

**Greenhouse Gas Emissions Technical Analysis for
The Preserve at Torrey Highlands Project
City of San Diego, California**

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ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°C	degrees Celsius
°F	degrees Fahrenheit
AB	Assembly Bill
BAU	Business-As-Usual
Btu	British thermal unit
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAP	Climate Action Plan
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CH ₄	methane
CO ₂	carbon dioxide
EO	Executive Order
GHG	greenhouse gas
GWP	global warming potential
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
MMT CO ₂ E	million metric tons of carbon dioxide equivalent
MOU	Memorandum of Understanding
MT CO ₂ E	metric tons carbon dioxide equivalent
N ₂ O	nitrous oxide
NHTSA	National Highway Traffic Safety Administration
O ₃	ozone
PFC	perfluorocarbon
RPS	Renewables Portfolio Standard
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SANDAG	San Diego Association of Governments
SB	Senate Bill
SDG&E	San Diego Gas & Electric
SF ₆	sulfur hexafluoride
SLCP	short-lived climate pollutant
TPA	transit priority area
ZEV	zero emissions vehicle
ZNE	zero net energy

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EXECUTIVE SUMMARY

The purpose of this technical analysis is to assess the potential greenhouse gas (GHG) emissions impacts associated with implementation of The Preserve at Torrey Highlands (project or proposed project) to support the California Environmental Quality Act (CEQA) review for the project. This analysis evaluates the project's consistency with the City of San Diego's (City's) 2015 Final Climate Action Plan (CAP) to determine whether the project would result in GHG emissions that would conflict with the underlying assumptions in the CAP.

Project Overview

The project would include a community plan amendment, a rezone, planned development permit, and a site development permit to construct a 420,000-square-foot business office development. The Community Plan land use designation would change from Commercial Limited (CL) to Employment Center (EC). The rezone would change the project site zone from Agriculture-Residential (AR-1-1) to Industrial Park (IP-3-1). Development under the proposed community plan amendment would be capped at 420,000 square feet and any development greater than 420,000 square feet would not be permitted. Moreover, the proposed community plan amendment places a limit on the allowable building square footage that could otherwise be developed on the site under the proposed I-P-3 zone alone. The project is consistent with the City's existing 2015 General Plan designation of Commercial Employment, Retail, and Services.

City of San Diego Climate Action Plan Consistency

The City adopted the CAP in December 2015. With implementation of the CAP, the City aims to reduce emissions 15% below the baseline to approximately 11.1 million metric tons of carbon dioxide equivalent (MMT CO₂E) by 2020, 40% below the baseline to approximately 7.8 MMT CO₂E by 2030, and 50% below the baseline to approximately 6.5 MMT CO₂E by 2035. The City has identified the following five CAP strategies to reduce GHG emissions to achieve the 2020 and 2035 targets: (1) energy- and water-efficient buildings; (2) clean and renewable energy; (3) bicycling, walking, transit, and land use; (4) zero waste (gas and waste management); and (5) climate resiliency. The City's CAP Consistency Checklist, adopted July 12, 2016 and subsequently revised June 2017, is the primary document used by the City's adopted GHG Significance Threshold to ensure project-by-project consistency with the underlying assumptions in the CAP and thereby to ensure that the City would achieve the emission reduction targets identified in its CAP.

A project's consistency with the CAP consistency checklist is generally evaluated in three steps: (1) consistency with existing land use designation; (2) consistency with CAP strategies; and (3) consistency with the City of Villages strategy, the Mobility Element, pedestrian improvements,

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the Bicycle Master Plan, and transit-oriented development in a transit priority area (TPA). The first step is to assess a project's consistency with the growth projections utilized in the development of the CAP, as determined through the CAP Consistency Checklist. The second step is to review and evaluate a project's consistency with applicable strategies and actions of the CAP. The third step is to determine whether a project with a land use and/or zone designation change within a TPA would be consistent with the assumptions of the CAP. Step 3 would only apply if Step 2 is answered in the affirmative under Option B.

To analyze the project's consistency with the CAP under Step 1, two scenarios were analyzed for comparative purposes as part of the quantitative analysis: 1) development under existing land use and zoning designations, and 2) buildout of the proposed project. The project site's land use designation is Commercial Limited (CL), which permits religious facilities, trade schools, storage facilities, nurseries, garden centers, and veterinary clinics. Additionally, the site is currently zoned Agriculture-Residential (AR-1-1). This zoning allows for recreational, agriculture, residential, and childcare uses. For purposes of this comparative analysis, the previously approved Our Lady of Mount Carmel Church project was utilized as the buildout scenario under the existing land use and zoning designations. Our Lady of Mount Carmel Church proposed a 1,200-seat church and a 500 student school (K-8). As analyzed in Chapter 6, Impact Analysis, GHG emissions associated with the proposed project would be greater than the GHG emissions anticipated for the representative project under existing land use designations.

Step 2 of the CAP Consistency Checklist includes the list of measures each project would be required to implement to be consistent with the CAP strategies and mitigate GHG emissions. The proposed project would be implement all applicable CAP strategies identified in the CAP Consistency Checklist. These sustainability measures would reduce GHG emissions in accordance with each of the CAP strategies. In addition, the project proposes to meet the Leadership in Energy and Environmental Design (LEED) Gold certification or equivalent, which would include features such as using recycled water for irrigation and landscaping, installing non-chlorofluorocarbon-based air conditioning units, and using electric landscape equipment instead of gasoline or diesel-powered landscape equipment. The list of LEED Gold sustainability measures are listed in Section 3.3, Project Characteristics of the Final EIR.

The project would not be consistent with Step 1 of the CAP Consistency Checklist as described and analyzed in Chapter 6. Therefore, according to the City's CAP consistency evaluation methodology, the project would result in a potentially significant impact to climate change. As determined through the Step 2 checklist, the project has applied all feasible mitigation, but the impact would remain significant and unavoidable. Step 3 of the CAP is not applicable to the proposed project because the project is not located within a City-designated Transit Priority Area.

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Proposed Project Emissions

Buildout of the project would be comprised of 420,000 square feet of business office space including a business office campus composed of three buildings with four and five stories, with a half level of subterranean parking, one one-story amenity building, and one above-grade parking structure. As previously discussed, development under the proposed community plan amendment would be capped at 420,000 square feet and any development greater than 420,000 square feet would not be permitted. Moreover, the proposed community plan amendment places a limit on the allowable building square footage that could otherwise be developed on the site under the proposed I-P-3 zone alone.

Operation of the proposed project would result in GHG emissions from mobile sources, area sources, energy sources, solid waste, and water supply and wastewater generation. The estimated annual operational project-generated emissions would be approximately 7,208 metric tons (MT) carbon dioxide equivalent (CO₂E) per year, and the project would be inconsistent with the CAP; therefore, the project would implement MM-GHG-1 through MM-GHG-15. However, following implementation of MM-GHG-1 through MM-GHG-15, the project would not result in a net increase in GHG emissions when compared to the uses allowed under the existing plan and zoning designations. However, the City has indicated that it does not currently have a specific mechanism in place for tracking and/or assessing the purchase of carbon offset credits on a project-specific basis consistent with the CAP. Therefore, the City has concluded that to be conservative, the reduction of carbon emissions attributable to MM-GHG 14 and MM-GHG-15, should not be considered in the significance determination; impacts would therefore remain significant and not fully mitigated.

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1 INTRODUCTION

1.1 Report Purpose

The purpose of this analysis is to evaluate the potential greenhouse gas (GHG) emissions impacts of the proposed The Preserve at Torrey Highlands (project or proposed project), a business office development within the Torrey Highlands Subarea within the City of San Diego (City). Impacts are evaluated for their significance based on consistency with the City's *Final Climate Action Plan* (CAP) and associated CAP Consistency Checklist (City of San Diego 2015a, 2017a).

1.2 Regional and Local Setting

The project site is located on 11.1 acres (including Assessor's Parcel Numbers 306-050-1600 and 306-050-1800) of undeveloped land located approximately 0.25 miles south of State Route 56 (SR-56) along the western side of the planned extension of Camino del Sur in San Diego, California (see Figure 1, Regional Map, and Figure 2, Vicinity Map). The proposed project site is designated Commercial Employment, Retail, and Services in the San Diego General Plan (City of San Diego 2015b). Additionally, the project site is designated Commercial Limited (CL) under the Torrey Highlands Subarea Plan, with an Agriculture-Residential (AR-1-1) zone (City of San Diego 1996).

The land surrounding the project site is vacant and undeveloped. The site is surrounded on three sides by the City's Multi-Habitat Preservation Area. A gas station is located north of the project site just south of SR-56 and the SR-56 Bike Trail on the eastern side of Camino del Sur. Commercial and residential land uses are located north and west of the project site. Specifically, the Kilroy Santa Fe Summit Intuit corporate campus is located northwest of the project site and consists of four buildings totaling 480,000 square feet of business office in addition to a 492,000-square-foot parking structure. This corporate campus is entitled for an expansion in the future to build up to 600,000 square feet of office space (Figure 3, Site Plan).

1.3 Climate Action Plan Consistency Analysis

As discussed in Chapter 4, Thresholds of Significance, Chapter 5, Analysis Methodology and Assumptions, and Chapter 6, Impact Analysis, to evaluate the potential for the project to result in a significant GHG impact, the City's Significant Determination Thresholds were followed. A project's significance as evaluated by consistency with the CAP is generally evaluated in three steps: (1) consistency with existing land use; (2) consistency with CAP strategies; and (3) consistency with the City of Villages strategy, the Mobility Element, pedestrian improvements, the Bicycle Master Plan, and transit-oriented development in a TPA.

