers where transit usage is highly viable, encouragement of ridesharing options in the public and private sector, provision for park-and-ride facilities adjacent to the regional transportation system, and provision for transit subsidies.

Transportation Demand Management

Policy 4.9. The City shall look for opportunities to incorporate TDM [transportation demand management] programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.

Land Use Element

Air Quality

The City will continue to cooperate with the SDAPCD Board. This will include participation in the development of the Regional Air Quality Strategy (RAQS) through cooperation with the San Diego County Air Quality Planning Team.

Bicycle Facilities

Policy A. Development shall provide Class II Bikeways (Bike Lanes) on all secondary, major, and prime arterials.

Policy D. The use of land shall integrate the Bicycle Circulation System with auto, pedestrian, and transit systems:

- Development shall provide short-term bicycle parking and long-term bicycle storage facilities such as bicycle racks, pedestal posts, and rental bicycle lockers.
- Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, shopping, employment, and entertainment centers.

Pedestrian

Policy A. The construction of five (5) foot wide sidewalks adjacent to the curb shall be required in all new developments and street improvements.

Transit System

Policy A. The City shall coordinate and encourage the existing bus system to serve newly developed areas.

Energy

Policy A. The City shall encourage the design, installation, and use of passive and active solar collection systems.

Policy B. The City shall encourage the use of energy efficient design, structures, materials, and equipment in all land developments or uses.

City of Oceanside Climate Action Plan

The City adopted its Climate Action Plan (CAP) on May 8, 2019 (City of Oceanside 2019). The CAP acts as a roadmap to address challenges of climate change within the City and outlines measures the City will take to make progress towards meeting the State's GHG reduction goals. The CAP includes a baseline GHG emissions inventory for 2013, GHG emissions forecasts for 2020, 2030, 2035, 2040, and 2050, local GHG emissions reduction strategies and measures to help the City achieve the statewide targets, and implementation and monitoring mechanisms to ensure the City's measures and targets are achieved. The CAP established local GHG emissions reduction targets for future years as follows:

- by 2020, reduce GHG emissions levels to 5 MT CO_2e per capita;
- by 2030, reduce GHG emissions levels to 4 MT CO_2e per capita;
- by 2040, reduce GHG emissions levels to 3 MT CO_2e per capita; and
- by 2050, reduce GHG emissions levels to 2 MT CO_2e per capita.

The CAP was prepared in accordance with the requirements within CEQA Guidelines Section 15183.5, and the CAP Consistency Checklist was used to evaluate the Project's significance with respect to GHG emissions.

City of Oceanside Energy Climate Action Element

The Energy Climate Action Element (ECAE) of the City's General Plan was adopted on May 8, 2019 and addresses energy consumption and other activities within the City that may contribute to adverse energy and GHG impacts. The ECAE focuses on activities associated with human-induced climate change. The ECAE outlines sustainability goals and policies for the City's decision-making process including development review protocols. The primary themes and goals of the ECAE are related to energy efficiency and renewable energy, smart growth and multimodal transportation, zero waste, water conservation, urban greening, local agriculture, and sustainable consumption.

3.3 Significance Criteria and Methodology

3.3.1 Thresholds of Significance

California has developed guidelines to address the significance of GHG emissions impacts that are contained in Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.). Appendix G provides that a project would have a significant environmental impact if it would:

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

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

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

CEQA Guidelines

With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or performance-based standards" (14 CCR 15064.4[a]). A lead agency may use a "model or methodology" to estimate greenhouse gas emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change" (14 CCR 15064.4[c]). The CEQA Guidelines provide that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment (14 CCR 15064.4[b]):

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

In addition, the CEQA Guidelines specify that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7[c]).

The extent to which a project increases or decreases GHG emissions in the existing environmental setting should be estimated in accordance with Section 15064.4, *Determining the Significance of Impacts from Greenhouse Gas Emissions*, of the State CEQA Guidelines. The State CEQA Guidelines indicate that when calculating GHG emissions resulting from a project, lead agencies shall make a good-faith effort based on scientific and factual data (Section 15064.4 (a)), and lead agencies have discretion to select the model or methodology deemed most appropriate for enabling decision makers to intelligently assess the project's incremental contribution to climate change (Section 15064.4 (c)).

The State CEQA Guidelines do not indicate an amount of GHG emissions that constitutes a significant impact on the environment. Instead, they authorize the lead agency to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence (State CEQA Guidelines Sections 15064.4(a) and 15064.7(c)). Several agencies throughout the state have drafted and/or adopted numerical threshold approaches and guidelines for analyzing the significance of project-related GHG emissions; however, no numerical thresholds have been formally adopted by an air district or lead agency for use in the San Diego region.

Governor's Office of Planning and Research

The Governor's Office of Planning and Research's Technical Advisory, titled Discussion Draft CEQA and Climate Change Advisory (OPR 2018), states the following:

> [N]either the CEQA statute nor the CEQA Guidelines prescribe thresholds of significance or particular methodologies for perming an impact analysis. This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable. … Even in the absence of clearly defined thresholds for GHG emissions, such emissions must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact.

Furthermore, the advisory document indicates that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice." Section 15064.7(c) of the CEQA Guidelines specifies that "when adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence."

Approaches to Determining Significance

The significance of the project-related GHG emissions can be determined by evaluating the project's compliance with regulations or requirements adopted to implement statewide, regional, or local plans for the reduction or mitigation of GHG emissions. The state's 2030 target (reduce GHG emissions to 40% below 1990 levels by 2030) has been codified in law through SB 32 and the 2017 Scoping Plan (CARB 2017). Therefore, 2030 marks the next statutory statewide milestone target applicable to the project.

The City's 2019 CAP is a qualified GHG emissions reduction plan in accordance with State CEQA Guidelines Section 15183.5. CEQA Guidelines 15183.5(a) states that Lead Agencies may analyze and mitigate the significant effects of GHG emissions at a programmatic level, such as in a general plan, a long range development plan, or a separate plan to reduce GHG emissions. Later project-specific environmental documents may tier from and/or incorporate by reference the existing programmatic review. 15183.5(b) states that public agencies may choose to analyze and mitigate significant GHG emissions in a plan for the reduction of GHG emissions. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of a CAP.

The City's CAP seeks to align with state efforts to reduce GHG emissions while balancing a variety of community interests: e.g., quality of life, economic development, and social equity. The City of Oceanside's 2019 CAP quantified baseline and projected future GHG emissions from activities within the City. State GHG reduction efforts were first initiated by EO S-3-05 in 2005, which established a 2050 emissions target to stabilize the climate (CARB 2008). EO S-3-05 also established a 2020 GHG emissions target goal, which was later codified by the State Legislature as AB 32. EO B-30-15 then established an additional interim 2030 GHG emissions target, which was also codified by the State Legislature. and proposed City-specific measures and strategies to reduce GHG emissions in accordance with 2020 and 2030 targets codified by the State Legislature. On a per-capita basis the 2020 GHG emissions target requires that emissions be reduced to "about 10 tons per person by 2020" (CARB 2008) and the subsequent targets require that emissions be reduced to "no more than 6 MT CO_2e per capita by 2030 and no more than 2 MT CO_2e per capita by 2050" (CARB 2017). The City's CAP established GHG reduction targets for 2030 that are more rigorous than the State's 6 MT CO_2e per capita goal. The City's goal is to achieve GHG emission levels of 4 MT CO_2e per capita by 2020, 3.5 MT CO_2e per capita by 2025, and 3.0 MT CO_2e per capita by 2040. A 2050 target of 2.0 MT CO_2e per capita is established for the City consistent with recommendations of the 2017 Scoping Plan and international agreements, such as the "Under 2 MOU," which requires that all "signatories agree to reduce their GHG emissions to two metric tons CO2E per capita by 2050." This is the most commonly agreed upon 2050 target and directly relates to the long term target of EO-S-05.

As discussed in the CAP, to ensure the City remains on track to achieve the long-term reduction goals of the State, the City has implemented GHG reduction measures proactively. The CAP measures outline how the City will reduce its near-term GHG emissions and establish infrastructure to support continued reductions beyond 2030. The City is already projected to meet state-aligned per capita near-term emissions targets (2020 and 2030), as such reduction measures in the CAP (Chapter 3 of the CAP) were selected based on their ability to achieve long-term GHG emission reductions. Measures were focused on energy, water, solid waste, transportation and land use, and agriculture and forestry. Although the City's CAP predates CARB's 2022 Scoping Plan, the City's measures are consistent with CARB's recommendations for Local Actions focused on transportation electrification, VMT reduction, and building decarbonization (CARB 2022e).