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Step 1 consists of an evaluation to determine the project's consistency with the existing Community Plan land use designations, and zoning designations for the site. If the project would be consistent with existing Community Plan, and zoning designations for the site, or if the project can demonstrate consistency with existing land uses by comparing the proposed project's GHG emissions with those that would be generated under existing land uses, then the answer to Step 1 would be "yes."

The project would retain the project site's General Plan land use designation but would change the Community Plan designation from Commercial Limited (CL) to Employment Center (EC). Additionally, the project would rezone from Agriculture-Residential (AR-1-1) to Industrial Park (IP-3-1), which would allow for research and development, office, and residential uses. Development in the Industrial Park (IP-3-1) zone is limited to a maximum floor area ratio of 2.0. The project would include a 420,000-square-foot business office development consisting of a business campus composed of three buildings with four and five stories, with a half level of subterranean parking, one one-story amenity building, and one above-grade parking structure. Therefore, because the proposed project would involve a change in the community plan land use designation and zoning of the project site, the project would be considered inconsistent with the CAP under Step 1. A consistency analysis pursuant to Step 1 is provided in Section 6.2.1.

A consistency analysis pursuant to Step 2 of the CAP is provided in Section 6.2.2.

Step 3 of the CAP is not applicable to the proposed project because the project site is not located within a TPA.

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Figure 1 Regional Map

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Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

Figure 2 Vicinity Map

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Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

Figure 3 Site Plan

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2 ENVIRONMENTAL SETTING

2.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called GHGs. 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. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

Principal GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and water vapor. Some GHGs, such as CO₂, CH₄, and N₂O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely byproducts of fossil fuel combustion, whereas CH₄ results mostly from off-gassing associated with agricultural practices and landfills. Human-made GHGs, which have a much greater heat-absorption potential than CO₂, include fluorinated gases, such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride, which are associated with certain industrial products and processes.

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its “global warming potential” (GWP). GWP varies between GHGs; for example, the GWP of CH₄ is 25, and the GWP of N₂O is 298. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO₂. Thus, GHG gas emissions are typically measured in terms of pounds or tons of CO₂ equivalent (CO₂E).¹

2.2 Contributions to Greenhouse Gas Emissions

Per the Inventory of *U.S. Greenhouse Gas Emissions and Sinks: 1990–2015* by the U.S. Environmental Protection Agency (EPA) (2017), total U.S. GHG emissions were approximately 6,586.7 million metric tons of carbon dioxide equivalent (MMT CO₂E) in 2015. The primary GHG emitted by human activities in the United States was CO₂, which represented approximately 82.2%

¹ The CO₂ equivalent for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons of CO₂E = (metric tons of a GHG) × (GWP of the GHG). The California Emissions Estimator Model Version 2016.3.2 assumes that the GWP for CH₄ is 25, which means that emissions of 1 metric ton of CH₄ are equivalent to emissions of 25 metric tons of CO₂, and the GWP for N₂O is 298 based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report.

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of total GHG emissions (5,411.4 MMT CO₂E). The largest source of CO₂, and of overall GHG emissions, was fossil fuel combustion, which accounted for approximately 93.3% of CO₂ emissions in 2015 (5,049.8 MMT CO₂E). Relative to 1990, gross U.S. GHG emissions in 2015 were higher by 3.5%, down from a high of 15.5% above 1990 levels in 2007. GHG emissions decreased from 2014 to 2015 by 2.3% (153.0 MMT CO₂E), and overall, net emissions in 2015 were 11.5% below 2005 levels (EPA 2017).

According to California's 2000–2015 GHG emissions inventory (2017 edition), California emitted 440.36 MMT CO₂E in 2015, including emissions resulting from out-of-state electrical generation (CARB 2017a). The sources of GHG emissions in California include transportation, industrial uses, electric-power production from both in-state and out-of-state sources, commercial and residential uses, agriculture, high-GWP substances, and recycling and waste. The California GHG emission source categories (as defined in the California Air Resources Board's (CARB's) *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) (CARB 2008)) and their relative contributions in 2015 are presented in Table 1.

Table 1
Greenhouse Gas Emissions Sources in California

Source Category	Annual GHG Emissions (MMT CO ₂ E)	Percent of Total
Transportation	164.63	37%
Industrial uses ^b	91.71	21%
Electricity generation ^c	83.67	19%
Residential and commercial uses	37.92	9%
Agriculture	34.65	8%
High GWP substances	19.05	4%
Recycling and waste	8.73	2%
Totals	440.36	100%

Source: CARB 2017a.

Notes: GHG = greenhouse gas; MMT CO₂E = million metric tons of carbon dioxide equivalent; GWP = global warming potential.

Emissions reflect 2015 California GHG inventory.

^a Percentage of total has been rounded, and total may not sum due to rounding.

^b The Aliso Canyon natural gas leak event released 1.96 MMT CO₂E of unanticipated emissions in 2015 and 0.52 MMT CO₂E in 2016. These leak emissions would be fully mitigated according to a legal settlement and are tracked separately from routine inventory emissions.

^c Includes emissions associated with imported electricity, which account for 33.74 MMT CO₂E.

2.3 Potential Effects of Human Activity on 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 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over

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decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice have, 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, and electricity demand and supply (CCCC 2012). The primary effect of global climate change has been a 0.2 degrees Celsius (°C) (0.36 degrees Fahrenheit (°F)) rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. 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. A warming of about 0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

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 average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

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3 REGULATORY SETTING

3.1 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 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 (HR 6):

Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

Federal Vehicle Standards. In response to the U.S. Supreme Court ruling discussed above, the Bush Administration issued Executive Order (EO) 13432 in 2007 directing the EPA, the U.S.

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Department of Transportation, and the U.S. 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.

In 2010, President Obama issued a memorandum directing the U.S. Department of Transportation, U.S. 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, EPA and NHTSA proposed stringent, coordinated federal GHG and fuel economy standards for light-duty vehicles for Model Years 2017–2025. The proposed standards projected to achieve 163 grams/mile of CO₂ in Model Year 2025 on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel efficiency. The final rule was adopted in 2012 for Model Years 2017–2021, and NHTSA intends to set standards for Model Years 2022–2025 in a future rulemaking.

In addition to these regulations applicable to cars and light-duty trucks, in 2011, EPA and NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks for Model Years 2014–2018. The standards for CO₂ 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, 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 Model Year 2018–2027 vehicles for certain trailers, and Model Years 2021–2027 for semitrucks, large pickup trucks, vans, and all types and sizes of buses and work trucks. The final standards are expected to lower CO₂ emissions by approximately 1.1 billion MT and reduce oil consumption by up to two billion barrels over the lifetime of the vehicles sold under the program (EPA and NHTSA 2016).

Clean Power Plan and New Source Performance Standards for Electric Generating Units. In October 2015, EPA published a final rule (effective December 2015) establishing the Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO₂ emission performance rates representing the best system of emission reduction for the following two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units and (2) stationary

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combustion turbines. Concurrently, the EPA published a final rule in October 2015 establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO₂ emission standards for newly constructed, modified, and reconstructed affected fossil-fuel-fired electric utility generating units. Implementation of the Clean Power Plan has been stayed by the U.S. Supreme Court pending resolution of several lawsuits; additionally, President Trump has called upon the EPA to review the Clean Power Plan.

3.2 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 EOs, legislation, regulations, and other plans and policies that would directly or indirectly reduce GHG emissions or address climate change issues.

3.2.1 State Climate Change Targets

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

Assembly Bill 32 and CARB's Scoping Plan. To further the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO₂E). CARB's adoption of this limit is in accordance with Health and Safety Code, Section 38550.

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Further, in 2008, CARB adopted the Scoping Plan in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. 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
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

In the Scoping Plan (CARB 2008), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise projected 2020 emissions level (i.e., those emissions that would occur in 2020) absent GHG-reducing laws and regulations (referred to as Business-As-Usual (BAU)). To calculate this percentage reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (CARB 2011a), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory

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measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update; CARB 2014). The stated purpose of the First Update is to “highlight California’s success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050” (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32, and noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified “six key focus areas comprising major components of the state’s economy to evaluate and describe the larger transformative actions that will be needed to meet the state’s more expansive emission reduction needs by 2050” (CARB 2014). Those six areas are (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05’s 2050 reduction goal (CARB 2014).

Based on CARB’s research efforts presented in the First Update, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050” (CARB 2014). Those technologies include 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. Using the recalculated 1990 emissions level (431 MMT CO₂E) and the revised 2020-emissions-level projection identified in the 2011 Final Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions (CARB 2014).

In December 2017, CARB released The 2017 Climate Change Scoping Plan Update (Second Update; CARB 2017b). This update contains CARB’s strategy for achieving the state’s 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that

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was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016).

Executive Order B-30-15. EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing 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 CO₂E. EO B-30-15 also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197. SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to CARB's membership, 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, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 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 toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

Senate Bill 605 and Senate Bill 1383. SB 605 (2014) requires CARB to complete a comprehensive strategy to reduce emissions of SLCPs in the state, and SB 1383 (2016) requires CARB to approve and implement that strategy by January 1, 2018. SB 1383 also establishes specific targets for the reduction of SLCPs (40% below 2013 levels by 2030 for CH₄ 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 (CARB 2017c) in March

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2017. The SLCP Reduction Strategy (CARB 2017c) establishes a framework for the statewide reduction of emissions of black carbon, CH₄, and fluorinated gases.

3.2.2 Building Energy

California Code of Regulations

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes 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 the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of "reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy" (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. 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 2016 Title 24 standards are the currently applicable building energy efficiency standards and became effective on January 1, 2017. In general, single-family homes built to the 2016 standards are anticipated to use approximately 28% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 standards, and nonresidential buildings built to the 2016 standards will use an estimated 5% less energy than those built to the 2013 standards (CEC 2015a).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as "CALGreen," and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings and schools and hospitals. The CALGreen 2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

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- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- Diversion of 65% of construction and demolition waste from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle board

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs (24 CCR Part 11).