The City's CAP establishes communitywide GHG emissions reduction targets based on an efficiency/service population methodology. "Service population" is defined as the sum total of the City's residents and workforce. The City issued a policy directive in May 2023 that provides direction on CEQA-compliant analysis of GHG emissions associated with new development. The 2023 Policy Directive notes that many of the CAP measures are contingent upon the adoption of several ordinances addressing renewable energy, electric vehicle charging facilities, and preferential parking, transportation demand management (TDM), and tree canopy. Accordingly, in the interim, all projects must demonstrate that associated GHG emissions fall below one of two efficiency thresholds noted below:

- Projects that will be implemented after 2020 and prior to end of 2025 must show that GHG emissions related to both construction and operations will not exceed 3.5 MT CO_2e/service population per year.
- Projects that will be implemented after 2025 must show that GHG emissions related to both construction and operations will not exceed 3.0 MT CO_2e/service population per year.

GHG emissions are by nature a cumulative impact, therefore, project's may rely on the City's CAP to determine a project's impact on a project-level/cumulative-level basis. Chapter 4 Implementation, of the City's CAP outlines how the CAP reduction measures will be implemented and establishes a mechanism for individual development project's to evaluate their consistency with the CAP through completion of a checklist.

The City of Oceanside's CAP relies on a screening threshold based on land use size and a CAP Consistency Checklist to determine whether a project's emissions would be consistent with GHG emissions estimated within the City's CAP. Consistent with the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change document (CAPCOA 2008) , the City has established a bright line threshold of significance for GHG emissions impacts: 900 MT CO_2e annually, with construction-related emissions amortized over 20 years. Specifically, the City has determined that new development projects emitting less than 900 MT CO_2e annual GHG would not contribute considerably to cumulative climate change impacts, and therefore do not need to demonstrate consistency with the CAP strategies, and would be determined to not conflict with the CAP. The 900 MT CO2e bright-line threshold represents a market capture rate of 90% of all development projects (CAPCOA 2008). The objective of the bright-line threshold is to set the emissions low enough to capture a substantial fraction of future residential and non-residential development that will be constructed to accommodate future statewide population and job growth, while setting the emission threshold high enough to exclude small development projects that will contribute a relatively small fraction of the cumulative statewide GHG emissions (CAPCOA 2008). The 90% capture rate of new development establishes a strong basis for demonstrating that cumulative reductions are being achieved across the state. Projects greater than 900 MT CO_2e would be required to show CAP Checklist consistency, which can be used to determine that the project would be consistent with the CAP. Essentially, to demonstrate that a project would comply with the CAP, requires a two-step process: the first step is a screening-level bright line threshold, which if exceeded, would require the second step, which is a CAP efficiency and CAP measures consistency analysis.

CEQA Guidelines Section 15183.5(2) states that an environmental document that relies on a GHG reduction plan for a cumulative impact analysis must identify those requirements specified in the plan that apply to the project, and if those requirements are not otherwise biding and enforceable, incorporate those requirements as mitigation measures applicable to the project. In accordance with Section 15183.5(2) of the CEQA Checklist, the CAP Checklist provides for streamlined review of projects subject to environmental review, offering an alternative to project-specific analysis of GHG emissions impacts. The Checklist is available to projects that meet locational requirements that further the City's efforts to facilitate housing and employment growth in walkable, transit-served areas, as well as projects that either 1) conform to current land use and zoning standards or 2) involve uses that would generate less GHG emissions than those allowed under current standards.

As discussed above under Section 3.3.1 Thresholds of Significance, GHG emissions are recognized exclusively as a cumulative impact (CAPCOA 2008). The CAP Consistency Checklist is used to determine project-level significance in accordance with CEQA Guidelines Section 15183.5; the measures in the CAP Consistency Checklist identify the specific requirements that must be implemented by development projects on a city-wide basis to achieve the City's identified reduction targets. The CAP addresses the cumulative impact of GHG emissions on a city-wide basis and a project's compliance with the CAP supports the City's GHG emission reduction goals.