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include the following: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).² As most recently defined by the CEC in its 2015 Integrated Energy Policy Report (CEC 2015b), a ZNE code building is "one where the value of the energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building" using the CEC's Time Dependent Valuation metric.

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

² It is expected that achievement of the ZNE goal will occur through revisions to the Title 24 standards.

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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.

Other Regulations

Senate Bill 1. SB 1 (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 California 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 states that it is a goal of the state to establish a self-sufficient solar industry in which solar energy systems are a viable mainstream option for homes and businesses within 10 years of adoption, and to place solar energy systems on 50% of new homes within 13 years of adoption. SB 1, also termed “GoSolarCalifornia,” was previously titled “Million Solar Roofs.”

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

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

3.2.3 Renewable Energy and Energy Procurement

Senate Bill 1078. SB 1078 (2002) established the RPS program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal

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of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010.

Senate Bill 1368. SB 1368 (2006) requires 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. This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

Senate Bill X1 2. SB X1 2 (2011) expanded the RPS by establishing that 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 be secured from qualifying renewable energy sources. 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 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. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

Senate Bill 350. 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. In addition, SB 350 includes the goal to double the energy-efficiency savings in electricity and natural gas final end uses (such as 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.

3.2.4 Mobile Sources

Assembly Bill 1493. AB 1493 was enacted in July 2002 in a response to the transportation sector accounting for more than half of California's CO₂ 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. When

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fully phased in, the near-term (2009–2012) standards will result in a reduction of approximately 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of approximately 30%.

Executive Order S-1-07. Issued on January 18, 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste.

Senate Bill 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 a 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), a sustainable communities strategy does not (1) regulate the use of land; (2) supersede the land use authority of cities and counties; or (3) 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 for the San Diego Association of Governments (SANDAG) are a 7% reduction in emissions per capita by 2020 and a 13% reduction by 2035.

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 2050 RTP/SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

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After SANDAG's 2050 RTP/SCS was adopted, a lawsuit was filed by the Cleveland National Forest Foundation and others. The matter is pending before the California Supreme Court (Case No. S223603) for determination of whether an Environmental Impact Report for a regional transportation plan must include an analysis of the plan's consistency with the GHG reduction goals reflected in EO S-3-05 to comply with CEQA.

Although the Environmental Impact Report for SANDAG's 2050 RTP/SCS is pending before the California Supreme Court, 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. Like the 2050 RTP/SCS, this planning document 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 RTP/SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region.

Advanced Clean Cars Program. In January 2012, CARB approved the Advanced Clean Cars Program, a new emissions-control program for Model Years 2015–2025. 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 (CARB 2011b). To improve air quality, CARB has implemented new emission standards to reduce smog-forming emissions beginning with Model Year 2015 vehicles. It is estimated that in 2025, cars will emit 75% less smog-forming pollution than the average new car sold before 2012. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for Model Year 2017–2025 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 Model Years 2018–2025. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

Executive Order 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. This EO also sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. 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. To further this EO, 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.

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Assembly Bill 1236. AB 1236 (2015), as enacted in California's Planning and Zoning Law, requires local land use jurisdictions to approve applications for the installation of electric vehicle charging stations, as defined, through the issuance of specified permits unless there is substantial evidence in the record that the proposed installation would have a specific, adverse impact on the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact. The bill provides for appeal of that decision to the planning commission as specified. The bill requires local land use jurisdictions with a population of 200,000 or more residents to adopt an ordinance by September 30, 2016, that creates an expedited and streamlined permitting process for electric vehicle charging stations as specified. Prior to this statutory deadline, in August 2016, the County Board of Supervisors adopted Ordinance No. 10437 (N.S.) adding a section to its County Code related to the expedited processing of electric vehicle charging stations permits consistent with AB 1236.

Senate Bill 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 (California Public Utilities Code, Section 740.12).

3.2.5 Solid Waste

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

Assembly Bill 341. AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that no less than 75% of solid waste be generated be source-reduced, recycled, or composted by the year 2020 and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery to develop strategies to achieve the state's policy goal. The California Department of Resources Recycling and Recovery has conducted multiple workshops and published documents that identify priority strategies that they would assist the state in reaching the 75% goal by 2020.

3.2.6 Water

Executive Order 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

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to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

3.2.7 Other State Regulations and Goals

Senate Bill 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, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents. The advisory indicated that the lead agency should identify and estimate a project’s GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities (OPR 2008). The advisory further recommended that the lead agency should determine the significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant. The California Natural Resources Agency 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 the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)). The 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 emission threshold; instead they allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The California Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements when implementing AB 32 in determining the significance of a project’s GHG emissions (CNRA 2009).

With respect to GHG emissions, the CEQA Guidelines (14 CCR 15064.4(a)) state 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

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relying on “qualitative analysis or other performance-based standards” (14 CCR 15064.4(a)). Section 15064.4(b) states that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment: (1) the extent a project may increase or reduce GHG emissions compared to the existing environmental setting; (2) whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

Executive Order S-13-08. EO S-13-08 (November 2008) is intended to hasten California’s response to the impacts of global climate change, particularly sea-level rise. Therefore, the EO directs state agencies to take specified actions to assess and plan for such impacts. The final 2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2008 (CNRA 2009) was issued in December 2009, and an update, Safeguarding California: Reducing Climate Risk – An Update to the 2009 California Climate Adaptation Strategy (CNRA 2014), followed in July 2014. To assess the state’s vulnerability, the reports summarizes key climate change impacts to the state for the following areas: agriculture, biodiversity and habitat, emergency management, energy, forestry, ocean and coastal ecosystems and resources, public health, transportation, and water. Issuance of the Safeguarding California: Implementation Action Plans followed in March 2016 (CNRA 2016). Currently, a draft of the Safeguarding California Plan: 2017 Update is being prepared to communicate current and needed actions that state government should take to build climate change resiliency (CNRA 2017).

2015 State of the State Address. In January 2015, in his inaugural address and annual report to the Legislature, Governor Jerry Brown established supplementary goals that would further reduce GHG emissions over the next 15 years. These goals include an increase in California’s renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50%, measures to double the efficiency of existing buildings, and the decrease emissions associated with heating fuels.

2016 State of the State Address. In his January 2016 address, Governor Brown established a statewide goal to bring per capita GHG emission down to two tons per person, which reflects the goal of the Global Climate Leadership Memorandum of Understanding (Under 2 MOU) to limit global warming to less than 2°C by 2050. The Under 2 MOU agreement pursues emission reductions of 80% to 95% below 1990 levels by 2050 and/or reach a per capita annual emissions goal of less than 2 MT by 2050. A total of 135 jurisdictions representing 32 countries and 6 continents, including California, have signed or endorsed the Under 2 MOU (Under2 Coalition 2016).

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3.3 Local

City of San Diego Climate Action Plan

The City of San Diego adopted a Climate Action Plan (CAP) that quantifies GHG emissions, establishes citywide reduction targets for 2020 and 2035, identifies strategies and measures to reduce GHG levels, and provides guidance for monitoring progress on an annual basis (City of San Diego 2015a). The CAP identifies a comprehensive set of goals, policies, and actions that the City can use to reduce GHG emissions. The CAP includes five strategies: (1) water- and energy-efficient buildings; (2) clean and renewable energy; (3) bicycling, walking, transit, and land use; (4) zero waste; and (5) climate resiliency.

CAP Consistency Checklist

To provide a mechanism for CEQA tiering, the City developed a CAP Consistency Checklist to provide a streamlined review process for GHG emissions for development subject to CEQA. The checklist contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emission targets identified in the CAP are achieved. Implementation of the measures identified in the checklist would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving identified GHG reduction targets (City of San Diego 2017a).

2050 Regional Transportation Plan

The SANDAG Board of Directors adopted the Regional Plan of record and associated EIR on October 5, 2015. The current Regional Plan, San Diego Forward, consists of an RTP and, as required by SB 375, an SCS that demonstrates how the region would achieve GHG emission reduction targets for passenger vehicles set by CARB. Since SANDAG is required by law to update its RTP every 4 years, the 2019 Regional Plan represents the next iteration of SANDAG's blueprint of future transportation investments and forecasted regional growth and land use change across the County through 2050.

The Cleveland National Forest Foundation (CNFF) and Center for Biological Diversity (CBD) filed a lawsuit on SANDAG's Board of Director's approval of the current Regional Plan and related Program EIR. CNFF and CBD was critical of the Program EIR's description of existing toxic air pollution, analysis of toxic air contaminant-related impacts on public health, and evaluation of GHG emissions/demonstration of consistency with GHG reduction goals established in Executive Order S-3-05. While the Supreme Court found that SANDAG did not abuse its discretion by declining to explicitly engage in an analysis of the consistency of projected 2050 GHG emissions with the goals in Executive Order S-3-05, the Supreme Court cautioned that the GHG analysis impacts employed by SANDAG for the 2011 RTP/SCS EIR will not necessarily be sufficient going forward.

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City of San Diego General Plan

The City's General Plan (City of San Diego 2008) includes various goals and policies designed to help result in a reduction in GHG emissions. As discussed in the General Plan, climate change and GHG reduction policies are addressed in multiple chapters of the General Plan. The policies related to climate change and sustainable development relevant to the project are as follows (City of San Diego 2008):

Goals

- To reduce the City's overall carbon dioxide footprint by improving energy efficiency, increasing use of alternative modes of transportation, employing sustainable planning and design techniques, and providing environmentally sound waste management.