In accordance with Section 15064.4 of the State CEQA Guidelines, GHG emissions resulting from construction and operation of the project were quantitatively estimated. The potential impacts from project-related GHG emissions were assessed based on the total increase above the existing environmental setting, which is largely formerly developed, vacant land. The GHG emissions associated with implementation of the project were estimated using industry standard and accepted software tools, techniques, and emissions factors. The significance of the project's GHG impacts is based on the project's compliance with the City's CAP measures which includes GHG efficiency metrics.

3.3.2 Approach and Methodology

3.3.2.1 Construction

Construction of the Project would result in emissions of GHG emissions primarily associated with use of off-road construction equipment, on-road haul and vendor (material delivery) truck trips, and worker vehicle trips. As discussed previously in Section 2.3.2, emissions from the construction phase of Project components were estimated using the CalEEMod Version 2020.4.0[10]. Per preliminary project details, it is assumed that construction of the Project would begin in January 2024 and would last approximately 24 months. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Section 2.3.2. above, and complete details of the emissions calculations are provided in Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*. Per City Guidance, construction-related GHG emissions were amortized over 20 years and added to operational emissions to assess significance.

3.3.2.2 Operation

Operation of the Project would generate GHG emissions from mobile sources, area sources (landscape maintenance equipment), energy use, water use and wastewater generation, and solid waste (i.e., CO_2e emissions associated with landfill off-gassing). As with project construction, CalEEMod Version 2020.4.0 was used to estimate potential project-generated operational GHG emissions based on Project land uses. It was assumed that the project would be operational following the completion of construction, which would occur in 2026.

Area

The area source category calculates direct sources of GHG emissions located at the Project site including hearths and landscape maintenance equipment. This source category does not include the emissions associated with natural gas usage in space heating and water heating as these are calculated in the building energy use module of CalEEMod. The project includes a PDF that prohibits fireplaces in residential units.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod defaults. For San Diego County, CalEEMod assumes that landscaping equipment would operate 180 days per year. To be conservative, emissions were estimated assuming that landscape maintenance equipment was powered by gasoline or diesel fuel, and not electrified.

Energy

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). CalEEMod default values for energy consumption were applied to each land use. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Survey. Energy use from the non-residential land uses is based on various studies and assessments as described in Section 7.3, *Estimating Energy Use from Other Land Uses*, of Appendix A of the CalEEMod User's Guide (CAPCOA 2021).

[10] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Annual natural gas and electricity emissions were estimated in CalEEMod using default values for emissions factors for San Diego Gas and Electric (SDG&E), which would be the energy source provider for the Project. The project includes PDF-GHG-1 that ensures PV systems are installed on each building to meet 50% of forecasted electricity demand.

Mobile Sources (Motor Vehicles)

Following the completion of construction activities, the Project would generate GHG emissions from mobile sources (vehicular traffic), as a result of residents associated with the 164 residential units. The CalEEMod Version 2020.4.0 model was used to estimate daily emissions from vehicular sources (refer to Appendix A). CalEEMod Version 2020.4.0 default data, including trip rate, temperature, trip characteristics, variable start information, and emissions factors were used for the model inputs. Emission factors representing the vehicle mix and emission factors for 2026 were used to estimate emissions associated with vehicular sources.

Solid Waste

The Project would generate solid waste, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the Project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment.

For additional details see Appendix A, *Air Quality and Greenhouse Gas Emissions CalEEMod Output Files*.

3.4 Impact Analysis

3.4.1 Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

and/or

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

The City of Oceanside's CAP was adopted in May 2019 to assist the City in reducing GHG emissions to 4 MT CO_2e per capita by 2030, and 2 MT CO_2e per capita by 2050 to align with the state's targets established by EOs B-30-15 and S-3-05, respectively. According to the City's CAP, new discretionary development projects subject to CEQA review that emit less than 900 MT CO_2e annually would not contribute considerably to cumulative climate change impacts, and therefore, would be considered consistent with the CAP and associated emissions projections. Projects that exceed the 900 MT CO_2e are evaluated to determine if the CAP Consistency Checklist is applicable. In addition, pursuant to the City's May

2023 Policy Directive, a project's per service population emissions shall be determined and evaluated against the City's targets based on when a project is to be implemented to ensure that the project would comply with the CAP. As such, the evaluation presented below assess the project's consistency with the CAP through two tests: (1) CAP Consistency Checklist, and (2) per service population efficiency metric.