Policies

- | | |
|---------------|--|
| CE-A.4 | Pursue the development of “clean” or “green” sector industries that benefit San Diego's environment and economy. |
| CE-A.5 | Employ sustainable or “green” building techniques for the construction and operation of buildings. |
| CE-A.6 | Design new and major remodels to City buildings, and where feasible, long term building leases for City facilities, to achieve at a minimum, the Silver Rating goal identified by the Leadership in Energy and Environmental Design (LEED TM) Green Building Rating System to conserve resources, including but not limited to energy and renewable resources. |
| CE-A.7 | Construct and operate buildings using materials, methods, and mechanical and electrical systems that ensure a healthful indoor air quality. Avoid contamination by carcinogens, volatile organic compounds, fungi, molds, bacteria, and other known toxins. |
| CE-A.8 | Reduce construction and demolition waste in accordance with Public Facilities Element, Policy PF-I.2, or by renovating or adding on to existing buildings, rather than construction new buildings. |
| CE-A.9 | Reuse building materials, use materials that have recycled content, or use materials that are derived from sustainable or rapidly renewable sources to the extent possible. |

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

- CE-A.10** Include features in buildings to facilitate recycling of waste generated by building occupants and associated refuse storage areas.
- CE-A.12** Reduce the San Diego Urban Heat Island, through actions such as:
- Using cool roofing materials, such as reflective, low heat retention tiles, membranes and coatings, or vegetated eco-roofs to reduce heat build-up;
 - Planting trees and other vegetation, to provide shade and cool air temperatures. In particular, properly position trees to shade buildings, air conditioning units, and parking lots; and
 - Reducing heat build-up in parking lots through increased shading or use of cool paving materials as feasible.
- CE-A.13** Regularly monitor, update and implement the City's Climate Protection Action Plan to ensure, at a minimum compliance with all applicable federal state and local laws.

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4 THRESHOLDS OF SIGNIFICANCE

According to the City's Significance Determination Thresholds, projects that are consistent with the City's CAP, as determined through the CAP Consistency Checklist, would result in a less-than-significant cumulative impact regarding GHG emissions. If a project is not consistent with the City's CAP, as determined through the CAP Consistency Checklist, potentially significant cumulative GHG impacts would occur.

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5 ANALYSIS METHODOLOGY AND ASSUMPTIONS

5.1 Construction GHG Emissions and Carbon Sequestration

5.1.1 Construction Emissions

For the purposes of modeling, it was assumed that construction of the proposed project would begin in fall 2018. Earthwork for the project would require the export of approximately 52,300 cubic yards of soil. Construction of the project from start to finish is estimated to take approximately 22 months. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Site preparation – 7 days
- Grading – 17 days
- Utilities – 2.5 months
- Building construction (stage 1) – 1.5 years
- Building construction (stage 2) – 1 year
- Building construction (stage 3) – 1.5 years
- Site work – 1.5 years
- Paving – 2 months
- Application of architectural coating (application 1) – 8 months
- Application of architectural coating (application 2) – 1 year
- Application of architectural coating (application 3) – 9.5 months
- Landscaping – 6 months

The construction phasing and equipment mix used for estimating the construction emissions of the project is based on information provided by the applicant (Appendix A). For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction. Construction-worker trip, vendor trip, and haul truck trip estimates by construction phase were also provided by the applicant. A detailed depiction of the construction schedule—including information regarding subphases and equipment used during each subphase—is included in Appendix A of this analysis. The information in Appendix A was used for CalEEMod model inputs.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

5.2 Operational GHG Emissions

CalEEMod, Version 2013.3.2,³ was used to estimate potential project-generated operational GHG emissions from area sources (landscape maintenance), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment. Two scenarios were analyzed for comparative purposes as part of this quantitative analysis:

- Development under existing land use and zoning designations
- Buildout of the proposed project

Emissions from each category are discussed in the following text with respect to both the development consistent with existing land use designations (and thus consistent with Step 1 of the CAP) and the proposed project.

5.2.1 Project Consistent with Existing Land Uses

As previously described, the project site's land use designation is Commercial Limited (CL), which permits religious facilities, trade schools, storage facilities, nurseries, garden centers, and veterinary clinics. Additionally, the site is currently zoned Agriculture-Residential (AR-1-1). This zoning allows for recreational, agriculture, residential, and childcare uses. For purposes of this comparative analysis, the previously approved Our Lady of Mount Carmel Church project was utilized as the buildout scenario under the existing land use and zoning designations. Our Lady of Mount Carmel Church proposed a 1,200-seat church and a 500-student school (K-8).

Area Sources

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

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated with landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of nonresidential building space per day) and

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 the San Diego Air Pollution Control District, use CalEEMod to estimate GHG emissions.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

number of summer days (when landscape maintenance would generally be performed) and winter days. Default CalEEMod assumptions were used to estimate area source emissions.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to GHGs since GHG emissions occur at the site of the power plant, which is typically off site. Emissions were calculated by multiplying the energy use by the utility's carbon intensity (pounds of GHGs per megawatt-hour) for electricity or 1,000 British thermal units (Btu) for natural gas) for CO₂ and other GHGs. The CalEEMod emission factors were adjusted to reflect the forecasted renewable mix in 2020 in accordance with the state RPS goals. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using these emissions factors for San Diego Gas & Electric (SDG&E), which would be the energy source provider to the site.

The estimation of operational energy emissions was based on CalEEMod land use defaults and units or total area (i.e., square footage). The energy intensity value (electricity or natural gas usage per square foot per year) for nonresidential buildings is calculated in CalEEMod based on the California Commercial End-Use Survey database. Emissions are calculated by multiplying the energy use by the utility carbon intensity (pounds of GHGs per kilowatt-hour for electricity or 1,000 Btu for natural gas) for CO₂ and other GHGs. Annual natural gas (non-hearth) and electricity emissions were estimated in CalEEMod using the emissions factors for SDG&E, which would be the energy source provider to the site.

Mobile Sources

Mobile sources for the project would primarily be motor vehicles (automobiles and light-duty trucks) traveling to and from the proposed land use designation and would primarily include future residents. The anticipated trip generation under this scenario, including the trip rates and total trips, is based on the previously adopted Our Lady of Mount Carmel Traffic Study prepared by LLG and CalEEMod default emission rates (LLG 2017).

Regulatory measures related to mobile sources include AB 1493 (Pavley) and related federal standards. AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles. The effectiveness of fuel

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economy improvements was evaluated by using the CalEEMod emission factors for motor vehicles in 2019 to the extent it was captured in EMFAC 2014.

The Low Carbon Fuel Standard calls for a 10% reduction in the carbon intensity of motor vehicle fuels by 2020, which would further reduce GHG emissions. However, the carbon intensity reduction associated with the Low Carbon Fuel Standard was not assumed in EMFAC 2014 and thus was not included in CalEEMod, Version 2016.3.1, or the calculations below, which are considered conservative.

Solid Waste

The project would generate solid waste and therefore result in CO₂E emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. Per AB 341 (requiring mandatory commercial recycling beginning July 1, 2012), commercial developments, such as the project, would be required to provide recycling services (City of San Diego 2017b). AB 341 and the City's Zero Waste Plan (City of San Diego 2015c) aim for a statewide 75% diversion rate by 2020, and as a result, have been included in the GHG assessment.

Water and Wastewater

Supply, conveyance, treatment, and distribution of water for the project would require the use of electricity, which would result in associated indirect GHG emissions. Similarly, wastewater generated by the project would require the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. Water consumption estimates for indoor and outdoor water use and associated electricity consumption from water use and wastewater generation were estimated using CalEEMod default values with a 20% reduction to account for the Model Water Landscape Efficiency Ordinance.

5.2.2 Buildout of the Proposed Project

Operation of the project would result in GHG emissions from area sources (landscape maintenance), energy sources (electrical generation, natural gas consumption), mobile sources (vehicular traffic), solid waste, and water supply (including wastewater generation). Per the construction schedule assumptions, construction of the project is assumed to be complete in 2018, with the first full year of operation potentially being 2019. However, construction was assumed to commence at least 1 year before the current anticipated schedule, so an operational year of 2020 accurately represents the anticipated operational year.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

Area Sources

Default CalEEMod assumptions were used to estimate area source emissions for the proposed project.

Energy Sources

GHG energy emissions from building energy use were estimated assuming a 5% improvement over the default values in CalEEMod, which reflect the 2013 Title 24 California Energy Code. This improvement represents compliance with the 2016 Title 34 standards, which became effective January 1, 2017. An adjustment of the CO₂ intensity factor to reflect the 2020 RPS (33% renewable energy sources) was included in the analysis.

Mobile Sources

The project would impact air quality through the vehicular traffic generated by the project. According to the project's traffic report prepared by LLG (2018), the project would result in 4,996 trips per day for weekdays. Reduced trip rates for Saturday and Sunday were assumed consistent with CalEEMod assumptions for general office building average weekend trip rates.

Project-related traffic was assumed to include a mixture of vehicles in accordance with the model outputs for traffic. Emission factors representing the vehicle mix and emissions for 2020 were used to estimate emissions associated with full buildout of the project.

Solid Waste

The project would generate solid waste and therefore result in CO₂E emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. Per AB 341 (requiring mandatory commercial recycling beginning July 1, 2012), all commercial developments must provide recycling services (City of San Diego 2017b). AB 341 and the City's Zero Waste Plan aim for a statewide 75% diversion rate by 2020, and as a result, have been included in the GHG assessment (City of San Diego 2015b).

Water and Wastewater

The project would include installation of low-flow bathroom and kitchen faucets, low-flow toilets, and low-flow showers. In regard to outdoor water, the project would involve installation of water-efficient devices and landscaping in accordance with applicable ordinances, including use of drought-tolerant plant species appropriate to the climate and region. Xeriscaping would be employed such that areas of water use throughout the landscape plan are grouped according to water needs. The project would apply a water conservation strategy resulting in a 20% reduction in indoor water use per CALGreen requirements for plumbing fixtures and fittings and a minimum 20% reduction in outdoor water use.