Project-generated GHG emissions were estimated per the methodology described in the Air Quality and Greenhouse Gas Technical Report (Section 2.3.2 and 3.3.2) and are discussed for construction and operation below. Quantification of GHG emissions is provided pursuant to CEQA Guidelines 15064.4(c) as the determination of significance is based on the CAP Consistency Checklist.

Project's Consistency with the CAP

CAP Consistency Checklist

Projects that meet one or more of the following locational criteria are eligible for using the CAP Consistency Checklist:

1. The project site is located within a designated Smart Growth Opportunity Area.
2. The project site is located with ¼ mile of a priority TOD corridor, as identified in the City's Smart and Sustainable Corridors Plan.

   Items 1 and 2 pertain to the City's focus on where development will occur. The City seeks to accommodate future housing and job growth primarily through infill and redevelopment within already urbanized areas. Specifically, the City seeks to facilitate new residential and employment-oriented development within SANDAG-designated Smart Growth Opportunity Areas and prior corridors (i.e., Coast Hwy, Mission Avenue, Oceanside Blvd, Vista Way).
3. The project is consistent with current land use and zoning designations.

   Item 3 ensures that projected growth and development along with GHG emissions would be consistent with projections included in the CAP.
4. The project requires amendment of current land use and zoning designations. As demonstrated through a detailed analysis a) consistent with the precedent in the surrounding zoning district and b) subject to third party expert review, the proposed land uses would generate less GHG emissions than those associated with uses allowed under current land use and zoning designations.

   Similar to Item 3, this measure allows for projects that require land use changes to use the CAP checklist if the projected GHG emissions would be comparable or less than the existing land use designation.

In response to Item 1, the project site is not located within a Smart Growth Opportunity Area, it is located approximately 50 feet outside a smart growth area. The project would not meet locational criteria 1.

In response to Item 2, the project site is located approximately 0.75 miles from the nearest TOD corridor. The project would not meet locational criteria 2.

In response to Item 3, the project is not consistent with the current land use and zoning designation because it requires a general plan amendment and rezone. The project would not meet criteria 3.

In response to Item 4, although the project requires a general plan amendment and rezone, it would generate less GHG emissions than those associated with the uses allowed under current land use and zoning designation. The project's development intensity (measured by vehicle trips and VMT) would be less than the current land use designation. Table 18 below shows how the project would generate less GHG emissions than allowed uses under the existing land use and zoning designations.

Table 18. Comparison of Estimated Annual Operational Greenhouse Gas Emissions – Unmitigated

Development	Land Use Developed	CO_2	CH_4	N_2O	Refrigerants	CO_2e
		metric tons per year				
Proposed Project	164 multi-family residential units	1,142.70	1.50	0.03	1.42	1,193.10
Existing General Plan Land Use Designation (CI) and Zoning (PS)	Hospital (100 beds)	2,369.6	3.05	0.15	3.09	2,480.42
	Government Office (150)	2,835.9	2.39	0.13	3.82	2,942.16
	Highschool (1,000 students)	1,770.61	1.88	0.07	2.51	1,844.14

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent
See Appendix A for complete results.

Because the project would generate fewer GHG emissions than the existing land use designations, it would meet criteria 4 and would be eligible to use the CAP Consistency Checklist.

As discussed previously, CEQA Guidelines Section 15183.5(2) states that an environmental document that relies on a GHG reduction plan for a cumulative impact analysis must identify those requirements specified in the plan that apply to the project, and if those requirements are not otherwise biding and enforceable, incorporate those requirements as mitigation measures applicable to the project. In accordance with Section 15183.5(2) of the CEQA Guidelines, the CAP Checklist provides for streamlined review of projects subject to environmental review, offering an alternative to project-specific analysis of GHG emissions impacts.

Table 19 includes the CAP Checklist items and the related project consistency analysis.

Table 19. Climate Action Plan Consistency Checklist and Project Consistency

Check List Item	Project Consistency
1. On-Site Renewable Energy Supply. If the project meets one or more of the thresholds outlined in Section 3047 of the City's Zoning Ordinance, will at least 50 percent of the estimated electricity demand be met with on-site renewable emissions-free energy supply (e.g., solar photovoltaic facilities)?	Consistent. The Project is a residential project that includes more than 25 dwelling units, and is therefore required to comply with the on-site renewable energy supply provisions of the checklist. The Project includes roof-top solar PV, which will accommodate at least 50% of energy demand during operation.
2. Electric Vehicle Charging Facilities. If the project involves new development that requires at least five (5) parking spaces, will the project comply with the requirements of Section 3048 of the City's Zoning Ordinance?	Consistent. The Project includes a total of 384 parking spaces for residences and guests, and is therefore required to comply with the requirements of Section 3048 of the City's Zoning Ordinance. Per Section 3048, the Project will reserve 15% of parking spaces for zero-emission vehicles and equip 50% of those reserved spaces with Level 2 electric vehicle charging facilities.
3. Recycled Water Infrastructure. Does the City's Water Utilities Department require that the project install infrastructure to provide for recycled water service?	Not Applicable. The Project is not required to use recycled water.
4. Transportation Demand Management (TDM). Per Section 3050 of the City's Zoning Ordinance, does the proposed project expected to generate at least 100 daily employee commute trips, necessitating the preparation and implementation of a TDM Plan?	Not Applicable. The Project is a residential project and this measure does not apply.
5. Urban Forestry. Will the project comply with the minimum tree canopy and permeable surface area requirements outlined in Section 3049 of the City's Zoning Ordinance?	Consistent. The Project will provide a minimum of 12% tree canopy coverage and 22% permeable surface, which meets the requirements outlined in Section 3049 of the City's Zoning Ordinance.

Source of Checklist Items: City of Oceanside, 2019

As shown in Table 19, the project is consistent with the CAP Consistency Checklist adopted by the City to ensure that the emission targets identified in the CAP are achieved. Therefore, the project is not expected to generate GHG emissions that may have a significant impact on the environment, and would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and the impact would be less than significant.

Per Service Population Efficiency Metric

As discussed previously, pursuant to the City's May 2023 Policy Directive, a project's GHG emissions are to be quantified and its per service population emissions determined and evaluated against the City's targets based on when a project is to be implemented to ensure that the project would comply with the City's CAP, which is presented below.

Construction Emissions

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road haul and vendor (material delivery) truck trips, and worker vehicle trips. Emissions from the construction phase of project components were estimated using the CalEEMod Version 2022.1[11]. Per preliminary project details, it is assumed that construction of the project would begin in January 2024 and would last approximately 21 months. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix B. Per City Guidance, construction-related GHG emissions were amortized over 20 years and added to operational emissions to assess significance.

Table 20 shows the estimated annual GHG construction emissions associated with the project. Complete details of the construction emissions calculations are provided in Appendix B.

Table 20. Estimated Annual Construction GHG Emissions

	CO_2	CH_4	N_2O	Refrigerant	CO_2e
Year		Metric Tons			
2024	393	0.05	0.02	0.26	400
2025	162	0.01	0.01	0.18	165
Total	555	0.06	0.03	0.44	565
Amortized Emissions (20 years)					28.2

Source: CalEEMod Version 2022.1
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
See Appendix A for complete results. <0.01 = reported value is less than 0.01.

As shown in Table 20, the estimated total GHG emissions from construction of the project would be approximately 565 MT CO_2e. When amortized over 20 years, the estimated annual GHG emissions from construction of the project would be approximately 28 MT CO_2e per year.

Operational Emissions

Operation of the project would generate GHG emissions from mobile sources, area sources (landscape maintenance equipment), energy use, water use and wastewater generation, and solid waste (i.e., CO_2e emissions associated with landfill off-gassing). As with project construction, CalEEMod Version 2022.1 was used to estimate potential project-generated operational GHG emissions based on project land uses. It was assumed that the project would be operational following the completion of construction, which would occur in 2026.

Table 21 shows the estimated annual GHG operational emissions associated with the project. As discussed above, total annual operational emissions were combined with amortized (20 years) construction emissions and compared to the recommended efficiency metric threshold. Complete details of the construction emissions calculations are provided in Appendix A.

[11] CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform to calculate construction and operational emissions from land use development projects. The model was developed for the California Air Pollution Control Officers Association in collaboration with multiple air districts across the state. Numerous lead agencies in the state, including SDAPCD, use CalEEMod to estimate GHG emissions in accordance with CEQA Guidelines Section 15064.4(a)(1).