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6 IMPACT ANALYSIS

6.1 GHG Emissions

6.1.1 Construction Emissions

Construction of the project would result in short-term GHG emissions through the use of construction equipment, off-site trucks hauling construction materials, and worker trips. Analysis methodology including inputs and assumptions associated with calculating construction emissions are provided in Section 5.1.1.

Table 2 presents construction emissions for the project in 2018, 2019, and 2020 from on-site and off-site emission sources.

Table 2
Estimated Annual Proposed Project Construction GHG Emissions

Year	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>Metric Tons per Year</i>			
2018	1,160	<1	0	1,164
2019	5,789	<1	0	5,806
2020	1,417	<1	0	1,421
Total	8,366	1	0	8,392
Amortized Construction Emissions over 30 years				280

CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent.
See Appendix A for detailed results.

As shown in Table 2, the estimated GHG emissions generated during project construction would be approximately 8,392 MT CO₂E. Estimated project-generated construction emissions amortized over 30 years would be approximately 280 MT CO₂E per year.

6.1.2 Operational Emissions

Project Consistent with Existing Land Use Designations

Table 3 presents the operational GHG emissions from buildout of the comparative project consistent existing land uses. As described in Section 5.2.1, this scenario was modeled as a 1,200-seat church and 500-student school.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

Table 3
Estimated Annual Existing Land Use Buildout Operational GHG Emissions

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>Metric Tons per Year</i>			
Area	0.01	0.00	0.00	0.01
Energy	218	0.01	0.00	219
Mobile	1,791	0.10	0.00	1,794
Solid waste	21	1.25	0.00	53
Water supply and wastewater	21	0.08	0.00	24
Total	2,051	1.44	0.00	2,089

CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent.

Mobile emissions are based on an average daily traffic (ADT) of 1,974.

Emissions estimates are based on a buildout year of 2020.

Totals may not sum due to rounding.

See Appendix A for detailed results.

As shown in Table 3, annual emissions from buildout of the existing land use would be approximately 2,089 MT CO₂E per year.

Proposed Project

The estimated operational project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, water supply, and wastewater treatment, considering the project design features, in 2020 (i.e., first full year of project operation) are shown in Table 4.

Table 4
Proposed Project Buildout Operational GHG Emissions

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>Metric Tons per Year</i>			
Area	<1	<1	0	<1
Energy	2,655	<1	0	2,665
Mobile	3,824	<1	0	3,830
Solid waste	86	5	0	212
Water supply and wastewater	415	3	<1	501
Total	6,979	8	<1	7,208

See Appendix A for detailed results. CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent.

Emissions estimates are based on a buildout year of 2020. Totals may not sum due to rounding.

As shown in Table 4, emissions from the proposed project would be approximately 7,208 MT CO₂E per year.

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6.2 Climate Action Plan Consistency

The City's CAP was adopted to ensure that emissions from activities in the City would not exceed established state targets. The CAP assumes a baseline level of construction and buildout of the land use and zoning as of the CAP's adoption. Land use changes such as ones proposed by the project would potentially result in an increase in emissions compared to those assumed in the CAP by allowing a greater intensity of development or allowing land uses that have a higher rate of vehicle trips.

The first step is to assess a project's consistency with the growth projections utilized in the development of the CAP, as determined through the CAP Consistency Checklist. The second step is to review and evaluate a project's consistency with applicable strategies and actions of the CAP. The third step is to determine whether a project with a land use and/or zone designation change within a TPA would be consistent with the assumptions of the CAP. Step 3 would only apply if Step 2 is answered in the affirmative under Option B. The project's consistency with the CAP Consistency Checklist is presented below.

Global climate change is inherently 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. The City's CAP Consistency Checklist also serves as the significance determination threshold for cumulative impacts related to climate change

6.2.1 Step 1: Land Use Consistency

The proposed project would not be consistent with Step 1 of the CAP Consistency Checklist. The project site has a General Plan land use designation of Commercial Employment, Retail, and Services, and is designated Commercial Limited (CL) in the adopted Torrey Highlands Subarea Plan. The permitted land uses under the Commercial Limited (CL) land use designation are religious facilities, trade schools, storage, veterinary clinics, nurseries, and garden centers. The Subarea Plan requires discretionary review for land designated Commercial Limited (CL) to ensure compatibility with the adjacent Deer Canyon (City of San Diego 1996). The project site is zoned Agriculture-Residential (AR-1-1; requires minimum 10-acre lots). The project would retain the General Plan land use designation but would change the Community Plan designation from Commercial Limited (CL) to Employment Center (EC) and would change the zoning from Agriculture-Residential (AR-1-1) to Industrial Park (IP-3-1), which would allow for research and development, office, and residential uses. Development under the proposed community plan amendment would be capped at 420,000 square feet and any development greater than 420,000 square feet would not be permitted. Moreover, the proposed community plan amendment places a limit on the allowable building square footage that could otherwise be developed on the site under the proposed I-P-3 zone alone.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

As described previously, the City’s emissions inventory for the CAP was conducted based on the buildout of the existing land uses. Therefore, because the project would not be consistent with the existing land use and zoning designations, and emissions would be greater than a project built consistent with existing land uses, the project would result in a more GHG-intensive project when compared to the existing designations. As such, the project would be inconsistent with the CAP.

6.2.2 Step 2: Consistency Checklist

The proposed project would be consistent with Step 2 of the CAP Consistency Checklist. Step 2 evaluates the proposed project’s consistency with the CAP Consistency Checklist. For informational purposes, estimated project-generated emissions are provided in Chapter 7. The proposed project’s consistency with the five CAP strategies and the CAP Consistency Checklist is presented in Table 5.

Table 5
Consistency with the Climate Action Plan Strategies and Step 2 Checklist Requirements

CAP Consistency Checklist Item	Consistency Evaluation
<i>Strategy 1: Energy- and Water-Efficient Buildings</i>	
1. Cool/Green Roofs <ul style="list-style-type: none"> • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? 	Consistent. The project would include cool roof (thermoplastic polyolefin) above the 3-year-old solar reflection and a thermal remittance or solar reflection index in exceedance of the code minimums.
2. Plumbing Fixtures and Fittings <p>With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following:</p> <p>Residential buildings:</p> <ul style="list-style-type: none"> • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 pounds per square inch; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? <p>Nonresidential buildings:</p> <ul style="list-style-type: none"> • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code; and 	Consistent. The project would include the required flow rates and appliances that meet the voluntary measures portion of the California Green Building Standards Code for non-residential buildings.

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Table 5
Consistency with the Climate Action Plan Strategies and Step 2 Checklist Requirements

CAP Consistency Checklist Item	Consistency Evaluation
<ul style="list-style-type: none"> Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code? 	
<i>Strategy 3: Bicycling, Walking, Transit and Land Use</i>	
3. Electric Vehicle Charging <ul style="list-style-type: none"> Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? 	<p>Consistent. The project would include a total of 1,391 parking spaces. In exceedance of the California Green Building Code Standards Code, the project will provide 107 electric vehicle-capable (pre-wired) parking spaces and per the CAP, the project would commit to supplying 50% (54) of the 107 pre-wired parking spaces with electric vehicle charging as determined by Table 5.106.5.3.3 of the California Green Building Standards Code.</p>
4. Bicycle Parking Spaces Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?	<p>Consistent. The City's Municipal Code requires 0.1 short-term bicycle spaces per 1,000 sf ($420 \times 0.1 = 42$); or 5% of the required automobile parking space minimum ($1,391 \text{ parking spaces} \times 0.05 = 70$), whichever is greater. Therefore, 70 short-term bicycle parking spaces would be required per the municipal code.</p> <p>The City's Municipal Code requires long-term bicycle parking to equal at least 5% of the required automobile parking for any premises with more than ten full-time employees ($1,391 \text{ parking spaces} \times 0.05 = 70 \text{ long-term bicycle parking spaces}$).</p> <p>The project would provide 90 short-term bicycle parking spaces and 90 long-term bicycle parking spaces, which is greater than the requirements of the City's Municipal Code for both short-term and long-term bicycle parking spaces.</p>
5. Shower Facilities If the project includes non-residential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table [Table 5a] below?	<p>Consistent. The project is anticipated to include 2,400 full-time-equivalent employees (tenant occupants) and would provide 12 shower stalls and 48 two-tier lockers.</p>

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Table 5
Consistency with the Climate Action Plan Strategies and Step 2 Checklist Requirements

CAP Consistency Checklist Item			Consistency Evaluation																		
<p style="text-align: center;">Table 5a Shower Facility Requirements</p> <table><tr><th>Number of Tenant Occupants (Employees)</th><th>Shower/Changing Facilities Required</th><th>Two-Tier (12 Inches × 15 Inches × 72 Inches) Personal Effects Lockers Required</th></tr><tr><td>0–10</td><td>0</td><td>0</td></tr><tr><td>11–50</td><td>1 shower stall</td><td>2</td></tr><tr><td>51–100</td><td>1 shower stall</td><td>3</td></tr><tr><td>101–200</td><td>1 shower stall</td><td>4</td></tr><tr><td>Over 200</td><td>1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants</td><td>1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants</td></tr></table>			Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12 Inches × 15 Inches × 72 Inches) Personal Effects Lockers Required	0–10	0	0	11–50	1 shower stall	2	51–100	1 shower stall	3	101–200	1 shower stall	4	Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants	
Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12 Inches × 15 Inches × 72 Inches) Personal Effects Lockers Required																			
0–10	0	0																			
11–50	1 shower stall	2																			
51–100	1 shower stall	3																			
101–200	1 shower stall	4																			
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants																			
<p>6. Designated Parking Spaces</p> <p>If the project includes an employment use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the table [Table 5b] below?</p> <p style="text-align: center;">Table 5b Parking Requirements</p> <table><tr><th>Number of Required Parking Spaces</th><th>Number of Designated Parking Spaces</th></tr><tr><td>0–9</td><td>0</td></tr><tr><td>10–25</td><td>2</td></tr><tr><td>26–50</td><td>4</td></tr><tr><td>51–75</td><td>6</td></tr><tr><td>76–100</td><td>9</td></tr><tr><td>101–150</td><td>11</td></tr><tr><td>151–200</td><td>18</td></tr><tr><td>201 and over</td><td>At least 10% of total</td></tr></table> <p>This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.</p> <p>Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.</p>			Number of Required Parking Spaces	Number of Designated Parking Spaces	0–9	0	10–25	2	26–50	4	51–75	6	76–100	9	101–150	11	151–200	18	201 and over	At least 10% of total	
Number of Required Parking Spaces	Number of Designated Parking Spaces																				
0–9	0																				
10–25	2																				
26–50	4																				
51–75	6																				
76–100	9																				
101–150	11																				
151–200	18																				
201 and over	At least 10% of total																				
			<p>Not Applicable. The project is not located in a Transit Priority Area (TPA); however, it would include 179 carpool/vanpool spaces (13% of total spaces).</p>																		

Not Applicable. The project is not located in a Transit Priority Area (TPA); however, it would include 179 carpool/vanpool spaces (13% of total spaces).