Table 21. Summary of Estimated Annual GHG Emissions

Emissions Source	MT CO_2	MT CH_4	MT N_2O	Refrigerants	MT CO_2e
Mobile	803	0.04	0.03	1.21	815
Area	139	0.16	<0.01	-	143
Energy[1]	186	0.02	<0.01	-	187
Water	3.83	0.19	<0.01	-	9.93
Waste	10.9	1.09	0.00	-	38.0
Refrigerants	-	-	-	0.21	0.21
Total	**1,142.70**	**1.50**	**0.03**	**1.42**	**1,193.10**
Amortized Construction Emissions (20 years)					*28*
Project Operations + Amortized Construction Total					***1,221.14***
Service Population					*457*
GHG Efficiency Threshold for Post-2025					*3.0*
Project GHG Efficiency Metric					*2.67*
Conflict with City's GHG Policy Directive?					**No**

Source: See Appendix A for complete results.
Notes: GHG = greenhouse gas; MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. <0.01 = reported value is less than 0.01.
[1.] The above energy emissions estimate assumed the use of natural gas; the Project will not include natural gas thus the energy GHG emissions would be reduced. The total GHG emissions shown are conservative.

As shown in Table 21, the Project's GHG efficiency/service population would be consistent with the City's Policy Directive of achieving no more than 3.0 MT CO_2e post-2025. Accordingly, the Project would not generate GHG emissions that would have a significant impact on the environment. The Project's GHG emissions would be **less than significant.**

Consistency with Senate Bill 32, Assembly Bill 1279, Executive Order S-3-05, and Assembly Bill 1279

EO S-3-05 identified the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050. SB 32 establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030. AB 1279 establishes a policy of the state to achieve net zero GHG emissions no later than 2045 and for statewide anthropogenic GHG emissions to be reduced to at least 85% below 1990 levels by 2045.

Each Scoping Plan builds upon the successful framework established by the initial Scoping Plan and subsequent updates, while also identifying new, technologically feasible, and cost-effective strategies to ensure that California meets increasingly stringent 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 Scoping Plan updates have continued to express optimism in meeting future year targets of 2050 and 2030, as evaluated in the 2014 and 2017 Scoping Plans (respectively), and most recently, the 2045 goal addressed in the 2022 Scoping Plan under EO B-55-18, which AB 1279 codified and expanded on.

While there are no established protocols or thresholds of significance for that future year analysis, CARB forecasted in the 2014 Scoping Plan that compliance with the current Scoping Plan would put the state on a trajectory of meeting the long-term 2050 GHG goals, although the specific path to compliance was unknown at the time (CARB 2014). The 2017 Scoping Plan outlined a strategy to achieve the 2030 GHG reduction target. The proposed scenario in the 2022 Scoping Plan lays out a path not just to carbon neutrality by 2045, but also to the 2030 GHG emissions reduction target (CARB 2022b). The modeling indicates that, if the plan described in the proposed scenario is fully implemented, and done so on schedule, the state is on track to reduce its emissions to 260 MMT CO_2e by 2030 (CARB 2022b).

The City is on track to meet state-aligned emissions reduction targets for 2020 and 2030 without additional emissions reduction measures (Oceanside 2019). However, the City understands that meeting long-term reduction targets requires aggressive action. As such, the City has developed near-term local GHG emissions targets more aggressive than State targets that put the City on a trajectory consistent with the State's 2050 GHG emissions targets, which represent the level necessary to stabilize the climate in the latter part of the 21st century (Oceanside 2019). Regarding, AB 1279, it is important to note that the state's carbon neutrality goal does not preclude any individual project from emitting GHG emissions. AB 1279 codifies EO B-55-18, however, its enactment was linked to the concurrent enactment of SB 905, which requires CARB to create a Carbon Capture, Removal, Utilization, and Storage Program that, fundamentally, will sequester carbon emitted by other projects. Therefore, the state's carbon neutrality goal does not preclude all individual projects from emitting GHG emissions.

As discussed above, the project would be consistent with the CAP and, therefore, would be consistent with state GHG reduction goals and progress towards achieving carbon neutrality.

Consistency with SANDAG RTP/SCS

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

As noted above, the proposed project would not generate GHG emissions that have a significant impact on the environment because it is determined to be consistent with the City's CAP, which is the most applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (See: Table 4.7-5*)*. Therefore, the proposed project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and the impact would be less than significant.

Summary

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

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Appendix A

CalEEMod Outputs and Estimated Emissions

Appendix B

Health Risk Assessment Output File