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Table 5
Consistency with the Climate Action Plan Strategies and Step 2 Checklist Requirements

CAP Consistency Checklist Item	Consistency Evaluation
<p>7. Transportation Demand Management Program If the project would accommodate over 50 tenant-occupants (employees), would it include a Transportation Demand Management Program that would be applicable to existing tenants and future tenants that includes:</p> <p>At least one of the following components:</p> <ul style="list-style-type: none"> • Parking cash out program? • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools? • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development? <p>And at least three of the following components:</p> <ul style="list-style-type: none"> • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees? • On-site carsharing vehicle(s) or bikesharing? • Flexible or alternative work hours? • Telework program? • Transit, carpool, and vanpool subsidies? • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either on site or within 1,320 feet (1/4 mile) of the structure/use? 	<p>Consistent. The Transportation Demand Management Program would include:</p> <ul style="list-style-type: none"> • Implement a parking cash-out program, and/or • Provide unbundled parking option for employees, and/or • Charge employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools. • Carpool/vanpool parking spaces will be provided in preferentially located areas (closest to building entrances) for use by qualified employees. These spaces will be signed and striped "Car/Vanpool Parking Only." Information about the availability of and the means of accessing the car/vanpool parking spaces will be posted on Transportation Information Displays located in common areas or on intranets, as appropriate. <p>Additionally the project applicant would require office tenants to:</p> <ul style="list-style-type: none"> • Maintain an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees. • Offer partially subsidized monthly passes for employees, should service routes be implemented in the future. • Offer partially subsidized vanpool/rideshare services. • Offer a telework program. <p>Moreover, the project includes a café and a fitness center on site.</p>

Source: City of San Diego 2015a, 2017.

As summarized in Table 5, the project would be consistent with applicable CAP Consistency Checklist items and would be consistent with the planning and land use strategies of the City's CAP. The project would not impede the City's ability to implement the actions identified in the CAP to achieve the CAP's targets and associated GHG emission reductions. Therefore, the project would implement the Step 2 requirements of the City's CAP Consistency Checklist. The majority of measures listed in Step 2 of the CAP Consistency Checklist cannot be correlated with a quantifiable reduction; therefore, the emissions presented in Table 5 are conservative.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

6.2.3 Step 3: TPA Consistency

Because the project site is not located in a City-designated Transit Priority Area, as defined by SB 743 as a quarter mile from an existing or planned transit stop, Step 3 is not applicable.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

7 MITIGATION MEASURES

The project would implement mitigation measures **MM-GHG-3** through **MM-GHG-13**, which include all measures as required under “Step 2: CAP Strategies Consistency” table of the City’s Climate Action Plan Consistency Checklist as well as additional mitigation measures beyond those required as part of the CAP Consistency Checklist (MM-GHG-1, MM-GHG-2, and MM-GHG-14, and MM-GHG-15).

MM-GHG-1 The owner/permittee shall install a solar photovoltaic system to be incorporated as part of the parking garage rooftop trellis structures and office building rooftops. The photovoltaic system shall occupy the maximum surface area provided by the trellis structures and office building rooftops, and would be no less than 106,600 square feet, consistent with Figure 4.

The photovoltaic system shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.

MM-GHG-2 The project shall achieve a 5% increase in energy efficiency over the 2016 Title 24 Standards through structural design elements including variable refrigerant flow systems for the heating, ventilation and air conditioning (HVAC) system; high performance glazing; and heat reflecting roofing material.

These design elements including the variable refrigerant flow systems for the HVAC system, high performance glazing, and heat reflecting roofing material shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.

MM-GHG-3 The owner/permittee shall install a cool roof (thermoplastic polyolefin) above the 3-year-old solar reflection and a thermal remittance or solar reflection index in exceedance of the code minimums pursuant to the “Cool/Green Roofs” requirement of the City’s CAP Consistency Checklist. The cool roof specifics shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.

MM-GHG-4 The owner/permittee shall implement the required flow rates and appliances that meet the voluntary measures portion of the California Green Building Standards Code for non-residential buildings pursuant to the “Plumbing Fixtures and Fittings” requirement of the City’s CAP Consistency Checklist.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

- MM-GHG-5** The owner/permittee shall provide 107 electric vehicle-capable (pre-wired) parking spaces consistent with the California Green Building Code Standards Code. Additionally, 50% (54) of the 107 pre-wired parking spaces would include electric vehicle charging infrastructure as determined by Table 5.106.5.3.3 of the California Green Building Standards Code. This measure would be pursuant to the “Electric Vehicle Charging” requirements of the City’s CAP Consistency Checklist. These parking spaces shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.
- MM-GHG-6** The owner/permittee shall provide 90 short-term bicycle parking spaces and 90 long-term bicycle parking spaces pursuant to the “Bicycle Parking Spaces” requirement of the City’s CAP Consistency Checklist. Bicycle parking specifics shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.
- MM-GHG-7** The owner/permittee shall provide 12 shower stalls and 48 two-tier lockers pursuant to the “Shower Facilities” requirement of the City’s CAP Consistency Checklist. Shower stalls and 48 two-tier lockers shall be incorporated on all project plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.
- MM-GHG-8** The owner/permittee shall include 179 carpool/vanpool spaces (13% of total spaces) pursuant to the “Designated Parking Spaces” requirement of the City’s CAP Consistency Checklist. These parking spaces shall be incorporated on all construction plans and verified by the Environmental Designee of the City of San Diego’s Development Services Department.
- MM-GHG-9** Pursuant to the “Transportation Demand Management Program” requirement of the City’s CAP Consistency Checklist, the owner/permittee shall require office tenants to:
- a. Implement a parking cash-out program, and/or
 - b. Provide unbundled parking option for employees, and/or
 - c. Charge employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools.
 - d. Carpool/vanpool parking spaces shall be provided in preferentially located areas (closest to building entrances) for use by qualified employees. These spaces shall be signed and striped “Car/Vanpool Parking Only.” Information

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

about the availability of and the means of accessing the car/vanpool parking spaces shall be posted on Transportation Information Displays located in common areas or on intranets, as appropriate.

- e. The owner/permittee shall conduct an employee commute travel survey within 6 months of occupancy to evaluate the efficacy of the Transportation Demand Management plan, and to inform/validate any changes that may be proposed or needed. A copy of the results of this survey will be provided to the City Development Services Department. The owner /permittee shall continue monitoring the effectiveness of the project's Transportation Demand Management plan, including the provision of items a. through d. as listed above, and provide the results in an annual report to the Development Services Department for a period of 5 years. The first report submittal shall occur 1 year after project occupancy.

MM-GHG-10 Pursuant to the "Transportation Demand Management Program" requirement of the City's CAP Consistency Checklist, the owner/permittee shall require office tenants to maintain an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees. Participation in the iCommute program and use of the RideMatcher service shall be disclosed in the TDM annual report as required under MM-GHG-9 (e).

MM-GHG-11 The owner/permittee shall require office tenants to offer partially subsidized monthly transit passes for employees, should service routes be implemented in the future. If transit passes are offered, issuance of transit passes shall be disclosed in the TDM annual report as required under MM-GHG-9 (e).

MM-GHG-12 The owner/permittee shall require office tenants to offer partially subsidized vanpool/rideshare services to all employees. Employee utilization of vanpool/rideshare services shall be disclosed in the TDM annual report as required under MM-GHG-9 (e).

MM-GHG-13 Pursuant to the "Transportation Demand Management Program" requirement of the City's CAP Consistency Checklist, the owner/permittee shall require office tenants to offer a telework program to all employees. Employee utilization of the telework program shall be disclosed in the TDM annual report as required under MM-GHG-9 (e).

MM-GHG-14 Prior to issuance of the first grading permit, the owner/permittee shall provide evidence to the Environmental Designee and the City's Office of Sustainability

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

that the owner/permittee has purchased and retired carbon credits, in a quantity sufficient to offset 100% of the project's construction emissions, which total 8,392 metric tons of carbon dioxide equivalent (MT CO₂E) (note: this number reflects all the construction-related GHG emissions after applying all project design features and reductions), pursuant to the performance standards and requirements described below.

- a. The carbon offsets that are purchased to reduce GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions as set forth in California Health and Safety Code Section 38562(d)(1).
- b. One carbon offset credit shall mean the past reduction or sequestration of 1 MT CO₂E that is "not otherwise required" (CEQA Guidelines Section 15126.4[c][3]).
- c. Carbon offsets shall mean an instrument issued by any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and the VERRA; (ii) any registry approved by the California Air Resources Board (CARB) to act as a registry under the state's Cap-and-Trade Program; or (iii) if no registry is in existence as identified in options (i) and (ii), above, then any other reputable registry or entity that issues carbon offsets that is acceptable to the City of San Diego.

MM-GHG-15 As to operational GHG emissions, prior to the issuance of the first building permit, the owner/permittee shall purchase and retire carbon offsets in a quantity sufficient to offset for a 30-year period, the project's operational GHG emissions to equal the emissions associated with the comparative project allowed under existing land uses, which total 122,400 MT CO₂E (4,080 MT CO₂E per year × 30 years), consistent with the performance standards and requirements set forth below.

- a. The carbon offsets that are purchased to reduce GHG emissions shall achieve real, permanent, quantifiable, verifiable, and enforceable reductions as set forth in California Health and Safety Code Section 38562(d)(1).
- b. One carbon offset credit shall mean the past reduction or sequestration of 1 MT CO₂E that is "not otherwise required" (CEQA Guidelines section 15126.4[c][3]).
- c. Carbon offsets shall mean an instrument issued by any of the following: (i) the Climate Action Reserve, the American Carbon Registry, and the VERRA; (ii) any registry approved by CARB to act as a registry under the state's Cap-and-Trade Program; or (iii) if no registry is in existence as identified in options (i) and (ii), above, then any other reputable registry or entity that issues carbon offsets under the state's Cap-and-Trade Program. If no CARB-approved registry is in existence, then the owner/permittee shall purchase off-site carbon offset credits from any other reputable registry or entity that is acceptable to the City of San Diego.

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- d. The “project life” is 30 years. This methodology is consistent with the 30-year project life time frame used by the South Coast Air Quality Management District’s GHG guidance (SCAQMD 2008).

The estimated project-generated GHG emissions would be reduced following implementation of **MM-GHG-1** through **MM-GHG-15**. Although not a majority of measures listed in Step 2 of the CAP Consistency Checklist (MM-GHG-3 through MM-GHG-13) cannot be correlated with a quantifiable reduction. According to the National Renewable Energy Laboratory PVWatts Calculator, the solar photovoltaic system as presented in **MM-GHG-1** would generate approximately 2,612,726 kilowatt-hours of energy per year (NREL 2017).⁴

The estimated project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, water supply, and wastewater treatment, considering of **MM-GHG-1** through **MM-GHG-15** are shown in Table 6.

Table 6
Estimated Net Greenhouse Gas Emissions After Mitigation

Emission Source	CO ₂	CH ₄	N ₂ O	CO ₂ E
	<i>Metric Tons per Year</i>			
Construction Emissions (One Time)	8,366	1	0	8,392
Reductions from MM-GHG-14				(8,392)
Area	<1	<1	0	<1
Energy	1,949	<1	<1	1,957
Mobile	3,753	<1	0	3,758
Solid waste	21	1	0	53
Water supply and wastewater	332	2	<1	401
Annual Operational Emissions	6,055	4	<1	6,169
Existing Land Use Buildout Operational Emissions				2,089
Net Annual Operational GHG Emissions				4,080
30-Year Project Life Time Operational Emissions				122,400
Reductions from MM-GHG-15				(122,400)
Net GHG Emissions After Mitigation				0

Notes: CO₂ = carbon dioxide; CH₄ = methane; N₂O = nitrous oxide; CO₂E = carbon dioxide equivalent; GHG = greenhouse gas.

See Appendix A for detailed results.

Emissions estimates are based on a buildout year of 2020.

Totals may not sum due to rounding.

Not all reductions were quantifiable, but the greenhouse gas emission reductions quantified include MM-GHG-1, MM-GHG-2, MM-GHG-14, and MM-GHG-15.

⁴ To calculate the energy production of the photovoltaic system, PVWatts default values were used for a commercial system in the 92129 zip code.

Greenhouse Gas Emissions Technical Analysis for The Preserve at Torrey Highlands Project

As shown in Table 6, following implementation of **MM-GHG-1** through **MM-GHG-15**, the project would not result in a net increase in GHG emissions when compared to the to the previously approved Our Lady of Mount Carmel Church project, that is consistent with the existing plan and zoning designations. However, the City has indicated that the City does not currently have a specific mechanism in place for tracking and/or assessing the purchase of carbon offset credits on a project-specific basis consistent with the CAP. Therefore, the City has concluded that to be conservative, the reduction of carbon emissions attributable to MM-GHG 14 and MM-GHG-15 should not be considered in the significance determination; impacts would therefore remain significant and not fully mitigated.

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Figure 4 Parking Garage Rooftop Solar Panels

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8 CONCLUSION

Per Step 1 of the CAP consistency analysis, the proposed project would require a Community Plan amendment and zone change; therefore, the project would be considered inconsistent with the underlying land use assumptions of the CAP, and impacts would be potentially significant. Regarding Step 2 consistency, the project would be consistent with applicable CAP Consistency Checklist items and would implemented all Step 2 strategies; therefore, the project is consistent with Step 2. Step 3 consistency is not applicable to the project because the project is not located within a Transit Priority Area. The project would result in a more GHG-intensive land use than the assumptions utilized in development of the CAP, therefore, the project would be inconsistent with the CAP. However, following implementation of MM-GHG-1 through MM-GHG-15, the project would result in a no net increase in GHG emissions when compared to the uses allowed under the existing plan and zoning designations. However, the City has indicated that the City does not currently have a specific mechanism in place for tracking and/or assessing the purchase of carbon offset credits on a project-specific basis consistent with the CAP. Therefore, the City has concluded that to be conservative, the reduction of carbon emissions attributable to MM-GHG 14 and MM-GHG-15 has not been considered in the significance determination, and impacts would therefore remain significant and not fully mitigated.

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APPENDIX A

CalEEMod Output Files

July 15, 2019

Elizabeth Shearer-Nguyen
City of San Diego
Development Services Department
Environmental Analysis Section
1222 First Avenue
San Diego, California 92101

Subject: Air Quality Technical Report Update for The Preserve at Torrey Highlands Project

Dear Ms. Shearer-Nguyen:

Dudek prepared an Air Quality Technical Report for The Preserve at Torrey Highlands Project in June 2018 (Dudek 2018). At that time, the proposed project consisted of a 450,000-square-foot office development. Specifically, three-building campus comprised of four stories, five stories, and six stories, respectively, with one level of subterranean parking, one 1-story amenity building, and one above-grade parking structure. The air quality impact analysis evaluated the potential for significant adverse impacts to the ambient air quality due to construction and operational emissions resulting from the original project.

The analysis concluded that the daily construction emissions would be below the City of San Diego's (City's) significance thresholds (City of San Diego 2011) for criteria pollutants, except for oxides of nitrogen (NO_x). With implementation of mitigation during construction, including the use of and Tier 4 Final, or where Tier 4 Final equipment is not available, Tier 3 equipment (MM-AQ-1 and MM-AQ-2), emissions would be reduced to a level that is less than significant. Operational emissions were estimated to be below the City's significance thresholds; therefore, impacts during original project operation would be less than significant.

The maximally exposed individual resident would be at east of the project site at the future Merge 56 development. With incorporation of MM-AQ-1 and MM-AQ-2, cancer risk and chronic hazard index were estimated at 8.50 in 1 million and 0.005, respectively. Diesel exhaust emissions from construction of the original project exhibit cancer risks below the 10 in 1 million threshold and chronic hazard index less than 1. Based on this analysis, the sensitive receptors in close proximity of the original project would not be exposed to toxic air contaminants at levels above significance thresholds established by San Diego County Air Pollution Control District.

In addition, because the original project would require a community plan amendment and rezone, the original project would be considered inconsistent with the applicable air quality plan. As the project would result in project-specific impacts, the original project would also result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard. The original project would also not create objectionable odors affecting a substantial number of people.

The project has been revised since the June 2018 study was completed. Changes to the site plan would result in a reduction in building office space and parking structure space. Building 1 would be reduced from six stories to five stories, and from 180,000 square feet to 150,000 square feet, thus reducing the overall office building area from 450,000 square feet to 420,000 square feet. No changes would occur for Buildings 2 and 3. The parking structure

would be reduced from seven aboveground levels and 1.4 below grade level (eight total levels), to five aboveground levels and one half subterranean level (six total levels). This would result in a reduction from 1,781 to 1,391 parking spaces. The number of surface parking spaces and subterranean parking spaces located underneath each office building would not change.

The reduced project would result in an increase in total grading from 127,000 cubic yards of cut at a 40-foot depth to 130,300 cubic yards of cut at a 40-foot depth. Grading associated with the changes to the parking structure would result in an increase in soil export to 52,300 cubic yards. Originally, 49,000 cubic yards of total soil export was anticipated; therefore, total grading quantities would increase by 3,300 cubic yards of export. As a result of the reconfigured site plan, the reduced project would result in fewer mobile trips and operational emissions as compared to the original project. Maximum daily construction criteria air pollutant emissions would remain below the significance thresholds for volatile organic compounds, carbon monoxide, sulfur oxides, particulate matter with an aerodynamic diameter equal to or less than 10 microns (PM₁₀), and particulate matter with an aerodynamic diameter equal to or less than 2.5 microns (PM_{2.5}); therefore, impacts during construction would remain less than significant for these pollutants. Daily construction emissions would continue to exceed the significance threshold for NO_x; therefore, as with the original project, mitigation measures MM-AQ-1 and MM-AQ-2 would be implemented. Following implementation of mitigation measures MM-AQ-1 and MM-AQ-2, NO_x emissions would remain less than significant during construction of the original and reduced project.

Please contact me at swang@dudek.com or at 760.479.4876 if you have any questions regarding this letter.

Sincerely,


Samantha Wang
Air Quality Technical Specialist

REFERENCES

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July 15, 2019

Elizabeth Shearer-Nguyen
City of San Diego
Development Services Department
Environmental Analysis Section
1222 First Avenue
San Diego, California 92101

Subject: Environmental Noise Assessment Report Update for The Preserve at Torrey Highlands Project

Dear Ms. Shearer-Nguyen:

Dudek prepared an Environmental Noise Assessment Report for The Preserve at Torrey Highlands Project in June 2018 (Dudek 2018). At that time, the proposed project consisted of a 450,000-square-foot office development. Specifically, a three-building campus comprised of four stories, five stories, and six stories, respectively, with one level of subterranean parking, one 1-story amenity building, and one above-grade parking structure.

The Environmental Noise Assessment Report evaluated the potential for significant adverse noise due to construction and operation of the original project.

As described in the Report, the project would not result in an exceedance of the City of San Diego's (City's) 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) exterior noise standard for residential land uses, the City's 70 dBA CNEL exterior noise standard for office land uses, nor would it result in an increase of 3 dBA or more at receivers currently exceeding the 65 dBA CNEL noise standard under either existing or year 2035 conditions. On site, the exterior noise standard for traffic (the predominant noise source in the area) is 70 dBA CNEL. For the original project, Year 2035 with project traffic noise on site was predicted to be approximately 68 dBA CNEL or less. Therefore, the exterior noise levels were determined to result in a less-than-significant impact. Opening day traffic noise levels were estimated to range from 50 dBA CNEL to 67 dBA CNEL either with or without the original project. Opening day with project noise levels would result in a change in noise levels ranging from 0 to 1 dBA (when rounded to whole decibels). Operational traffic noise from the original project at off-site noise-sensitive receivers would be less than significant.

Noise associated with short-term construction of the original project would not exceed the City's noise standard for construction (12-hour average noise level of 75 dBA) and would be less than significant. Similarly, construction vibration impacts would be less than significant.

Implementation of the original project could affect nesting birds (particularly, the California gnatcatcher) if construction is scheduled during the nesting season. As detailed in the proposed project's Biological Technical Report, this is considered a potential indirect impact. Mitigation measures similar to the originally proposed project (MM-BIO-1) would be required. With implementation of MM-BIO-1, impacts would be less than significant.


The project has been revised since the June 2018 study was completed. Changes to the site plan would result in a reduction in building office space and parking structure space. Building 1 would be reduced from six stories to five stories, and from 180,000 square feet to 150,000 square feet, thus reducing the overall office building area from 450,000 square feet to

420,000 square feet. No changes would occur for Buildings 2 and 3. The parking structure would be reduced from seven aboveground levels and 1.4 below grade level (eight total levels), to five aboveground levels and a half subterranean level (six total levels). This would result in a reduction from 1,781 to 1,391 parking spaces. The number of surface parking spaces and subterranean parking spaces located underneath each office building would not change.

The reduced project would result in an increase in total grading from 127,000 cubic yards of cut at a 40-foot depth to 130,300 cubic yards of cut at a 40-foot depth. Grading associated with the changes to the parking structure would result in an increase in soil export to 52,300 cubic yards. Originally, 49,000 cubic yards of total soil export was anticipated; therefore, total grading quantities would increase by 3,300 cubic yards of export. However, this change would not affect the construction noise analysis, because the duration of grading activities would be the same as the original project (17 days). Additionally, the increase in haul trucks is not anticipated to result in a significant increase in noise. Assuming haul trucks have a capacity of 16 cubic yards, this increase in export would require an additional 206 round trips of haul trucks. The grading phase would occur over a 17-day period, so the number of additional haul truck round trips would be 12 per day. Because haul truck trips would occur throughout the 8-hour construction period per day, this equates to 2 round trips per hour. Therefore, the noise and vibration from construction activities would remain less than significant. As a result of the reconfigured site plan, the reduced project constitutes a decrease in office building area and a reduction in trip generation from 5,264 average daily trips to 4,996 average daily trips. Therefore, traffic noise impacts from the reduced and original project at off-site noise-sensitive receivers would be less than significant. As with the original project, the reduced project noise generated from parking lots and HVAC equipment at presumed to be existing and occupied residential uses as part of the Merge 56 project would be less than significant. Maximum daily construction noise would remain unchanged as the project would still be built within the same construction period, and no additional equipment would be required. However, sensitive biological resources could be significantly affected by short-term construction-related noise. Compliance with the City's Land Use Adjacency Guidelines, as contained in Section 1.4.3 of the Multiple Species Conservation Program Subarea Plan, would be incorporated as a condition of approval for the project. Furthermore, mitigation measure MM-BIO-1 would be implemented, which would require City-standard pre-construction surveys to be conducted to determine the presence of sensitive biological resources, including sensitive bird species. Therefore, noise impacts to sensitive biological resources would be less than significant.

Please contact me at mgreene@dudek.com or 949-373-8317 if you have any questions regarding this letter.

Sincerely,



Mike Greene
Acoustician

REFERENCES

City of San Diego. 2011. *Significance Determination Thresholds*. <https://www.sandiego.gov/sites/default/files/legacy/development-services/pdf/news/sdtceqa.pdf>

Dudek. 2018. Environmental Noise Assessment Report for The Preserve at Torrey Highlands Project. June 2018.

Engineers & Planners

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July 15, 2019

Ms. Elizabeth Shearer-Nguyen
City of San Diego
Development Services Department
Environmental Analysis Section
1222 First Avenue
San Diego, CA 92101

LLG Reference: 3-15-2478

**Subject: Transportation Impact Analysis Update for The Preserve
 at Torrey Highlands Project**

Dear Ms. Shearer-Nguyen:

Linscott, Law & Greenspan (LLG) prepared a Transportation Impact Analysis for The Preserve at Torrey Highlands Project in June 2018 (LLG 2018). At that time, the proposed project consisted of a 450,000-square-foot office development. Specifically, a three-building campus comprised of four stories, five stories, and six stories, respectively, with one level of subterranean parking, one 1-story amenity building, and one above-grade parking structure.

The Transportation Impact Analysis evaluated the potential for significant traffic impacts due to operation of the original project.

The results of the capacity analyses for the street system show no direct project impacts, and 10 cumulative impacts in either the Torrey Highlands (fully funded) or Rancho Peñasquitos planning areas. Six (6) of the 10 impacted locations have Torrey Highlands Public Facilities Financing Plan projects associated with them. These are related to improvements to State Route (SR-) 56, which are scheduled to occur after the project is completed. As such, despite payment of Facilities Benefit Assessment fees to these improvements, the cumulative impacts will remain significant and unmitigated until the SR-56 improvements occur. Four cumulative impacts occur in the Rancho Peñasquitos planning area, and relate to the proposed downgrade described below. These would be “significant and unmitigated” if the planned reclassification of Black Mountain Road from six to four lanes currently under assessment is approved. If the reclassification does not occur, the project will be responsible to pay a 15.6% fair share towards the unfunded cost of widening Black Mountain Road to six lanes, to the satisfaction of the City Engineer.

The project has been revised since the June 2018 study was completed. Changes to the site plan would result in a reduction in building office space and parking structure space. Building 1 would be reduced from six stories to five stories and from 180,000 square feet to 150,000 square feet, thus reducing the overall office building area from

450,000 square feet to 420,000 square feet. No changes would occur for Buildings 2 and 3. The parking structure would be reduced from seven aboveground

levels, and 1.4 below grade level (eight total levels) to five aboveground levels, and one-half subterranean level (six total levels). This would result in a reduction from 1,781 to 1,391 parking spaces. The project would meet the new minimum parking requirements of 1,386 parking spaces (at a minimum rate of 3.3 spaces per thousand square feet). The number of surface parking spaces and subterranean parking spaces located underneath each office building would not change.

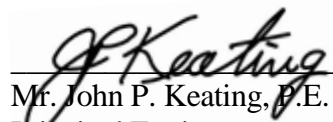
The reduced project would result in an increase in total grading from 127,000 cubic yards (cy) of cut at a 40-foot depth to 130,300 cy of cut at a 40-foot depth. Grading associated with the changes to the parking structure would result in an increase in soil export from 49,000 cy to 52,300 cy. Therefore, total grading quantities would increase by 3,300 cy of export. The increase in haul trucks to handle the additional export is not anticipated to result in construction traffic impacts. Assuming haul trucks have a capacity of 16 cy each, this increase in export would result in an additional 413 haul truck trip ends ($3,300 \text{ cy} \div 16 \text{ cy/truck} = 206.25 \text{ trucks}$; $206.25 \text{ trucks} \times 2\text{-trip ends per truck} = 413 \text{ total truck trip ends}$). The grading phase would occur over a 17-day period, so the number of additional daily haul truck trips would amount to 25 truck average daily trips (ADT). This would amount to 75 ADT assuming a passenger car-equivalent factor of 3.0 for heavy vehicles. Because haul truck trips would occur throughout the 7-hour construction period per day, this equates to about 11 passenger car-equivalent trip ends per hour. Therefore, traffic impacts from construction activities would remain less than significant.

As a result of the reconfigured site plan, the reduced project constitutes a decrease in office building area and a reduction in trip generation from 5,264 ADT to 4,996 ADT. Therefore, because fewer trips would be generated, the reduced project is not anticipated to result in additional impacts. However, the reduced project would likely still result in significant and unavoidable cumulative impacts to the intersections, street segments, and freeway mainline segments as identified in the Transportation Impact Analysis. Therefore, the revised project would implement the mitigation as proposed in the June 2018 study.

Please call us at 858.300.8800 if you have any questions or comments regarding this proposal.

Sincerely,

Linscott, Law & Greenspan, Engineers



Mr. John P. Keating, P.E.
Principal Engineer